TRANSPORTATION IMPACT STUDY

4933 VICTORIA AVENUE NORTH

TOWN OF LINCOLN
NIAGARA REGION

PREPARED FOR:

4933 VIC COURT GLOBIZEN LP ("GLOBIZEN")

PREPARED BY:

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MAY 2024

CFCA FILE NO. 2571-6892

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Revision Number	Date	Comments
Rev.0	January 2024	Issued for Client Review
Rev.1	May 2024	Issued for First Submission

Executive Summary

4933 Vic Court Globizen LP retained C.F. Crozier & Associates Inc. (Crozier) to undertake a Transportation Impact Study assessing the proposed mixed-use development at 4933 Victoria Avenue North in the Town of Lincoln. The subject lands currently consists of a commercial building, a parking lot, and a single storey detached home. The property, located in a mixed-use area, is immediately bounded by Lake Ontario to the north, Victoria Avenue North to the west, residential properties to the south, and green space to the east.

The elements envisioned for this development include up to 396 residential units, 130 hotel suites, and commercial units consisting of retail space, restaurant, café, event center, spa, a lobby and sky bar, and an outdoor amenity area.

As established though the Terms of Reference, two signalized intersections and five stop-controlled boundary network intersections were analyzed under existing, future background, and future total conditions. The site access along Victoria Avenue North was also analyzed under future total conditions.

The future background and future total conditions were analyzed at two phased build-out years (2025 and 2026), five (5) years after the build-out year (assumed 2031), as well as ten (10) years after the build-out year. Thus, the horizon years assessed were 2025, 2026, 2031, and 2036 respectively.

Under 2023 existing conditions the study intersections are operating acceptably at a LOS C or better, except for the p.m. peak hour at Victoria Avenue and South Service Road and QEW Niagara Bound Ramps and South Service Road which operates at a LOS E. Several movements across the boundary road network experience 95th percentile queuing which exceeds the storage lengths provided.

There are two background developments located near the Subject Lands, Prudhommes Landing and 3221 North Service Road. The trips generated from these sites are included in the future background and future total analysis.

Under the first horizon (2025) the following intersections are anticipated to have several movements operating with v/c ratios greater than 0.85 and have several movements operating over 1.00 by the 2036 horizon year:

- Victoria Avenue North and North Service Road
- QEW Toronto Bound Ramps and North Service Road
- Victoria avenue and South Service Road
- QEW Niagara Bound Ramps and South Service Road

Under 2036 future background conditions, several intersections are expected to operate with high delays, critical v/c ratios and 95th percentile queueing exceeded the available storage.

The proposed development is expected to generate 313 two-way trips during the weekday a.m. peak hour, 373 two-way trips during the weekday p.m. peak hour, and 407 trips during the Saturday peak hour at full build-out.

Under the 2036 future total horizon, the four intersections noted above are expected to continue operating with critical v/c ratios and 95th percentile queues exceeding the available storage, as is also expected under future background conditions. The increase in delay during the 2036 future total operations can be attributed to the trips from the development being added to already failing intersections under the 2036 future background operations.

Several recommendations are made within this study based upon the Zoning By-Law Amendment application for Prudhommes Landing by Prudhommes General Partners Inc. submitted to the Town in July 2019. These road improvements include signalizing all unsignalized intersections in the study area, optimizing signal timing, and adding through, right, and left turn lanes where necessary to alleviate traffic impacts. The Prudhommes report was used as a basis for our study specific recommendations as the status of the Prudhommes report is unknown at this time. In our report, we have taken their recommendations to the next level by adding to them based on the intersection operations contained in this report.

Ongoing monitoring of the study intersections is important to understand the impact of the implementation of the recommendations and the growth experienced by the boundary road network as it is constructed and occupied.

In conclusion, the proposed residential development at 4933 Victoria Avenue North in the Town of Lincoln can be supported from transportation operations perspectives. We trust that this review satisfies any transportation concerns associated with this development.

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1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by 4933 Vic Court Globizen LP ("Globizen") in support of a proposed mixed-use development located at 4933 Victoria Avenue North in the Town of Lincoln. The Transportation Impact Study is in support of the Zoning By-Law Amendment (ZBA). The purpose of the Transportation Impact Study is to evaluate the impacts of the proposed development on the surrounding road network and recommend transportation-related mitigation measures, if required.

The study has been completed in accordance with the agreed upon Terms of Reference (ToR) with the Town of Lincoln (the Town) and Niagara Region (the Region) staff. Correspondence from the City is included in **Appendix A**.

2.0 Development Proposal

The elements envisioned for this development include a 15-storey mixed residential, hotel and retail building, with 396 residential units, 130 hotel suites, a ground floor restaurant, café, event center, spa, a lobby and sky bar, four (4) levels of parking with a total of 637 spaces above and below ground, a multi-use path around the building, and bicycle parking area.

Figure 1 shows the concept plan prepared by gh3.

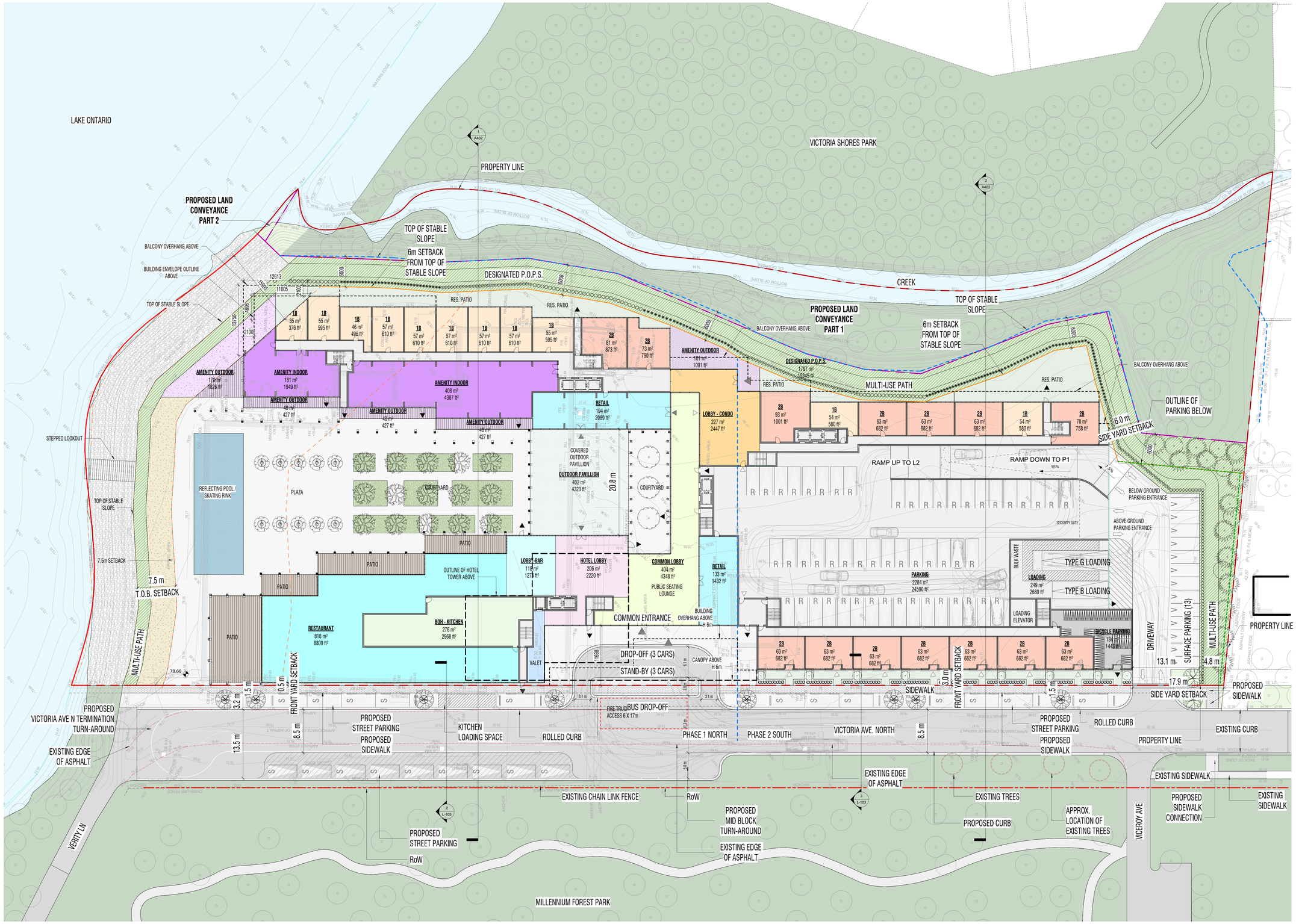
3.0 Existing Conditions

The following section provides a description of the study area from a transportation context, as well as a transportation operations analysis of the study road network.

3.1 Development Lands

The subject lands cover an area of approximately 1.93 ha and and currently consists of a commercial building, a parking lot, and a single storey detached home. The property, located in a mixed-use area, is immediately bounded by Lake Ontario to the north, Victoria Avenue North to the west, residential properties to the south, and green space to the east. Access to the site is provided by an access along Victoria Avenue North at Viceroy Avenue. The site location and surrounding area are illustrated in **Figure 2**.

The Town of Lincoln Zoning By-Law 2022-50 Map has designated the Subject Site as Industrial Zone 1 (IN-1). **Appendix B** contains all zoning maps.



1 A301 | A104 GROUND FLOOR SITE PLAN

1 : 250

1.0 SUMMARY

TOTAL SITE AREA	19,348.3 m²
NET SITE AREA	16,299.1 m²
LAND CONVEYANCE PART 1	3,035.7 m²
LAND CONVEYANCE PART 2	13.5 m²

TOTAL GFA - 46,941 m²
FSI - 2.88

PROPOSED BUILDING SUMMARY

BUILDING	BUILDING TYPE	TOTAL GFA (m²)
BELOW-GRADE NON-PARKING		2,156 m²
BLDG 'A'	RESIDENTIAL	15,354 m²
BLDG 'B'	HOTEL & RETAIL	12,715 m²
BLDG 'C'	RESIDENTIAL	16,716 m²
TOTAL		46,941 m²

2.0 BUILDING HEIGHTS

Building A: 50.8 m (15 Storeys)
Building B: 48.3 m (15 Storeys)
Building C: 47.8 m (14 Storeys)
Building C TOWN: 18.3 m (5 Storeys)

COVERAGE

BUILDING COVERAGE	8502m²
PERCENTAGE OF NET SITE AREA	52.1%

LANDSCAPED AREA

LANDSCAPED AREA SUMMARY

	Area
DESIGNATED P.O.P.S.	1797 m²
PUBLIC LANDSCAPED AREA	2638 m²
TOTAL	4435 m²

PERCENTAGE OF NET SITE AREA 29%

PARKING & LOADING

6.1 CAR PARKING SUMMARY

RESIDENTIAL	VISITOR	OUTDOOR VISITOR	TOTAL ON-SITE PARKING	STREET	TOTAL CAR PARKING
427	197	13	637	21	658

LOADING SUMMARY

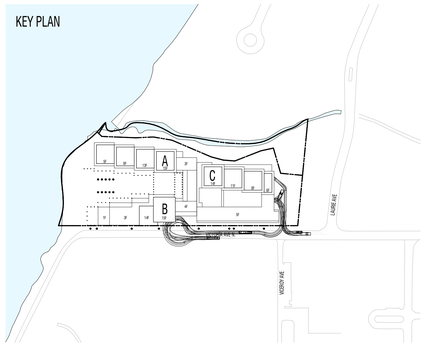
Type	Count
TYPE 'G' LOADING	1
TYPE 'B' LOADING	1
TYPE 'C' LOADING	3

SITE PLAN LEGEND

- PROPERTY LINE
- TOP OF SLOPE
- 6m SET BACK
- DESIGNATED P.O.P.S. (PRIVATELY OWNED PUBLIC SPACE)
- LAND CONVEYANCE
- MAIN RES ENTRANCE
- RES ENTRANCE
- NON-RES ENTRANCE
- EXIT
- VEHICULAR ENTRANCE/EXIT
- PROPOSED CANOPY TREE
- PROPOSED CANOPY TREE
- PROPOSED UNDERSTORY TREE
- EXISTING CONTEXT TREE
- FEATURE PAVERS, PERMEABLE
- PERMEABLE PAVERS WITH SRI ≥ 29
- CONCRETE PAVING SRI VALUE : 29 OR BETTER
- CONCRETE PAVING SRI VALUE : 29 OR BETTER
- WOOD DECKING SRI VALUE : 29 OR BETTER
- ARTIFICIAL TURF GRASS / DOG RELIEF AREA
- BICYCLE LANE
- BLACK MULCH
- CONCRETE SIDEWALK PAVING SRI ≥ 29
- BALLAST ROOF
- INTENSIVE GREEN ROOF

REFER TO LANDSCAPE PLAN FOR HARDSCAPE AND PLANTING DETAILS

KEY PLAN



NOTES

- A TRAINED ON-SITE STAFF MEMBER MUST BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING. IN THE EVENT THE ON-SITE STAFF MEMBER IS UNAVAILABLE AT THE TIME THE CITY COLLECTION VEHICLES ARRIVAL AT THE SITE, THE COLLECTION VEHICLE WILL LEAVE THE SITE AND NOT RETURN UNTIL THE NEXT SCHEDULED COLLECTION DAY.
- TYPE G LOADING 6.1m MINIMUM VERTICAL CLEARANCE. MINIMUM 200mm THICK REINFORCED CONCRETE SLAB IN LOADING SPACE AND STAGING AREA. FLOOR GRADE NOT TO EXCEED +/-2%
- THE OVERHEAD DOOR ADJACENT TO THE TYPE G LOADING AREA WILL BE OPEN UPON THE ARRIVAL OF THE TRUCK TO ALLOW IT TO REVERSE FORM THE TYPE G LOADING AREA ENABLING IT TO EXIT THE SITE IN A FORWARD MOTION.
- A WARNING SYSTEM IS TO BE PROVIDED TO CAUTION MOTORISTS LEAVING THE PARKING GARAGE OF HEAVY VEHICLES WHEN LOADING. SYSTEM TO INCLUDE LIGHTS AND SIGNS.
- ALL ACCESS DRIVEWAYS TO BE USED BY THE COLLECTION VEHICLE TO HAVE A MAXIMUM GRADIENT OF 8%, HAVE A MINIMUM VERTICAL CLEARANCEOF 4.4 METERS THROUGHOUT, A MINIMUM WIDTH OF 4.5 METERS THROUGHOUT AND BE 6 METERS WIDE AT POINT OF INGRESS AND EGRESS.
- PROPOSED ACCESS ROUTE FOR WASTE COLLECTION VEHICLE TO HAVE MMINIMUM 4.4M VERTICAL CLEARANCE THROUGHOUT AND DESIGNED TO SAFELY SUPPORT 35,000 KG.
- STRUCTURAL ENGINEER TO DESIGN AREA TO CONFORM AS FOLLOWS:
  (A) DESIGN CODE -ONTARIO BUILDING CODE
  (B) DESIGN LOAD -CITY BULK LIFT VEHICLE IN ADDITION TO BUILDING CODE REQUIREMENTS
  (C) IMPACT FACTOR--5% FOR MAX. VEHICULAR SPEEDS TO 15KM/H AND 30% FOR HIGHER SPEEDS.
- NON-RESIDENTIAL COMPONENT WILL ONLY SCHEDULE USE OF THE TYPE G LOADING SPACE ON DIFFERENT DAYS FROM THE COLLECTION DAYS OF THE RESIDENTIAL COMPONENT TO ENSURE THAT THE TYPE G LOADING SPACE WILL BE VACANT FOR CITY WASTE COLLECTION.
- A FIRE ACCESS ROUTE MIN. 6m WIDE WITH 5m HEIGHT CLEARANCE, CHANGE IN GRADIENT NOT MORE THAN 8% IN 15m; LOAD SUPPORT SUFFICIENT FOR EQUIPMENT; SURFACE TO BE ACCESSIBLE IN ALL CLIMATICE CONDITION FOR ALL TRUCK DIAGRAM MOVEMENT REFER TO TRAFFIC CONSULTANT REPORT - PATH SHOWN FOR CONTEXT
- FIRE ACCESS ROUTE MIN. 6m WIDE WITH 5m HEIGHT CLEARANCE, CHANGE IN GRADIENT NOT MORE THAN 8% IN 15m; LOAD SUPPORT SUFFICIENT FOR EQUIPMENT; SURFACE TO BE ACCESSIBLE IN ALL CLIMATICE CONDITION FOR ALL TRUCK DIAGRAM MOVEMENT REFER TO TRAFFIC CONSULTANT REPORT - PATH SHOWN FOR CONTEXT
- BE ADVISED THAT SHOULD ANY PARTY INCLUDING THE OWNER OR ANY SUBSEQUENT OWNER , APPLY FOR MORE THAN ONE CONDOMINIUM CORPORATION ENCOMPASSING ANY OR ALL OF THIS DEVELOPMENT OR MAKE AN APPLICATION THAT RESULTS IN A LAND DIVISION, STAFF MAY REQUIRE LEGAL ASSURANCES, INCLUDING BUT NOT LIMITED TO EASEMENTS, WITH RESPECT TO THE APPROVED SERVICES. SUCH ASSURANCES WILL BE DETERMINED AT THE TIME OF APPLICATION FOR CONDOMINIUM APPROVAL

4933 VICTORIA AVENUE NORTH, VINELAND - CHART COMPARING ZONING REQUIREMENTS TO DRAFT BY-LAW PROVISIONS (12-MAR-2024)

TOWN OF LINCOLN - ZONING BY-LAW 2022-70 - GENERAL COMMERCIAL (GC), OPEN SPACE (OS) and ENVIRONMENTAL CONSERVATION (EZ) ZONES

ZONE	GENERAL COMMERCIAL (GC) ZONE	
DESCRIPTION	REQUIRED	PROPOSED
PERMITTED USE	HOTEL, APARTMENT, COMMERCIAL	
MIN. LOT AREA	1,000m2	16,229m2
MIN. LOT FRONTAGE	15m	226m
MIN. FRONT YARD SETBACK	3.0m	0.0m, EXCEPT, 3.0m TO A DWELLING UNIT
MIN. INTERIOR SIDE YARD SETBACK	4.5m	6.0m
	EXCEPT THAT WHERE THE INTERIOR SIDE YARD ABUTS R1 OR R2 ZONE, ANY PORTION OF THE HEIGHT OF A BUILDING IS GREATER THAN 15 METRES SHALL BE SETBACK A MINIMUM DISTANCE OF THE HEIGHT OF THE BUILDING	15.0m
MIN. EXTERIOR SIDE YARD SETBACK	3.0m	-
MIN. REAR YARD SETBACK	7.5m	5.0m
	EXCEPT THAT WHERE THE REAR YARD ABUTS R1 OR R2 ZONE, ANY PORTION OF THE HEIGHT OF A BUILDING IS GREATER THAN 15 METRES SHALL BE SETBACK A MINIMUM DISTANCE OF THE HEIGHT OF THE BUILDING	-
MAX. FRONT AND EXTERIOR SIDE YARD	6.0m	12.0m
MIN. SETBACK TO STABLE TOP OF BANK	-	6.0m
MAX. LOT COVERAGE	40%	N/A
MAX. BUILDING HEIGHT	12.5m	54m
MIN. BUILDING HEIGHT	N/A	N/A
MIN. LANDSCAPED OPEN SPACE	20%	0.15%
MAX. OVERALL BUILDING AREA	N/A	N/A
MIN. PERCENTAGE OF WINDOWS AND DOORS ALONG ANY FACADE FACING ANY STREETLINE	25%	MIN. 25% OF BUILDING FACADE FACING PUBLIC STREET SHALL BE FURNISHED BY GLAZING AND/OR GREEN WALL
MIN. WINDOW HEIGHT ON WINDOWS FACING ANY STREETLINE	1.8m	-
MAX. WINDOW SILL HEIGHT ON WINDOWS FACING ANY STREETLINE	1.2m	-
RETAIL USE AREA	MAX. 1,000m2 PER INDIVIDUAL USE ON GROUND FLOOR	MAX. 1,500m2 PER INDIVIDUAL USE ON GROUND FLOOR
MIN. PLANING STRIP WIDTH ADJACENT TO R1 AND R2 ZONE	3.0m	3.0m
MIN. AMENITY AREA	-	4.0m2 PER DWELLING UNIT
MAX. DWELLING UNITS AREA ON GROUND FLOOR	-	50 DWELLING UNITS MAY BE PLACED ON THE GROUND FLOOR PROVIDED THEY DO NOT OCCUPY MORE THAN 50% OF THE GROUND FLOOR OF THE BUILDING, APPLICABLE TO ALL DWELLINGS COLLECTIVELY
PARKING		
REQUIRED PARKING SPACES DWELLING UNIT IN A MIXED USE DEVELOPMENT	1 PER UNIT	1 PER UNIT PLUS 0.1 VISITOR SPACES PER UNIT
HOTEL	1 SPACE PER GUEST ROOM	0.75 PER HOTEL SUITE
BAR (OTHER)	1 SPACE PER 30m2 OF GROSS FLOOR AREA	1 SPACE PER 30m2 OF PUBLIC FLOOR AREA
CAFÉ (OTHER)	1 SPACE PER 30m2 OF GROSS FLOOR AREA	1 SPACE PER 30m2 OF PUBLIC FLOOR AREA
RETAIL	1 SPACE PER 30m2 OF GROSS FLOOR AREA	1 SPACE PER 30m2 OF PUBLIC FLOOR AREA
PLACE OF ENTERTAINMENT	1 SPACE PER 6 SEATS OR 1 SPACE PER 10m2 OF GROSS FLOOR AREA	1 SPACE PER 20m2 OF PUBLIC FLOOR AREA
RESTAURANT	DINING 1 SPACE PER 4.5m2 OF PUBLIC FLOOR AREA	1 SPACE PER 10m2 OF PUBLIC FLOOR AREA
PERSONAL SERVICE USE	1 SPACE PER 30m2 OF GROSS FLOOR AREA	1 SPACE PER 30m2 OF PUBLIC FLOOR AREA
ALL OTHER USES	IN ACCORDANCE WITH PROVISIONS OF SECTION 4	IN ACCORDANCE WITH PROVISIONS OF SECTION 4
ACCESSIBLE PARKING SPACES	0-12 REQUIRED: 1 TYPE A	-
	13-100 REQUIRED: 4% OF REQUIRED; 50% TYPE A AND 50% TYPE B	-
	100-200 REQUIRED: 1 + 3% OF REQUIRED; 50% TYPE A AND 50% TYPE B	NOT SHOWN IN CURRENT PRELIMINARY CONCEPT PLAN BUT WILL BE PROVIDED.
	201-1000 REQUIRED: 2 + 2% OF REQUIRED; 50% TYPE A AND 50% TYPE B	-
MIN. PARKING SPACE SIZE	5.8m x 2.75m	5.6m x 2.6m
MIN. BARRIER-FREE ACCESSIBLE SPACE SIZE	TYPE A: 3.4m x 5.5m	-
	TYPE B: 2.75m x 5.5m	-
MIN. BARRIER-FREE ACCESSIBLE AISLE WIDTH	1.5m	-
MIN. TWO-WAY TRAFFIC AISLE	6.7m	6.0m
MIN. PARKING SETBACK FROM ANY STREETLINE OR REAR LOT LINE	3.0m	3.0m FROM STREETLINE
MIN. PARKING SETBACK FROM A RESIDENTIAL OR INSTITUTIONAL ZONE	3.0m	3.0m
REQUIRE BICYCLE PARKING SPACES	DWELLING UNIT IN A MIXED USE DEVELOPMENT: 0.25 SPACES PER DWELLING UNIT	0.15 LONG-TERM SPACE PER DWELLING UNIT
	HOTEL: 1.0 SPACE PER 100m2 OF GROSS FLOOR AREA	-
	OTHER: 1.0 SPACES PER 200m2 OF GROSS FLOOR AREA	-
	RETAIL: 1.0 SPACES PER 200m2 OF GROSS FLOOR AREA	-
	PLACE OF ENTERTAINMENT: -	-
	EATING ESTABLISHMENT: 1.0 SPACES PER 100m2 OF GROSS FLOOR AREA	-
	PERSON SERVICE USE: -	-
ENCROACHMENTS		
BALCONIES, CANOPIES, DROP AWNINGS, UNENCLOSED PORCHES	2.0m	2.5m INTO ANY REQUIRED YARD, EXCEPT 2.0m INTO ANY REQUIRED YARD ABUTTING R1 AND R2 ZONE
GENERAL PROVISIONS		
LANDSCAPED STRIPS WIDTH ABUTTING AN AGRICULTURAL OR RESIDENTIAL ZONE	3.0m	3.0m

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2. The Architectural Drawings are to be read in conjunction with all other Contract Documents including the Project Manuals and the Structural, Mechanical and Electrical Drawings. In cases of difference between the Consultants' documents with respect to the quantity, sizes or scope of work, the greater shall apply.
3. Positions of exposed or finished Mechanical or Electrical devices, fittings and fixtures are indicated on the Architectural Drawings. Locations shown on the Architectural Drawings shall govern over Mechanical and Electrical Drawings. Mechanical and Electrical items not clearly located will be located as directed by the Architect.
4. Dimensions indicated are taken between the faces of finished surfaces unless otherwise noted.
5. The architect has not been retained for supervision of construction and assumes no responsibility for means, methods and techniques of construction.
6. These documents are not to be used for construction unless specifically noted for such purpose.

Rev.	Date	Issued

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Globizen
VINELAND

4933 VICTORIA AVENUE NORTH

Project North True North

SCALE As indicated
PROJECT NO. 202302
ISSUE DATE February, 23, 2024

GROUND FLOOR SITE PLAN

A104

	4933 Victoria Avenue North	CROZIER CONSULTING ENGINEERS	**Figure 2**
	Site Location		Project No. 2571-6892 Date. April 2024 Analyst. Shaira Ahmed

3.2 Study Roadways

The study roadways described in **Table 1** was reviewed as part of the study area (per confirmation with the Town). The information below was obtained from the Town of Lincoln Official Plan Schedule D1. Relevant maps can be found in **Appendix B**.

Table 1: Study Roadways

Roadway	Direction	Road Classification	Jurisdiction	Posted Speed Limit	Lanes per Direction
North Service Road	East-West	Arterial	Town of Lincoln	80 km/h west of Victoria Avenue North 60 km/h east of Victoria Avenue North	1
Victoria Avenue North	North-South	Arterial (South of North Service Road) Local (North of North Service Road)		50 km/h	1
Viceroy Avenue	East-West	Local		50 km/h	1
Laurie Avenue	East-West	Local		50 km/h	1
Dustan Street	East-West	Local		50 km/h	1
South Service Road	East-West	Arterial		80 km/h	1
QEW Niagara Bound Ramps	North-South	Provincial Highway		50 km/h	1
QEW Toronto Bound Ramps	North-South	Provincial Highway		30 km/h	1

3.3 Study Intersections

The following intersections were reviewed as part of the study area (per confirmation with the City).

Victoria Avenue North and North Service Road

The existing four-legged intersection of Victoria Avenue North and North Service Road is all-way stop-controlled. The westbound and eastbound approach (North Service Road) both consist of an exclusive left-turn lane and one shared through and right-turn lane. The southbound approach (Victoria Avenue North) consists of one through/right/left shared lane. The northbound approach (Victoria Avenue) consists of one left-turn lane, one through lane, and a channelized right-turn lane.

Victoria Avenue North and Dustan Street

The existing three-legged intersection of Victoria Avenue North and Dustan Street is stop-controlled along the westbound direction. The northbound and southbound approach (Victoria Avenue North) both consist of one through/right/left shared lane. The westbound approach (Dustan Street) consists of one through/right/left shared lane.

Victoria Avenue North and Laurie Avenue

The existing three-legged intersection of Victoria Avenue North and Laurie Avenue is stop-controlled along the westbound direction. The northbound and southbound approach (Victoria Avenue North) both consist of one through/right/left shared lane. The westbound approach (Laurie Avenue) consists of one through/right/left shared lane.

Victoria Avenue North and Viceroy Avenue

The existing three-legged intersection of Victoria Avenue North and Viceroy Avenue is stop-controlled along the eastbound direction. The northbound and southbound approach (Victoria Avenue North) both consist of one through/right/left shared lane. The eastbound approach (Laurie Avenue) consists of one through/right/left shared lane.

Victoria Avenue and South Service Road

The existing four-legged intersection of Victoria Avenue and South Service Road is a signalized intersection. The westbound and eastbound approach (South Service Road) both consists of an exclusive left-turn lane. The westbound approach has a through and exclusive right turn lane. The eastbound approach has a shared through and right turn lane. The southbound approach (Victoria Avenue) consists of one through and right turn shared lane and an exclusive left turn lane. The northbound approach (Victoria Avenue) consists of one left-turn lane, one through lane, and one right-turn lane.

QEW Toronto Bound Ramps and North Service Road

The existing three-legged intersection of the QEW Toronto bound ramps and North Service Road is a signalized intersection. The westbound and eastbound approach (North Service Road) both consists of a through lane. The westbound approach has an exclusive left turn lane, and the eastbound approach has an exclusive right turn lane leading onto the on-ramp. The northbound approach (QEW ramps) consists of one lane that widens as it approaches the intersection to accommodate one left and one right turn lane at the off-ramp.

QEW Niagara Bound Ramps and South Service Road

The existing three-legged intersection of the QEW Niagara bound ramps and South Service Road is a stop-controlled intersection. The eastbound approach (South Service Road) consists of a through lane and an exclusive left turn lane. The westbound approach has a shared through and right turn lane leading onto the on-ramp. The southbound approach (QEW ramps) consists of one lane that widens as it approaches the intersection to accommodate one left turn lane and one channelized right turn lane at the off-ramp.

3.4 Cycling Routes

Cyclists are provided with on-road cycling routes along both sides of North Service Road and along Victoria Avenue North, north of North Service Road. The route travels along most of the road. South of North Service Road, Victoria Avenue South has a paved shoulder for on-road cycling.

3.5 Traffic Data

Turning movement counts at the intersection of Victoria Avenue North and North Service Road, Victoria Avenue North and Dustan Street, Victoria Avenue North and Laurie Avenue, Victoria Avenue North and Viceroy Avenue, QEW Toronto Bound Ramps and North Service Road, and QEW Niagara Bound Ramps and South Service Road were provided by Spectrum Traffic. The counts were undertaken on November 16, 2023, between the hours of 6:00 a.m. – 10:00 a.m. and 3:00 p.m. – 7:00 p.m. for the a.m. and p.m. peak periods, respectively.

The counts for South Service Road and Victoria Avenue were provided by the Niagara Region, and were undertaken on August 9, 2023, between the hours of 7:00 a.m. - 9:00 a.m. and 3:00 p.m. – 7:00 p.m. for the a.m. and p.m. peak periods, respectively.

The counts for the Saturday midday peak period for the QEW Toronto Bound Ramps and North Service Road, and QEW Niagara Bound Ramps and South Service Road were prepared by Ontario Traffic and provided by the Niagara Region. The counts were undertaken on January 27, 2018, between the hours of 11:00 a.m. and 3:00 p.m. A 2% growth rate was applied to data taken prior to 2019 as agreed upon by the Town, Region, and MTO. As the Saturday counts were taken during the winter, the MTO seasonal growth rate factor 1.43 was applied to calculate summer seasonal traffic.

Table 2: Intersections and Peak Hours

Intersection	Weekday A.M. Peak Period	Weekday P.M. Peak Period	Saturday Midday Peak Period
Victoria Avenue North and North Service Road	7:45 A.M. – 8:45 A.M.	4:30 P.M. – 5:30 P.M.	n/a
Victoria Avenue North and Dustan Street	8:00 A.M. - 9:00 A.M.	4:00 P.M. – 5:00 P.M.	n/a
Victoria Avenue North and Laurie Avenue	8:00 A.M. - 9:00 A.M.	4:15 P.M – 5:15 P.M.	n/a
Victoria Avenue North and Viceroy Avenue	8:00 A.M. - 9:00 A.M.	3:00 P.M. – 4:00 P.M.	n/a
Victoria Avenue and South Service Road	8:00 A.M. – 9:00 A.M.	3:00 P.M. – 4:00 P.M.	n/a
QEW Toronto Bound Ramps and North Service Road	7:30 A.M. – 8:30 A.M.	3:00 P.M. – 4:00 P.M.	11:00 A.M. – 12:00 P.M.
QEW Niagara Bound Ramps and South Service Road	7:45 A.M. – 8:45 A.M.	4:15 P.M. – 5:15 P.M.	12:45 P.M. – 1:45 P.M.

Traffic Data is found in **Appendix C**.

3.6 Traffic Modelling

The assessment of intersections is based on the method outlined in the "Highway Capacity Manual, 2010" using Synchro 11 modeling software. Intersections are assessed using a LOS metric, with ranges of delay assigned a letter from "A" to "F". For example, if the LOS A means free flow conditions with unimpeded maneuverability, and LOS F means extremely low low-speed vehicle maneuverability, and high delay.

For signalized intersections, a LOS "A" or "B" would typically be measured during off-peak hours when lesser traffic volumes are on the roadways resulting in no or minor delays for vehicles travelling through these intersections. LOS "C" through "F" are often measured in the commuter peak hours when greater vehicle volumes cause longer wait times resulting in longer travel times. The LOS definitions for signalized and stop control intersections is included in **Appendix D**.

3.7 Intersection Operations

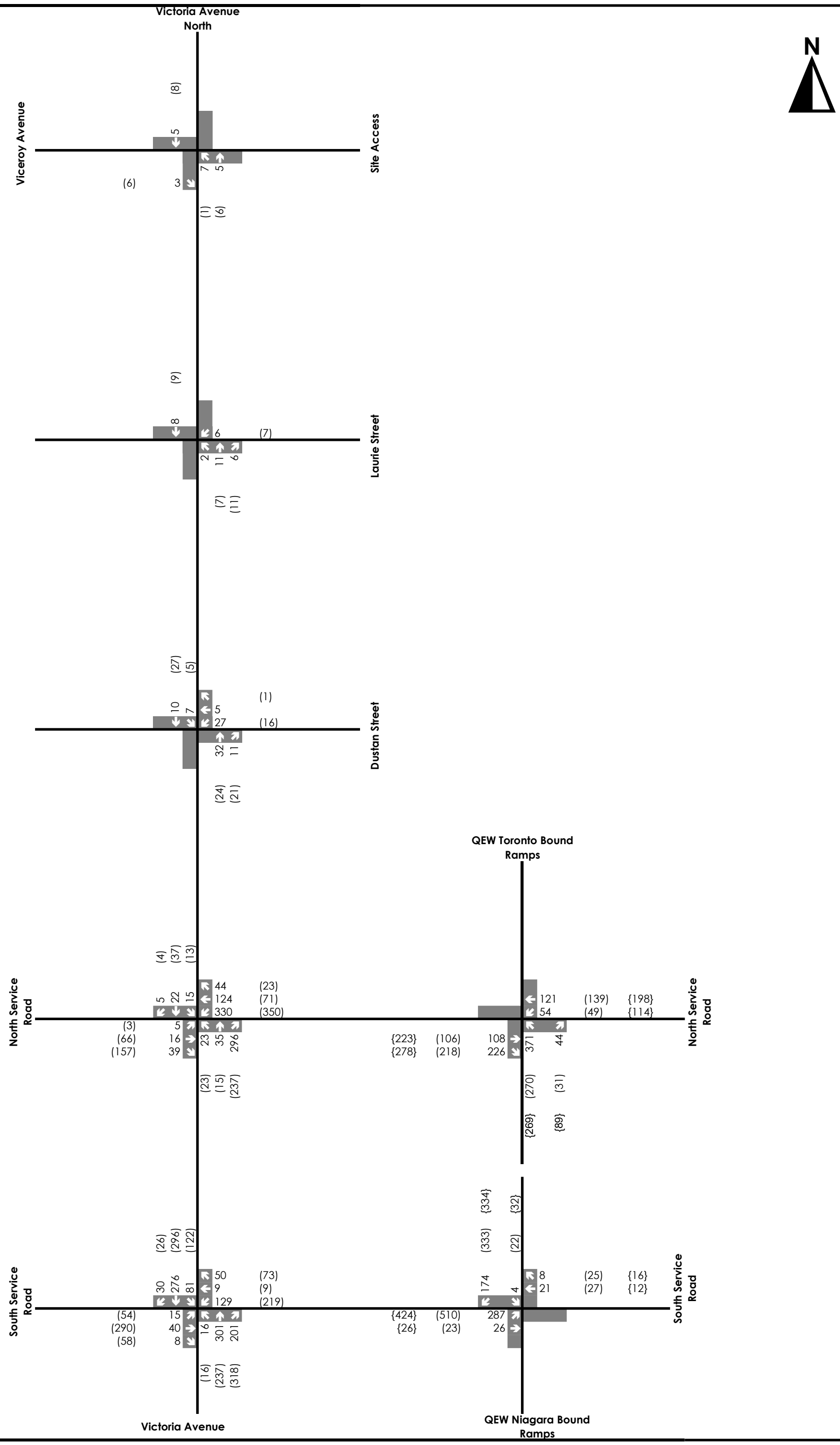
The existing conditions analyzed in the year 2023 are illustrated in **Figure 3**. Levels of Service based on current operations are outlined in **Table 3.**

Table 3: 2023 Existing Conditions

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	B	16.9	0.64 (WBL)	None
		P.M.	B	15.2	0.59 (WBL)	None
		Saturday	n/a	n/a	n/a	n/a
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	A	9.1	0.04 (WBLR)	None
		P.M.	A	9.0	0.02 (WBLR)	None
		Saturday	n/a	n/a	n/a	n/a
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	A	9.1	0.01 (WBLR)	None
		P.M.	A	8.8	0.01 (WBLR)	None
		Saturday	n/a	n/a	n/a	n/a
Victoria Avenue North and Viceroy Avenue	Stop Controlled	A.M.	A	9.0	0.01 (EBLR)	None
		P.M.	A	8.4	0.01 (EBLR)	None
		Saturday	n/a	n/a	n/a	n/a
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	B	18.9	0.75 (NBL)	61.8 m > 50 m (NBL)
		P.M.	B	14.8	0.51 (NBL)	54.3 m > 50 m (NBL)
		Saturday	C	30.2	1.12 (WBL)	63.4 m > 50 m (NBL)
Victoria Avenue and South Service Road	Signalized	A.M.	B	11.4	0.48 (WBL)	40.2 m (WBL)
		P.M.	**E**	**56.8**	**1.37 (EBTR)**	113 m > 72 m (EBL)
		Saturday	n/a	n/a	n/a	n/a
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	C	17.7	0.02 (SBL)	None
		P.M.	**E**	**36.1**	0.17 (SBL)	None
		Saturday	B	26.2	0.17 (SBL)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Based on the analysis, the eastbound movement at Victoria Avenue and South Service Road is forecast to operate at LOS E with a v/c 1.37 during the weekday p.m. peak hour. No other critical movements are noted at the study area intersections. The northbound, westbound, and eastbound 95th queue lengths at the QEW Toronto Bound / North Service Road and Victoria Avenue / South Service Road are projected to exceed the storage lane length. The 95th queue lengths are forecast to be accommodated within the existing turn-lane storage lengths and are not expected to impact upstream or downstream intersections. **Appendix E** contains the detailed capacity analysis.



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2023 Existing Conditions

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Figure 3

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4.0 Future Background Conditions

Future background conditions refer to traffic conditions incorporating expected growth, development and improvements within the surrounding intersections occurring within the study horizons, outside of the development proposal.

4.1 Horizon Year

As confirmed with the Town of Lincoln the horizon years selected to assess the impacts of the proposed development include:

- Phase 1 build-out: 2025
- Full build-out: 2026
- Five years from full build-out: 2031
- Ten years from full-build out: 2036

Future background traffic volumes for horizon years consist of the following components:

- Background traffic growth from outside the study area.
- Traffic generated within the study area from other proposed developments.

4.2 Traffic Growth Rates

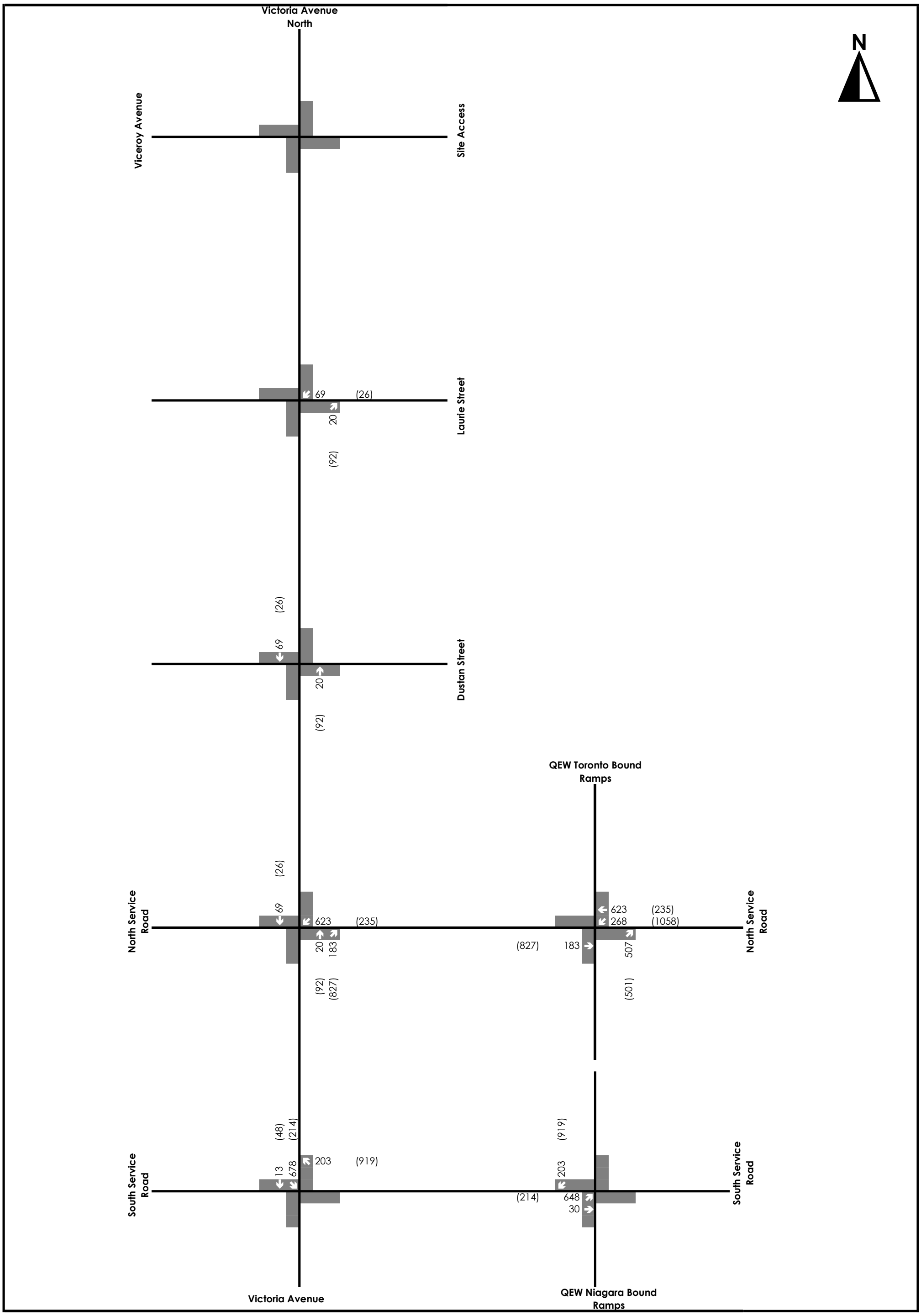
Per discussion with the Town of Lincoln and Niagara Region an industry standard rate of 2% was applied to traffic along all roadways in the study area per discussion with staff.

4.3 Background Developments

The Town of Lincoln staff requested the inclusion of traffic generated by the two background developments near the Subject Lands. As traffic studies were not prepared for the background developments, the trips generation and assignment of the background developments were estimated using the same methodology used in this study. **Table 4** summarizes the estimated trip generation of the background developments. **Figure 4** and **Figure 5** illustrates the estimated trip assignment of the background developments within the study area.

Table 4: Background Developments

Background Development	ITE Category (LUC)	# of Units/GFA	A.M. Peak Hour Trip Estimate	P.M. Peak Hour Trip Estimate	Saturday Peak Hour Trip Estimate
Prudhommes	Single-Family Detached (210)	96	Inbound: 18 Outbound: 54	Inbound: 60 Outbound: 35	Inbound: 50 Outbound: 42
	Multifamily Housing (Low-Rise) (220)	347	Inbound: 33 Outbound: 105	Inbound: 111 Outbound: 65	n/a
	Multifamily Housing (High-Rise) (222)	2834	Inbound: 199 Outbound: 566	Inbound: 562 Outbound: 345	Inbound: 582 Outbound: 439
	Multifamily Housing Mid-Rise (221)	399	Inbound: 43 Outbound: 126	Inbound: 95 Outbound: 61	Inbound: 82 Outbound: 79
	General Office Building (710)	17,737 m^2	Inbound: 237 Outbound: 32	Inbound: 45 Outbound: 222	n/a
	Shopping Center (>150k) (LUC 820)	24,607 m^2	Inbound: 180 Outbound: 110	Inbound: 546 Outbound: 592	Inbound: 725 Outbound: 669
3221 North Service Road	Single-Family Detached (210)	453	Inbound: 79 Outbound: 238	Inbound: 268 Outbound: 158	Inbound: 225 Outbound: 192



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

Prudhommes Trip Assignment

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Figure 4

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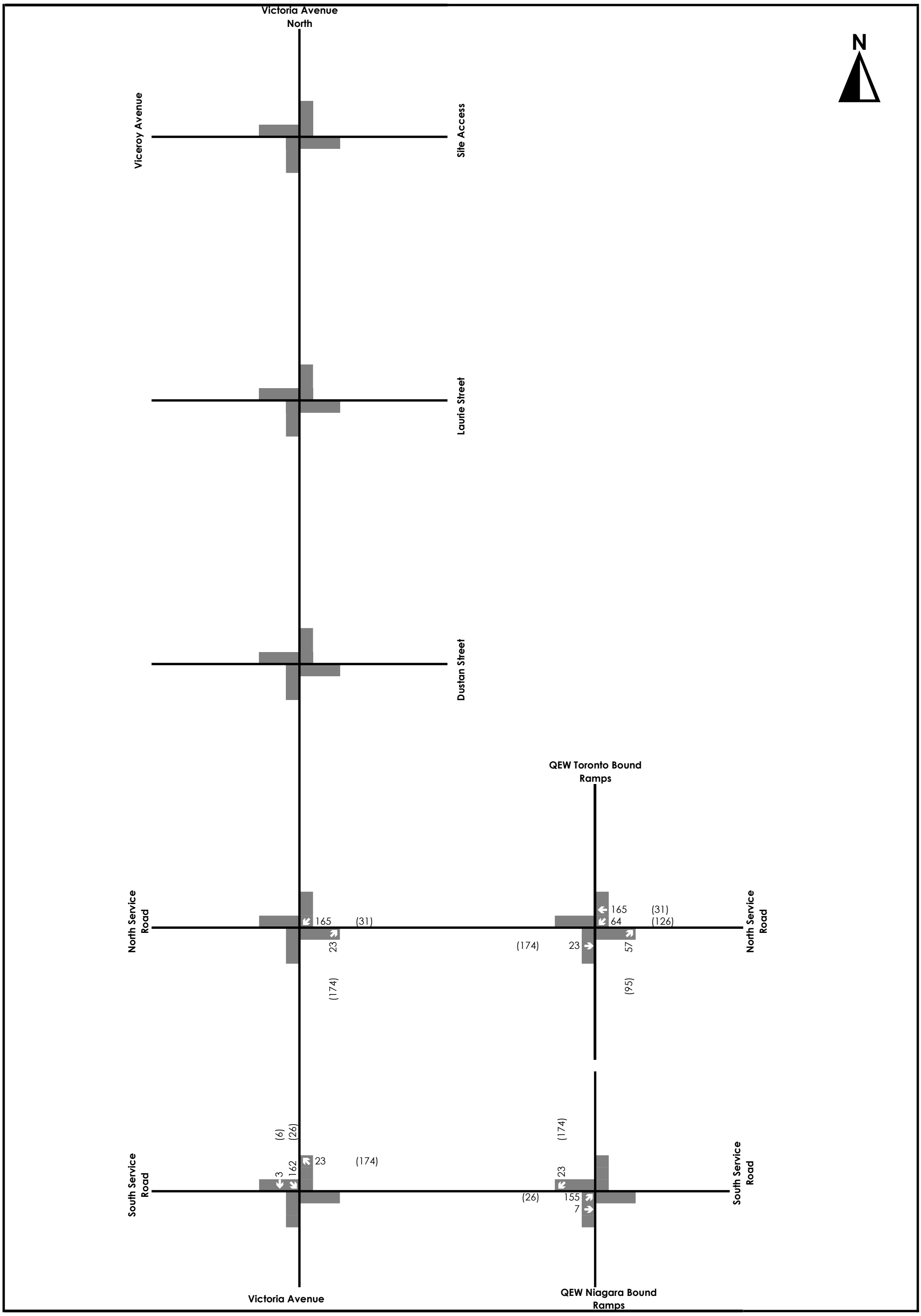

Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

3221 North Service Road Trip Assignment

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Figure 5

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed

4.4 Intersection Operations

Traffic operations at the study intersections were analyzed following addition of volumes from associated growth rates. **Table 5, Table 6, Table 7,** and **Table 8** summarizes the Future Background Operations. **Appendix D** contains the Level of Service definitions and **Appendix E** contains the detailed capacity analysis.

Table 5: 2025 Future Background Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**632.7**	**2.36 (WBL)**	**188.6 m > 160 m (WBL)**
		P.M.	**F**	**125.1**	**1.20 (WBL)**	**256.1 m > 240 m (NBR)**
		Saturday	D	32.6	**0.95 (NBR)**	**204.3 m > 160 m (WBL)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	A	9.9	0.05 (WB)	None
		P.M.	A	9.9	0.03 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	B	10.2	0.15 (WB)	None
		P.M.	A	9.5	0.06 (WB)	None
		Saturday	A	9.3	0.13 (WB)	None
Victoria Avenue North and Viceroy Avenue	Stop Controlled	A.M.	A	9.0	0.01 (EB)	None
		P.M.	A	8.4	0.01 (EB)	None
		Saturday	A	8.4	0.01 (EB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**205.0**	**3.10 (WBL)**	**202 m > 152 m (WBL) 58.7 m > 50 m (NBL)**
		P.M.	**F**	**1379.4**	**9.52 (WBL)**	**160.3 m > 152 m (WBL) 67 m > 50 m (NBL)**
		Saturday	**F**	**306.5**	**4.05 (WBL)**	**197.4 m > 152 m (WBL) 60.6 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**160.0**	**1.79 (SBL)**	**284.2 m > 269 m (SBL)**
		P.M.	**F**	**129.4**	**1.51 (WBR)**	**104.4 m > 72 m (EBL) 185.3 m > 120 m (WBL) 54.9 m > 45 m (WBR) 89.5 m > 68 m (NBR)**
		Saturday	**F**	**211.9**	**2.07 (SBL)**	**290.4 m > 269 m (SBL)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**1738.3**	**1.45 (SBL)**	None
		P.M.	**F**	**158.1**	0.56 (SBL)	None
		Saturday	**F**	**1164.8**	**1.03 (SBL)**	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Table 6: 2026 Future Background Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**641.8**	**2.39 (WBL)**	**182 m > 160 (WBL)**
		P.M.	**F**	**131.3**	**1.21 (WBL)**	**256.1 m > 240 m (NBR)**
		Saturday	D	32.6	**0.95 (NBR)**	**319 m > 240 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	A	9.9	0.05 (WB)	None
		P.M.	A	9.9	0.03 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	B	10.2	0.15 (WB)	None
		P.M.	A	9.5	0.06 (WB)	None
		Saturday	A	9.0	0.04 (WB)	None
Victoria Avenue North and Viceroy Avenue	Stop Controlled	A.M.	A	9.0	0.01 (EB)	None
		P.M.	A	8.4	0.01 (EB)	None
		Saturday	A	0.0	0.00 (EB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**206.1**	**3.11 (WBL)**	**209.1 m > 152 m (WBL) 59.8 m > 50 m (NBL)**
		P.M.	**F**	**1376.2**	**9.52 (WBL)**	**160.3 m > 152 m (WBL) 67 m > 50 m (NBL)**
		Saturday	**F**	**1690.7**	**11.72 (WBL)**	**166.2 m > 152 m (WBL) 64.8 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**162.6**	**1.81 (SBL)**	**290.3 m > 269 m (SBL)**
		P.M.	**F**	**132.7**	**1.52 (WBR)**	**104.4 m > 72 m (EBL) 89.5 m > 68 m (NBR)**
		Saturday	**D**	**41.7**	**1.06 (WBR)**	**52.7 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**1845.2**	**1.53 (SBL)**	None
		P.M.	**F**	**176.9**	0.61 (SBL)	None
		Saturday	**F**	**99.1**	0.51 (SBL)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.

Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.

Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Table 7: 2031 Future Background Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**686.8**	**2.49 (WBL)**	**180.4 m > 160 m (WBL)**
		P.M.	**F**	**169.6**	**1.31 (WBL)**	**248.2 m > 240 m (NBR)**
		Saturday	**F**	**62.0**	**1.07 (NBR)**	**244.3 m > 244 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	A	10.0	0.05 (WB)	None
		P.M.	A	10.0	0.03 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	B	10.2	0.15 (WB)	None
		P.M.	A	9.5	0.06 (WB)	None
		Saturday	A	9.0	0.04 (WB)	None
Victoria Avenue North and Viceroy Avenue	Stop Controlled	A.M.	A	9.0	0.01 (EB)	None
		P.M.	A	8.4	0.01 (EB)	None
		Saturday	A	0.0	0.00 (EB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**210.3**	**3.16 (WBL)**	**175.0 m > 152 m (WBL) 59.0 m > 50 m (NBL)**
		P.M.	**F**	**1363.1**	**9.57 (WBL)**	**159.8 m > 152 m (WBL) 66.9 m > 50 m (NBL)**
		Saturday	**F**	**1880.0**	**12.84 (WBL)**	**164.5 m > 152 m (WBL) 65.7 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**179.3**	**1.94 (SBL)**	**283.4 m > 269 m (SBL)**
		P.M.	**F**	**148.1**	**1.61 (EB)**	**104.8 m > 72 m (EBL) 180.6 m > 120 m (WBL) 52.6 m > 45.0 (WBR) 91.3 m > 68.0 m (NBR)**
		Saturday	**D**	**41.7**	**1.06 (WBR)**	**55.1 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**2513.6**	**2.01 (SBL)**	None
		P.M.	**F**	**297.1**	0.87 (SBL)	None
		Saturday	**F**	**322.6**	**1.08 (SBL)**	None

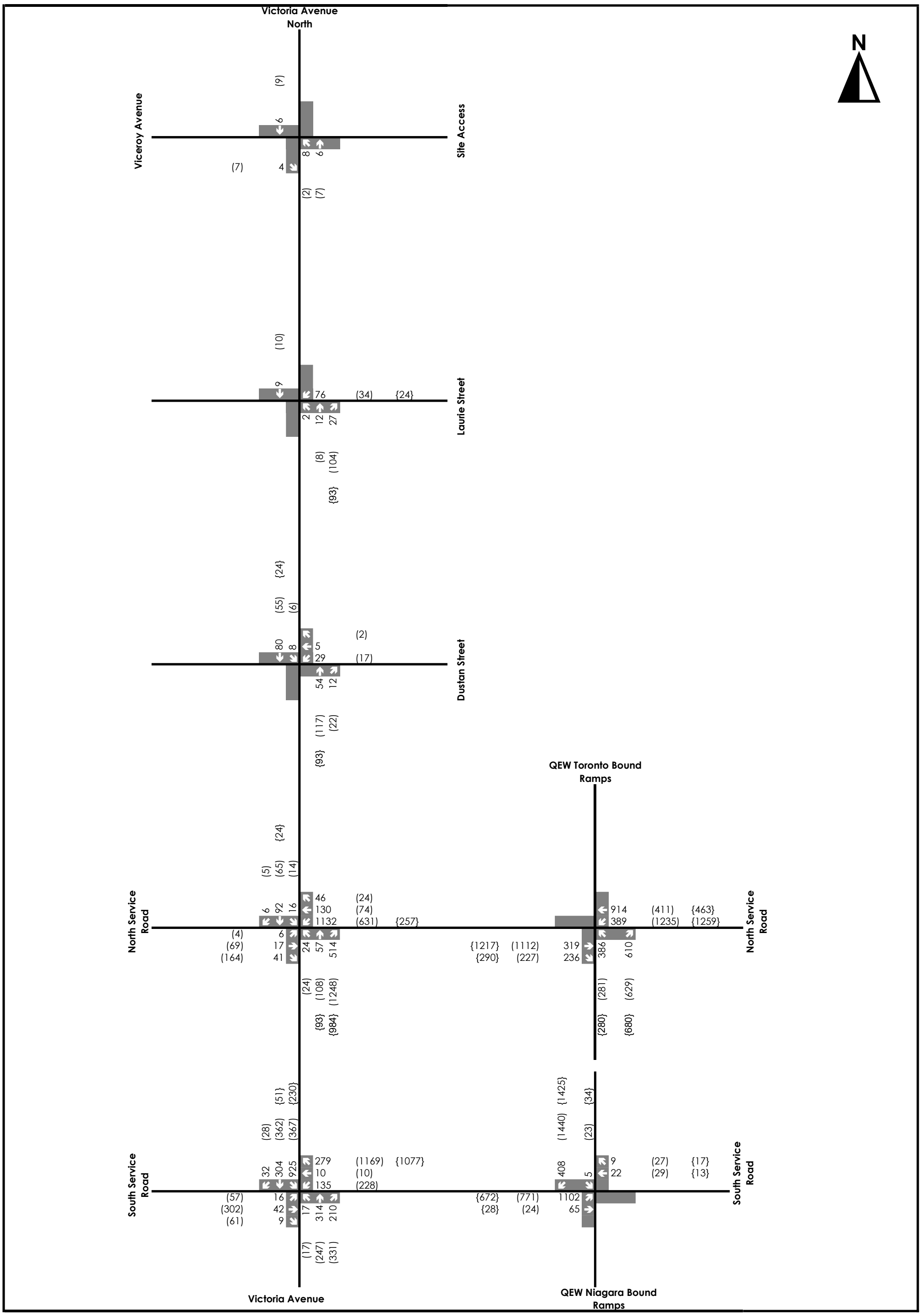
Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Table 8: 2036 Future Background Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**740**	**2.60 (WBL)**	**168.2 m > 160 m (WBL)**
		P.M.	**F**	**214.8**	**1.41 (WBL)**	**247.9 m > 240 m (NBR)**
		Saturday	**F**	**62.0**	**1.07 (NBR)**	**276.9 m > 240 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	B	10.1	0.06 (WB)	None
		P.M.	B	10.1	0.04 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	B	10.3	0.15 (WB)	None
		P.M.	A	9.5	0.06 (WB)	None
		Saturday	A	9.0	0.04 (WB)	None
Victoria Avenue North and Viceroy Avenue	Stop Controlled	A.M.	A	9.0	0.01 (EB)	None
		P.M.	A	8.4	0.01 (EB)	None
		Saturday	A	0.0	0.00 (EB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**216.5**	**3.20 (WBL)**	**186.3 m > 152 m (WBL) 58.3 m > 50 m (NBL)**
		P.M.	**F**	**1348.2**	**9.62 (WBL)**	**160.1 m > 152 m (WBL) 67.5 m > 50 m (NBL)**
		Saturday	**F**	**1604.3**	**11.97 (WBL)**	**171.1 m > 152 m (WBL) 63.3 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**198.8**	**2.10 (SBL)**	**280.4 m > 269 m (SBL)**
		P.M.	**F**	**166.5**	**1.78 (EBTR)**	**103.6 m > 72 m (EBL) 176.8 m > 120 m (WBL) 52.5 m > 45.0 (WBR) 92.0 m > 68.0 m (NBR)**
		Saturday	D	41.7	**1.06 (WBR)**	**52.5 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**Error**	**3.36 (SBL)**	None
		P.M.	**F**	**548.8**	**1.33 (SBL)**	None
		Saturday	**F**	**322.6**	**1.08 (SBL)**	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Based on the analysis the intersections of Victoria Avenue North and North Service Road, QEW Toronto Bound Ramps and North Service Road, and QEW Niagara Bound Ramps and South Service Road are all expected to operate at LOS F during all peak hours. Victoria Avenue and South Service Road operate at a LOS of F during the a.m. and p.m. peak hours. The maximum critical v/c ratio is noted at the intersection of QEW Toronto Bound Ramps and North Service Road with a v/c of 12.84 during the Saturday peak hour. The 95th percentile queue lengths are also projected to exceed the storage lane lengths at the highlighted intersections. **Figure 6, Figure 7, Figure 8,** and **Figure 9** show the 2025, 2026, 2031, and 2036 Future Background volumes.



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2025 Future Background Volumes

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Figure 6

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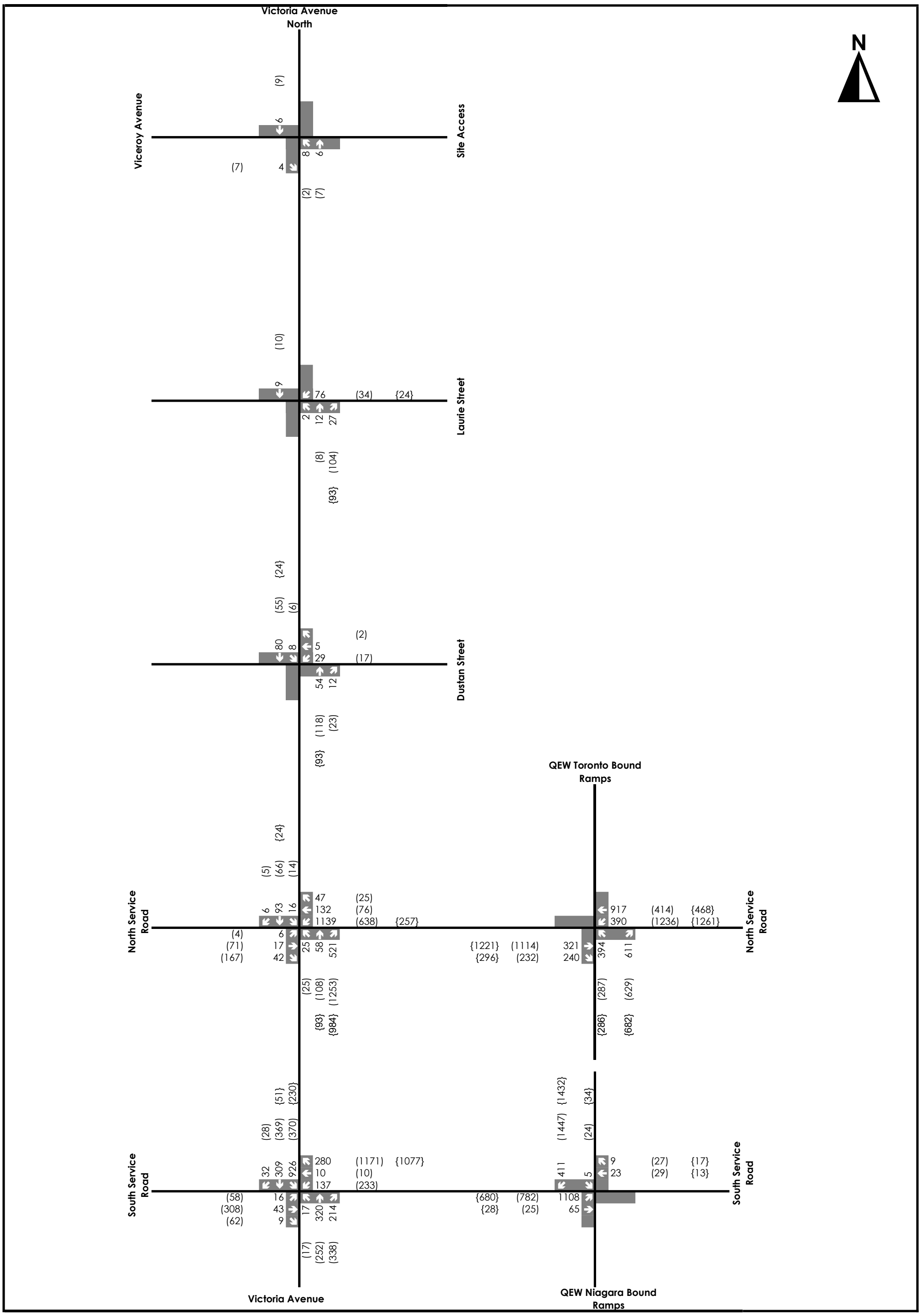
Date. March 2024
Analyst. Shaira Ahmed



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2026 Future Background Volumes

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Figure 7

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Date. March 2024
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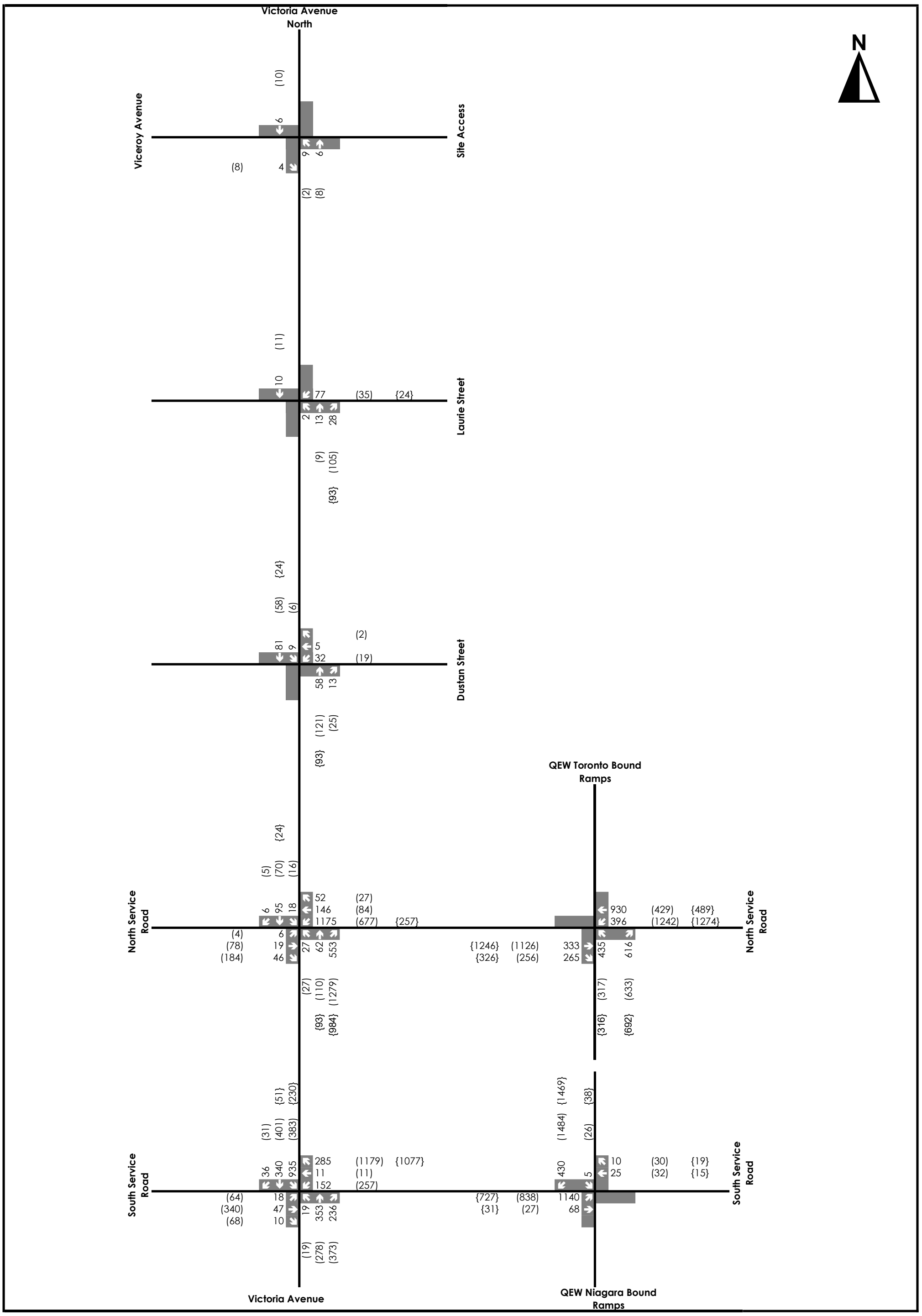

Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2031 Future Background Volumes

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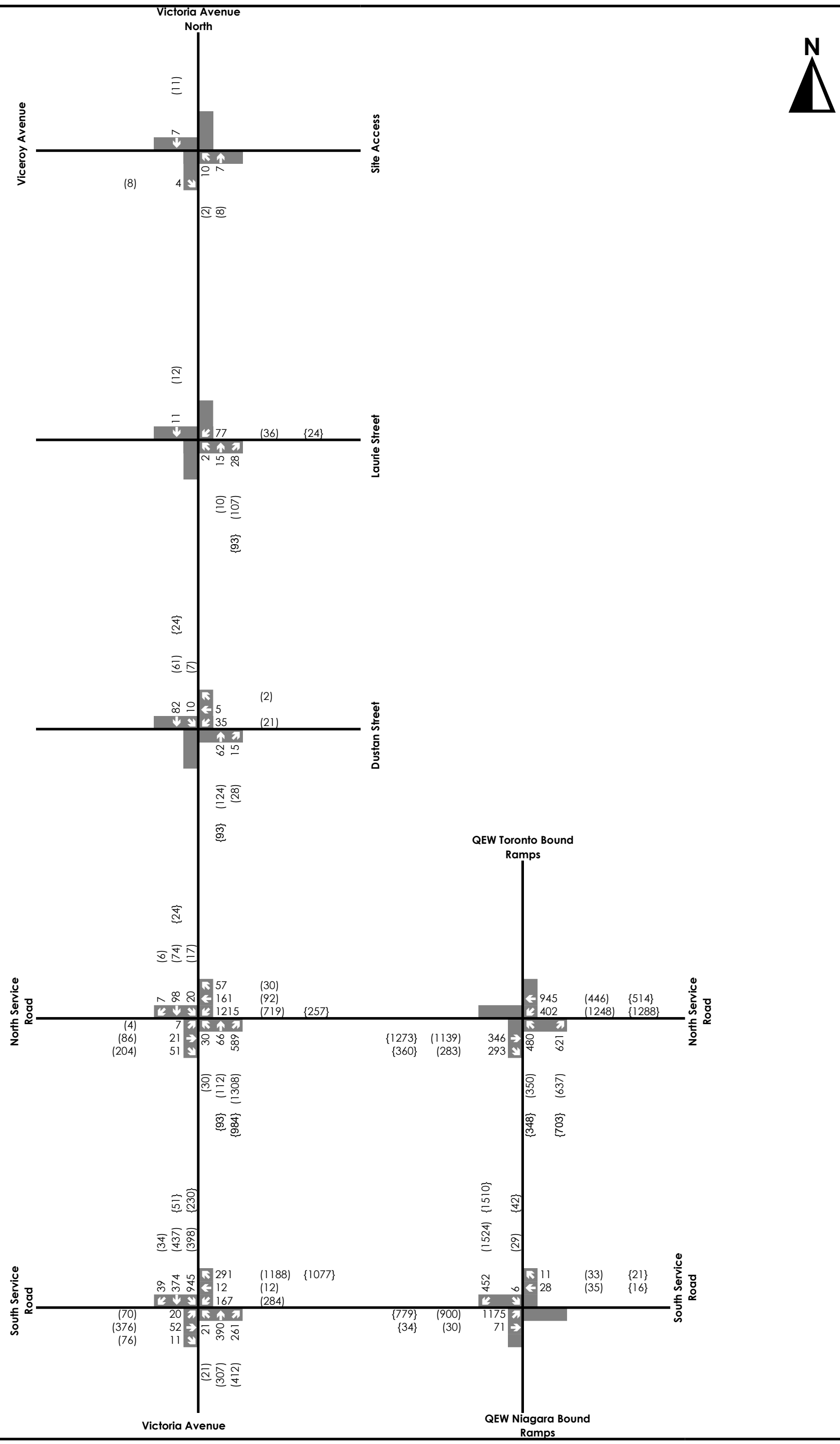
Figure 8

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2036 Future Background Volumes

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Figure 9

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5.0 Site Generated Traffic

The proposed development will result in additional vehicles on the boundary road network that previously did not exist. The proposed development will also result in additional turning movements at the boundary road intersections.

5.1 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition was used to forecast the number of trips generated by the proposed mixed-use development. Land Use Category 310 "Hotel", 222 "Multifamily Housing High-Rise", 931 "Fine Dining Restaurant", 820 "Shopping Center", and 492 "Health/Fitness Club" was determined to be the most appropriate. The setting/location was set to "General Urban/Suburban" due to the location the proposed development is in.

Relevant excerpts from the ITE Trip Generation Manual 11th Edition are included in **Appendix F**.

Table 9 summarizes the number of trips forecasted to be generated by the proposed development. The GFA can be found in the Site Plan.

Table 9: ITE Trip Generation

Type	Parameter	A.M. Peak Hour			P.M. Peak Hour			Saturday		
		In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
310 – Hotel	Gross Trips	33	26	59	39	38	77	52	41	93
	Equation	T = 0.5 X - 7.45			T = 0.74 x - 27.89			T = 0.69 X + 5.95		
222 – Multifamily High-Rise	Gross Trips	28	79	107	79	48	127	81	61	142
	Equation	T = 0.22 X + 18.85			T = 0.26 X + 23.12			T = 0.30 X + 30.34		
931 – Fine Dining	Gross Trips	0	0	0	46	23	69	55	38	91
	Rate	0.73			7.80			10.68		
820 – Shopping Center	Gross Trips	84	52	136	25	27	52	28	26	54
	Equation	T = 0.59 X + 133.55			Ln(T) = 0.72 Ln(x) +3.02			Ln(T) = 0.76 Ln(x) + 3		
492 – Health/Fitness Club	Gross Trips	6	5	11	27	21	48	13	14	27
	Rate/Equation	1.31			Ln(T) = 0.67 Ln(x) + 2.44			3.19		
Net New Trips		**151**	**162**	**313**	**216**	**157**	**373**	**229**	**180**	**407**

The subject site is expected to generate 313 two-way (151 inbound and 162 outbound) trips during the weekday a.m. peak hour, 373 two-way (216 inbound and 157 outbound) trips during the weekday p.m. peak hour, and 407 two-way (229 inbound and 180 inbound) trips during the Saturday peak hour.

The trip generation used in the Synchro analysis was based upon an older concept plan that had more trips thus more conservative.

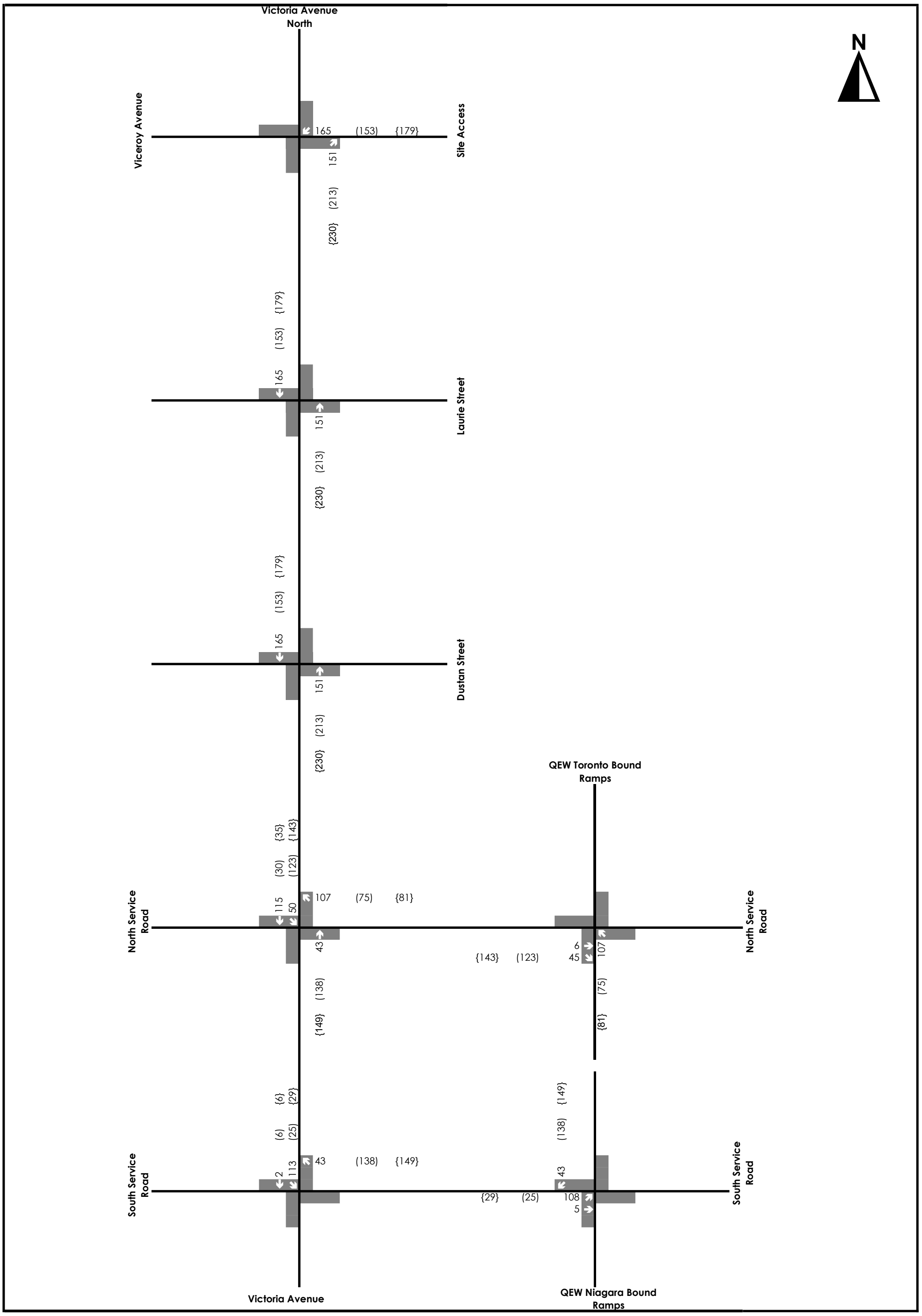
5.2 Trip Distribution and Assignment

Data from Transportation Tomorrow Surveys (TTS) and existing traffic data was used to estimate the peak hour trip distribution at the site. **Table 10** outlines the trip distribution for the proposed development divided into time and direction of travel.

Table 10: Trip Distribution for Passenger Vehicles

Distribution	A.M.		P.M.		Saturday	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
North	0%	0%	0%	0%	0%	0%
South	0%	9%	0%	20%	0%	20%
East	71%	26%	35%	60%	35%	60%
West	29%	65%	65%	16%	65%	16%

These results are based on Google Map optimized routes during the typical weekday and weekend peak period and are comparable with the existing travel patterns found in the existing turning movement counts collected. Trip Distribution Data from Transportation Tomorrow Survey Results can be found in **Appendix G**. **Figure 10** and **Figure 11** shows the trip assignment and distribution for the vehicles at the proposed development.



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

Trip Assignment

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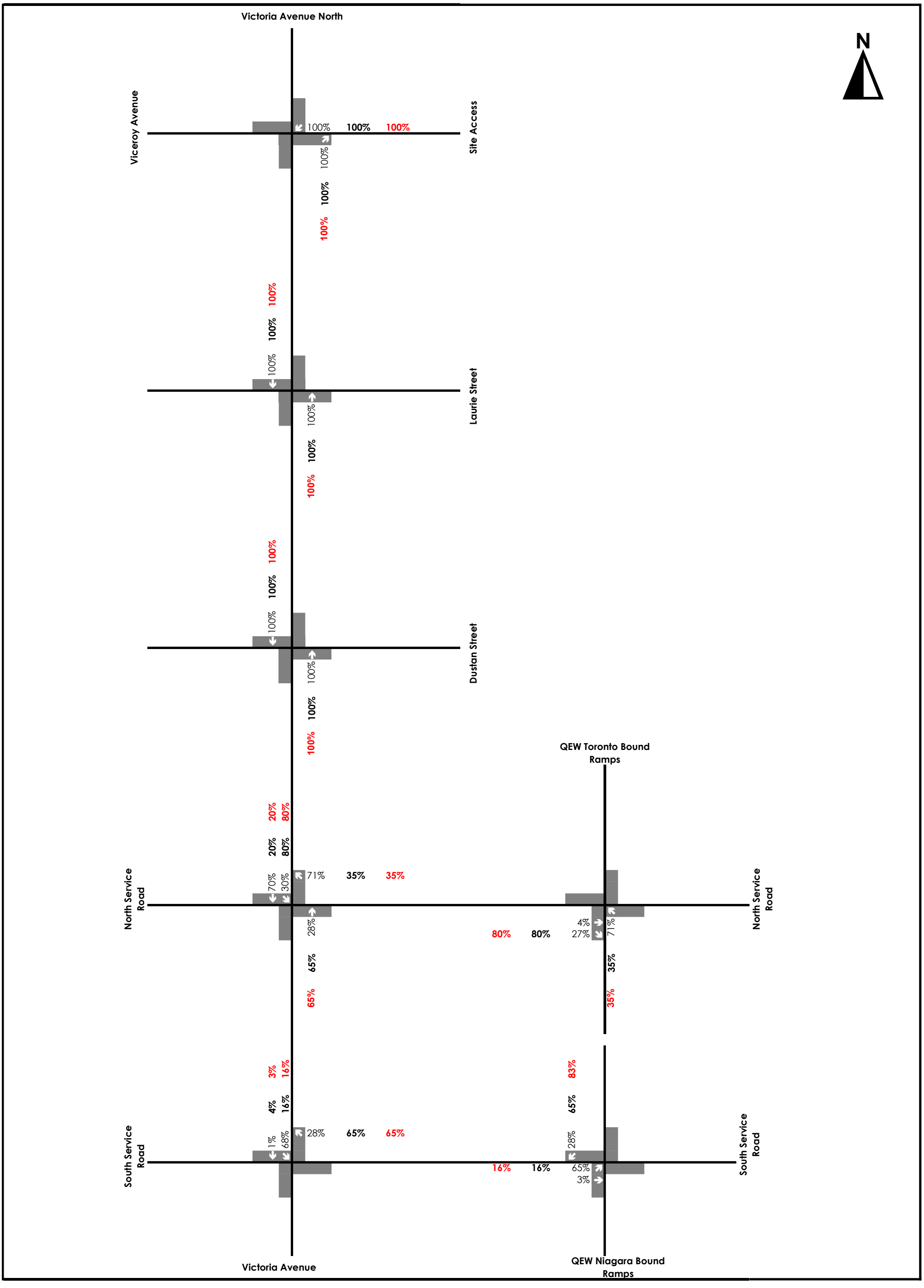
Figure 10

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed



Legend

xx A.M. Peak Hour Traffic Volumes
xx P.M. Peak Hour Traffic Volumes
xx Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

Trip Distribution

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Figure 11

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6.0 Future Total Conditions

Future Total traffic volumes for horizon years consist of the following components:

- Background traffic growth from outside the study area.
- Traffic generated within the study area from other proposed developments.
- Traffic expected to be generated by the development.

6.1 Intersection Operations

This section summarizes the results of the intersection operations during the Future Total scenario. **Table 11, Table 12, Table 13,** and **Table 14** summarize the results from the Future Total scenario during the study horizon years 2025, 2026, 2031, and 2036.

Table 11: 2025 Future Total Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**796.5**	**2.73 (WBL)**	**165.0 m > 160 m (WBL)**
		P.M.	**F**	**256.9**	**1.50 (WBL)**	**248.0 m > 240 m (NBR)**
		Saturday	**D**	**28.6**	**0.95 (NBR)**	**257.5 m > 240 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	B	13.6	0.08 (WB)	None
		P.M.	B	13.4	0.05 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	C	17.5	0.30 (WB)	None
		P.M.	B	15.0	0.13 (WB)	None
		Saturday	B	14.7	0.09 (WB)	None
Victoria Avenue North and Viceroy Avenue/Site Access	Stop Controlled	A.M.	B	11.7	0.32 (WB)	None
		P.M.	B	11.2	0.25 (WB)	None
		Saturday	B	11.2	0.29 (WB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**203.4**	**3.10 (WBL)**	**211.0 m > 152 m (WBL) 58.2 m > 50 m (NBL)**
		P.M.	**F**	**1315.4**	**9.52 (WBL)**	**159.5 m > 152 m (WBL) 65.9 m > 50 m (NBL)**
		Saturday	**F**	**1608.5**	**11.69 (WBL)**	**172 m > 152 m (WBL) 64.1 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**205.7**	**2.00 (SBL)**	**295.1 m > 269 m (SBL)**
		P.M.	**F**	**163.2**	**1.68 (WBR)**	**107.5 m > 72 m (EBL) 182.1 m > 120 m (WBL) 52.7 m > 45.0 (WBR) 77.4 m > 68.0 m (NBR)**
		Saturday	**F**	**89.5**	**1.20 (WBR)**	**52.6 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**Err**	**3.61 (SBL)**	None
		P.M.	**F**	**190.1**	0.62 (SBL)	None
		Saturday	**F**	**115.9**	0.57 (SBL)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Table 12: 2026 Future Total Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**807.0**	**2.75 (WBL)**	**164.9 m > 160 m (WBL)**
		P.M.	**F**	**266.4**	**1.52 (WBL)**	**251.2 m > 240 m (NBR)**
		Saturday	**D**	**32.6**	**0.95 (NBR)**	**275.2 m > 240 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	B	13.6	0.08 (WB)	None
		P.M.	B	13.4	0.05 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	C	17.5	0.30 (WB)	None
		P.M.	B	15.0	0.13 (WB)	None
		Saturday	B	14.7	0.09 (WB)	None
Victoria Avenue North and Viceroy Avenue/Site Access	Stop Controlled	A.M.	B	11.7	0.32 (WB)	None
		P.M.	B	11.2	0.25 (WB)	None
		Saturday	B	11.2	0.29 (WB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**205.2**	**3.11 (WBL)**	**208.1 m > 152 m (WBL) 58.6 m > 50 m (NBL)**
		P.M.	**F**	**1312.7**	**9.52 (WBL)**	**159.8 m > 152 m (WBL) 63.4 m > 50 m (NBL)**
		Saturday	**F**	**1607.5**	**11.72 (WBL)**	**168.6 m > 152 m (WBL) 65.1 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**208.3**	**2.02 (SBL)**	**283.7 m > 269 m (SBL)**
		P.M.	**F**	**166.4**	**1.69 (WBR)**	**102.3 m > 72 m (EBL) 179.3 m > 120 m (WBL) 52.5 m > 45.0 (WBR) 80.0 m > 68.0 m (NBR)**
		Saturday	**F**	**89.5**	**1.20 (WBR)**	**52.7 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**Err**	**3.89 (SBL)**	None
		P.M.	**F**	**213.8**	0.68 (SBL)	None
		Saturday	**F**	**289.4**	0.58 (SBL)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Table 13: 2031 Future Total Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**859.2**	**2.87 (WBL)**	**165.2 m > 160 m (WBL)**
		P.M.	**F**	**323.1**	**1.65 (WBL)**	**268.5 m > 240 m (NBR)**
		Saturday	**D**	**32.6**	**0.95 (NBR)**	**232.4 m > 240 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	B	13.8	0.09 (WB)	None
		P.M.	B	13.6	0.05 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	C	17.9	0.30 (WB)	None
		P.M.	C	15.1	0.13 (WB)	None
		Saturday	B	14.7	0.09 (WB)	None
Victoria Avenue North and Viceroy Avenue/Site Access	Stop Controlled	A.M.	B	11.7	0.32 (WB)	None
		P.M.	B	11.2	0.26 (WB)	None
		Saturday	B	11.2	0.28 (WB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**213.7**	**3.16 (WBL)**	**217.4 m > 152 m (WBL) 58.7 m > 50 m (NBL)**
		P.M.	**F**	**1301.8**	**9.57 (WBL)**	**159.8 m > 152 m (WBL) 66.8 m > 50 m (NBL)**
		Saturday	**F**	**1710.2**	**12.48 (WBL)**	**173.1 m > 152 m (WBL) 59 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**227.4**	**2.17 (SBL)**	**278.9 m > 269 m (SBL)**
		P.M.	**F**	**181.4**	**1.75 (SBL)**	**95.5 m > 72 m (EBL) 181.1 m > 120 m (WBL) 53.0 m > 45.0 (WBR) 95.1 m > 68.0 m (NBR)**
		Saturday	**F**	**99.0**	**1.23 (WBR)**	**52.7 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**Err**	**5.90 (SBL)**	None
		P.M.	**F**	**339.6**	**1.72 (SBR)**	None
		Saturday	**F**	**204.9**	0.82 (SBL)	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

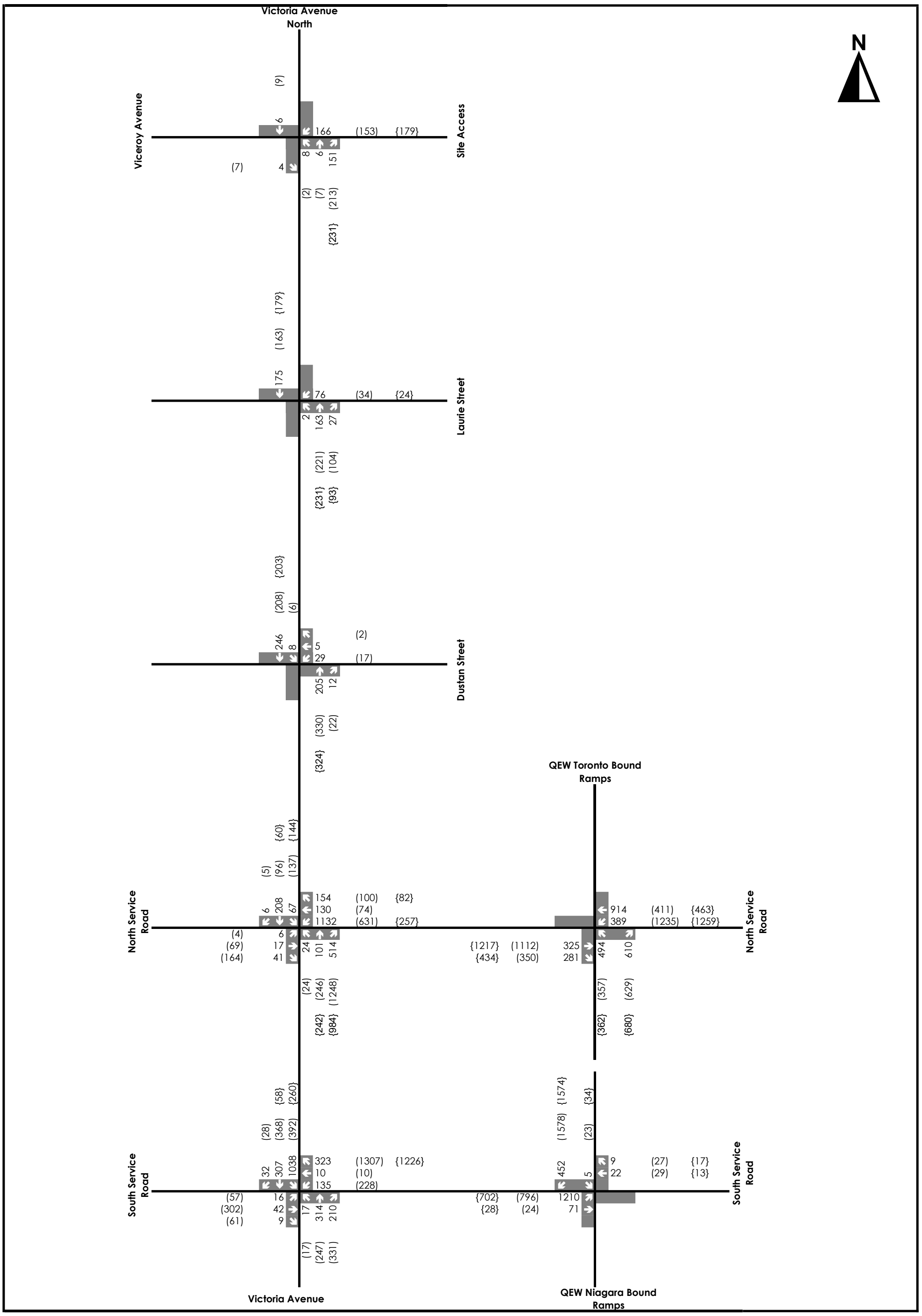
Table 14: 2036 Future Total Operations

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay (s)	Maximum v/c ratio [2]	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	All-way Stop-controlled	A.M.	**F**	**922.4**	**3.01 (WBL)**	**165.3 m > 160 m (WBL)**
		P.M.	**F**	**388.5**	**1.80 (WBL)**	**250.3 m > 240 m (NBR)**
		Saturday	**F**	**62.0**	**1.07 (NBR)**	**258.3 m > 240 m (NBR)**
Victoria Avenue North and Dustan Street	Stop Controlled	A.M.	B	14.0	0.10 (WB)	None
		P.M.	B	13.8	0.06 (WB)	None
		Saturday	A	0.0	0.00 (WB)	None
Victoria Avenue North and Laurie Avenue	Stop Controlled	A.M.	C	17.7	0.30 (WB)	None
		P.M.	C	15.2	0.13 (WB)	None
		Saturday	B	14.3	0.09 (WB)	None
Victoria Avenue North and Viceroy Avenue/Site Access	Stop Controlled	A.M.	B	11.8	0.32 (WB)	None
		P.M.	B	11.3	0.26 (WB)	None
		Saturday	B	11.0	0.28 (WB)	None
QEW Toronto Bound Ramps and North Service Road	Signalized	A.M.	**F**	**223.9**	**3.20 (WBL)**	**220.0 m > 152 m (WBL) 58.7 m > 50 m (NBL)**
		P.M.	**F**	**1289.4**	**9.62 (WBL)**	**159.7 m > 152 m (WBL) 63.7 m > 50 m (NBL)**
		Saturday	**F**	**1888.0**	**12.84 (WBL)**	**159.7 m > 152 m (WBL) 62.3 m > 50 m (NBL)**
Victoria Avenue and South Service Road	Signalized	A.M.	**F**	**248.8**	**2.34 (SBL)**	**278.5 m > 269 m (SBL)**
		P.M.	**F**	**199.4**	**1.82 (WBR)**	**101.0 m > 72 m (EBL) 181.0 m > 120 m (WBL) 52.5 m > 45.0 (WBR) 99.5 m > 68.0 m (NBR)**
		Saturday	**F**	**87.0**	**1.20 (WBR)**	**52.6 m > 45 m (WBR)**
QEW Niagara Bound Ramps and South Service Road	Stop Controlled	A.M.	**F**	**Err**	**13.19 (SBL)**	None
		P.M.	**F**	**364.1**	**1.77 (SBR)**	None
		Saturday	**F**	**338.2**	**1.12 (SBL)**	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle. The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note 2: The Region of Niagara TIS Guidelines defines critical v/c ratios for signalized intersections as greater than 0.85 for through or shared through/turning movements, and greater than 0.90 for dedicated left-turn movements.
Note 3: 95th percentile queue lengths derived from Sim Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

Based on the analysis the intersections of Victoria Avenue North and North Service Road, QEW Toronto Bound Ramps and North Service Road, Victoria Avenue and South Service Road, and QEW Niagara Bound Ramps and South Service Road are all expected to operate at LOS F during all peak hours. The maximum critical v/c ratio is noted at the intersection of QEW Niagara Bound Ramps and South Service Road with a v/c of 13.19 during the a.m. peak hour. The 95th percentile queue lengths are also projected to exceed the storage lane lengths at the highlighted intersections. **Figure 12, Figure 13, Figure 14,** and **Figure 15** show the 2025, 2026, 2031, and 2036 Future Total Volumes respectively.

It is noted that these Future Total conditions are based on the Future Background conditions where the intersections are already expected to perform poorly. The addition of site traffic, which is lower than the background improvement expected volumes, only adds to these performances.



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2025 Future Total Volumes

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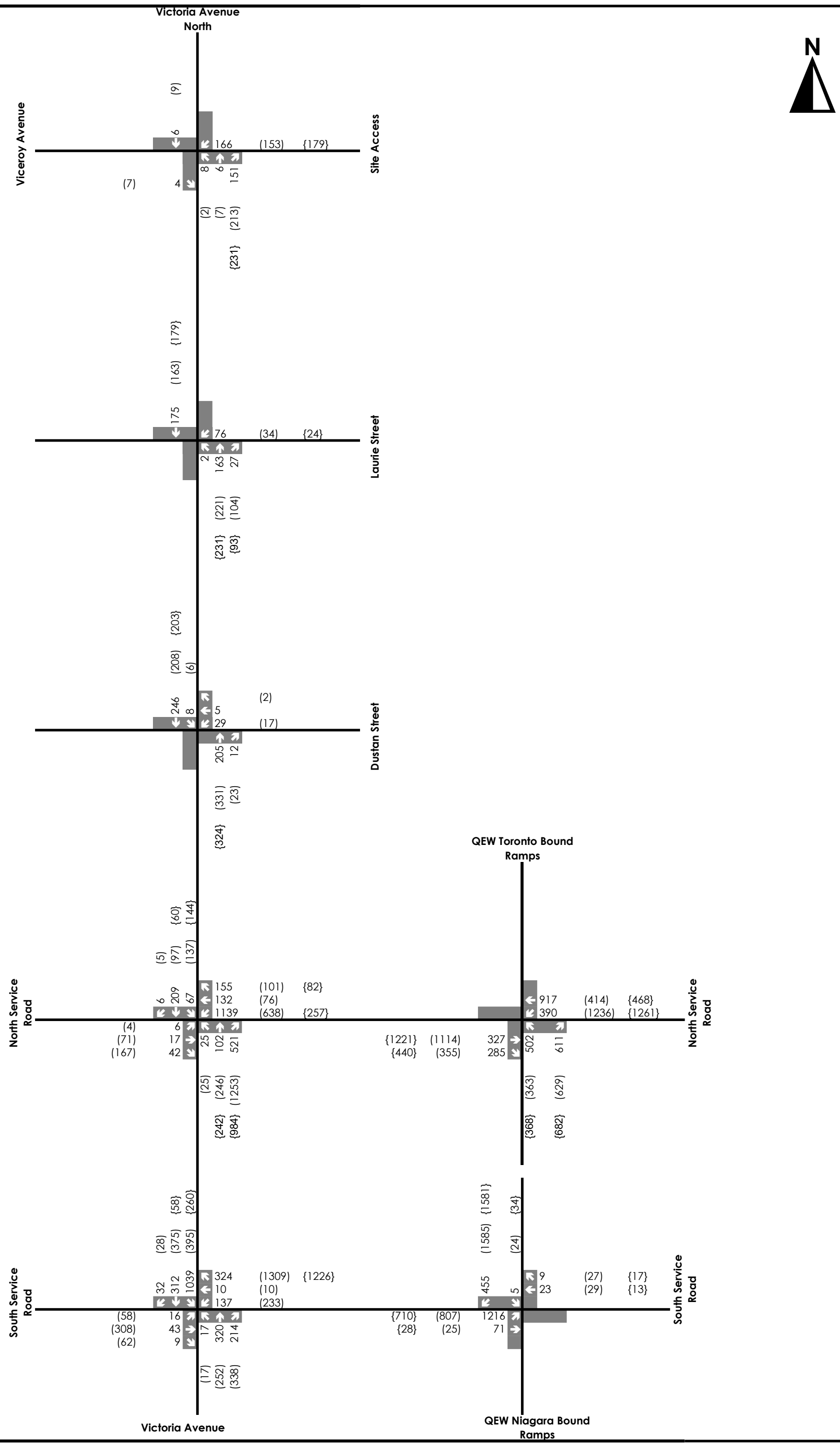
Figure 12

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2026 Future Total Volumes

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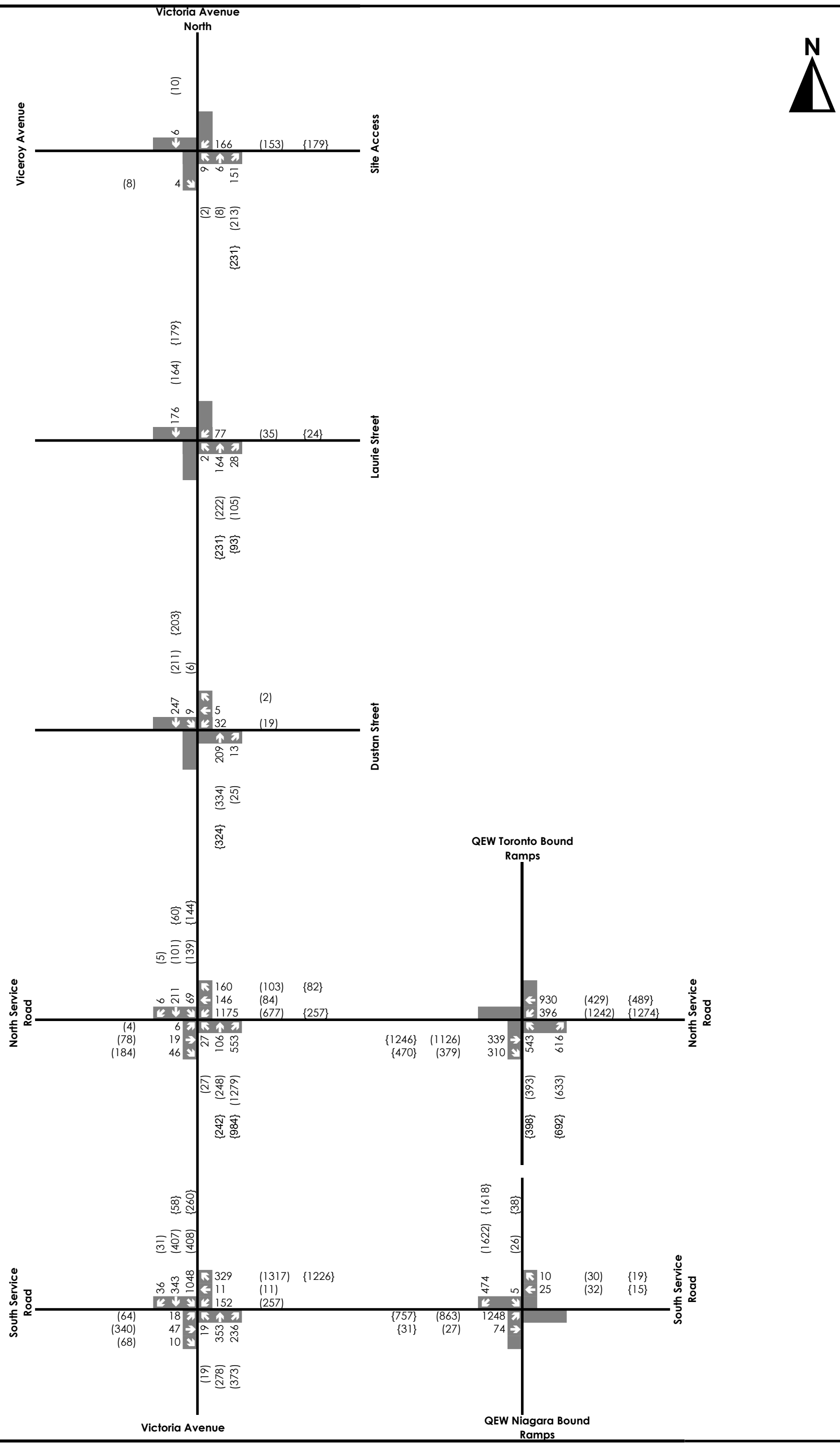
Figure 13

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2031 Future Total Volumes

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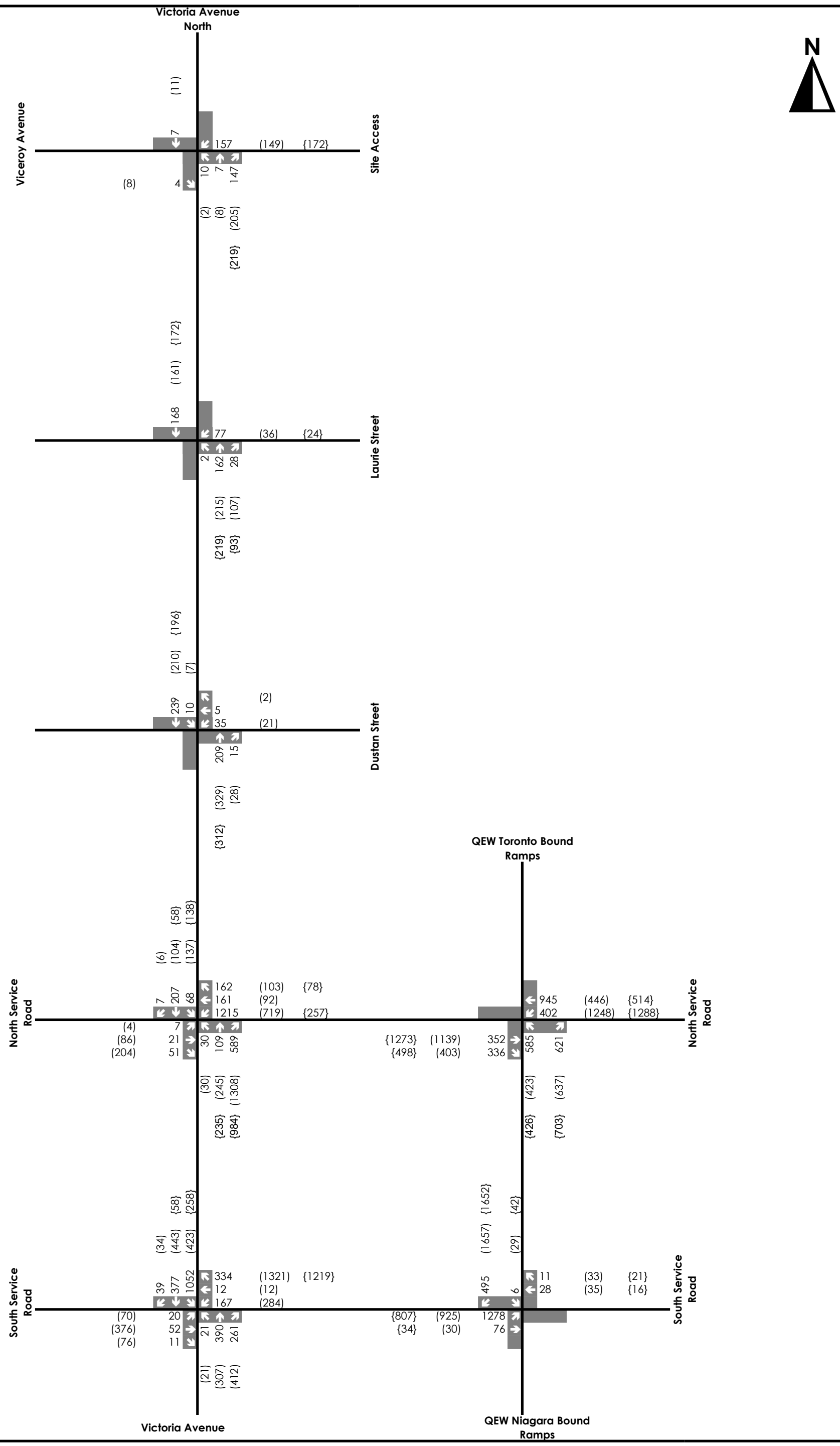
Figure 14

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

4933 Victoria Avenue North

2036 Future Total Volumes

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Figure 15

Project No. 2571-6892
Date. March 2024
Analyst. Shaira Ahmed

7.0 Site Access Review

It is important to check the site accesses for safety concerns for corner clearance, access spacing and sightlines. These were checked using the standards set out in the Geometric Design Guide for Canadian Roads (GDGCR) June 2017.

7.1 Vehicle Maneuvering Diagrams

AutoTURN software was used to check the maneuvering of the expected vehicles on site. These include waste removal vehicles, emergency vehicles and passenger cars. These diagrams can be found in **Appendix H.**

No conflicts are found for the expected routes for the emergency vehicles and waste removal vehicles. Most of the parking spaces are accessible with the passenger cars. The tightest spaces have turnaround areas provided for vehicles to access these spaces.

7.2 Access Spacing

Access spacing is the distance between existing or possible future driveways. The required and provided spacing per Figure 8.9.2 in TAC GDGCR are summarized in **Table 15.**

Table 15: Minimum Access Spacing

Feature	Victoria Avenue North Site Access and 4919 Victoria Avenue North Driveway
Minimum Spacing Requirement	3 metres
Available Spacing	3 metres +
Minimum Spacing Distance Satisfied?	Yes

The site accesses are expected to have adequate spacing.

7.3 Sight Distance Analysis

A review of the available sight distance at the proposed site accesses was undertaken based on Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) (June 2017). Sight distance was measured from the site access using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car.
- A 4.4 metre setback from the approximate extension of the outer curb to represent a passenger vehicle waiting to exit the site.

Intersection sight distance is calculated using Equation 9.9.1 from the GDGCR as outlined below:

$$ISD = 0.278 * V\ major * tg$$

Where:
ISD = Intersection Sight Distance
V major = design speed of roadway (km/h)
tg = assumed time gap for vehicles to turn from stop onto roadway (s)

Table 16 outlines the sight distance analysis for the proposed site accesses.

Table 16: Sight Distance Analysis

Feature	Site Access at Victoria Avenue North
Access Type	Full-moves
Vehicles Expected	Passenger Car
Posted Speed Limit of Roadway	50 km/h
Assumed Design Speed	70 km/h
Base Time Gap	Left Turn: 7.5 s Right Turn: 6.5 s
Grade of Roadway	Less than 3%
Horizontal Alignment of Roadway	Straight
Sight Distance Required	Left Turns: 150 m Right Turns: 130 m
Measured Sight Distance	Left Turns: 150 m + Right Turns: 130 m +
Minimum Sight Distance Satisfied?	Yes

The intersection sight distance is adequate for the proposed development. **Appendix I** has all relevant TAC excerpts.

8.0 Recommendations

A report was submitted to the Town of Lincoln's Planning and Development department in July 2019 providing recommendations regarding the ZBA and DPS applications for the Prudhommes Landing development.

8.1 Recommended Improvements

The traffic mitigation measures suggested in the Prudhommes report are summarized in **Table 17** below, the study implemented improvements are also included. The study intersections for 4933 Victoria Avenue North have been re-analyzed with some of these recommendations applied.

Table 17: Town Recommendations

Location	Prudhommes Landing Improvement Recommendations	Study Implemented Improvements
QEW Niagara Bound (eastbound) ramp	• Add southbound right turn lane • Signalize intersection • Add eastbound through right turn lane	• Signalized intersection • Added southbound right turn lane and removed channelization of right turn lane • Increased number of receiving lanes on the western leg • Optimized cycle length o Increased cycle length to 150 seconds during the a.m., p.m., and Saturday peak periods

Victoria Avenue at South Service Road	• Add westbound left turn lane and optimize signal timing
	• Add northbound through lane
	• Add southbound left turn lane
		• Increased number of receiving lanes on the eastern leg
		• Added northbound through lane
		• Added southbound left turn lane
		• Added southbound through lane
		• Optimized cycle length
		  o Increased cycle length to 90 seconds during a.m. peak period
		  o Increased cycle length to 140 seconds during p.m. peak period
		  o Increased cycle length to 100 seconds during Saturday peak period

QEW Toronto Bound (westbound) ramp	• Add northbound left turn lane
	• Add another eastbound through lane
	• Add another westbound through lane
		• Added southbound through lane
		• Added another eastbound through lane
		• Added another westbound through lane
		• Added northbound left turn lane
		• Optimized cycle length
		  o Increased cycle length to 90 seconds during a.m. peak period
		  o Increased cycle length to 150 seconds during p.m. and Saturday peak period

Victoria Avenue North at North Service Road	• Signalize intersection • Add eastbound left turn lane • Add westbound through lane • Add eastbound right turn lane • Add southbound left turn lane	• Signalized intersection • Added northbound through lane • Added eastbound right turn • Added southbound left turn lane • Added westbound through lane • Optimized cycle length o Increased cycle length to 60 seconds during a.m. peak period

The table above summarizes all the recommendations that have been proposed to be implemented by 2035 and the recommendations that have been implemented for this report.

8.2 Intersection Operations with Improvements

The addition of site traffic is expected to have marginal effects on the study intersections during the a.m., p.m. peak hours and Saturday peak hours. Intersections that experience critical LOS and v/c ratios during Future Background conditions continue to operate with delays in the Future Total conditions. **Table 18** compares the 2032 Future Total operations to the 2032 Future Total optimized signal timing operations. **Table 19** highlights and compares the queue lengths with the implemented recommendations.

Table 18: 2036 Future Total Recommendations Comparison

Intersection	Peak Hour	2036 Future Total			2036 Future Total – with Recommendations		
		LOS	Control Delay	Maximum v/c ratio	LOS	Control Delay	Maximum v/c ratio
Victoria Avenue North and North Service Road	A.M.	**F**	**922.4**	**3.01 (WBL)**	C	22.7	**0.97 (WBL)**
	P.M.	**F**	**388.5**	**1.80 (WBL)**	**F**	**117.4**	**1.53 (NBR)**
	Saturday	D	32.6	0.95 (NBR)	B	17.3	**0.96 (NBR)**
Victoria Avenue North and Dustan Street	A.M.	B	14.0	0.10 (WB)	B	13.9	0.10 (WB)
	P.M.	B	13.8	0.06 (WB)	B	13.5	0.06 (WB)
	Saturday	A	0.0	0.00 (WB)	A	0.0	0.00 (WB)
Victoria Avenue North and Laurie Avenue	A.M.	C	17.7	0.30 (WB)	C	17.7	0.30 (WB)
	P.M.	C	15.2	0.13 (WB)	C	15.2	0.13 (WB)
	Saturday	B	14.3	0.09 (WB)	B	14.3	0.09 (WB)
Victoria Avenue North and Viceroy Avenue / Site Access	A.M.	B	11.8	0.32 (WB)	B	11.8	0.32 (WB)
	P.M.	B	11.3	0.26 (WB)	B	11.3	0.26 (WB)
	Saturday	B	11.0	0.28 (WB)	B	11.0	0.28 (WB)
QEW Toronto Bound Ramps and North Service Road	A.M.	**F**	**223.9**	**3.20 (WBL)**	D	42.6	**1.07 (NBL)**
	P.M.	**F**	**1289.4**	**9.62 (WBL)**	**F**	**275.7**	**2.11 (WBL)**
	Saturday	**F**	**1604.3**	**11.97 (WBL)**	**F**	**274.0**	**2.08 (WBL)**
Victoria Avenue and South Service Road	A.M.	**F**	**248.8**	**2.34 (SBL)**	C	24.0	**0.96 (SBL)**
	P.M.	**F**	**199.4**	**1.82 (WBR)**	**F**	**166.1**	**1.79 (WBR)**
	Saturday	**F**	**87.0**	**1.20 (WBR)**	**F**	**84.2**	**1.18 (WBR)**
QEW Niagara Bound Ramps and South Service Road	A.M.	**F**	**Err**	**13.19 (SBL)**	**F**	**257.9**	**1.78 (EBL)**
	P.M.	**F**	**364.1**	**1.77 (SBR)**	**F**	**80.1**	**1.37 (EBL)**
	Saturday	**F**	**338.2**	**1.12 (SBL)**	**F**	**51.3**	**1.19 (EBL)**

Table 19: 95th Percentile Queue Lengths

Intersection	Peak Hour	2036 Future Total Operations	2036 Future Total – with Recommendations
		95th Percentile Queue Length > Storage Length	95th Percentile Queue Length > Storage Length
Victoria Avenue North and North Service Road	A.M.	165.3 m > 160 m (WBL)	169.1 m > 160 m (WBL)
	P.M.	250.3 m > 240 m (NBR)	291.9 m > 240 m (NBR)
	Saturday	258.3 m > 240 m (NBR)	None
Victoria Avenue North and Dustan Street	A.M.	None	None
	P.M.	None	None
	Saturday	None	None
Victoria Avenue North and Laurie Avenue	A.M.	None	None
	P.M.	None	None
	Saturday	None	None
Victoria Avenue North and Viceroy Avenue / Site Access	A.M.	None	None
	P.M.	None	None
	Saturday	None	None
QEW Toronto Bound Ramps and North Service Road	A.M.	220.0 m > 152 m (WBL) 58.7 m > 50 m (NBL)	216.4 m > 152 m (WBL) 57.5 m > 50 m (NBL1) 69.9 m > 50 m (NBL2)
	P.M.	159.7 m > 152 m (WBL) 63.7 m > 50 m (NBL)	159.8 m > 152 m (WBL) 61.5 m > 50 m (NBL1) 67.5 m > 50 m (NBL2)
	Saturday	159.7 m > 152 m (WBL) 62.3 m > 50 m (NBL)	159.9 m > 152 m (WBL) 60 m > 50 m (NBL1) 61.5 m > 50 m (NBL2)
Victoria Avenue and South Service Road	A.M.	278.5 m > 269 m (SBL)	49.5 m > 45 m (WBR) 275.6 m > 269 m (SBL1) 277.9 m > 269 m (SBL2)
	P.M.	101.0 m > 72 m (EBL) 181.0 m > 120 m (WBL) 52.5 m > 45.0 (WBR) 99.5 m > 68.0 m (NBR)	52.8 m > 45 m (WBR) 85.4 m > 68 m (NBR)
	Saturday	52.6 m > 45 m (WBR)	63.4 m > 45 m (WBR)
QEW Niagara Bound Ramps and South Service Road	A.M.	None	120.1 m > 109 m (EBL)
	P.M.	None	127.5 m > 109 m (EBL)
	Saturday	None	None

After implementing the recommendations, the performance of the intersections have improved. During the a.m. peak period only the QEW Niagara Bound Ramps and South Service Road operate with a LOS of F. The maximum critical v/c ratio is present at QEW Niagara Bound Ramps and South Service Road in the eastbound left lane. During the p.m. and Saturday peak period, intersections that were operating at LOS F before the recommendations continue to operate at LOS F, but the control delay and v/c ratios have decreased significantly. It is recommended the Town continue to oversee intersection operations.

9.0 Transportation Demand Management (TDM)

There are several opportunities for the development to promote TDM measures to support reduced automobile use. As the tenants of the mixed-use building have not been confirmed, these site specific TDM measures are only recommended at this time and should be finalized upon occupancy of the buildings. The recommendations outlined are expected to reduce SOV trips and increased sustainable mode share.

9.1 Bicycle Parking Spaces

It is recommended that the provided bicycle parking spaces are secure and equipped with overhead weather protection. Access to safe and secure bicycle parking will increase the confidence of prospective cyclists to cycle as their mode of transportation. The overhead weather protection encourages people to cycle as the parked bicycles are protected from poor weather conditions, such as rain and snow.

9.2 Shower and Change Room Facilities

Amenities such as showers and change rooms are recommended to allow employees who use active transportation the ability to comfortably prepare for the workday.

9.3 Preferential Carpool and Rideshare Parking Spaces

The Subject Development also has the opportunity to provide preferential carpool and/or rideshare parking spaces via pavement marking and custom signage. These parking spaces should be easily identifiable and should be located closest to the principal building entrances. In providing preferential carpool and rideshare spaces, employees are incentivized to reduce unnecessary SOV usage.

It is also recommended that the employer provide a centralize system for carpool sign up, to help ease the coordination between employees. Carpool sign ups via paper and pen in employee lounge or lunchroom, and/or via centralized employee computer system is expected to encourage and aid the process of employee carpool coordination, especially for those with varying shifts from week to week.

9.4 Information Package

Supplying trail and cycling route maps in an area central to all employees, such as a lunchroom or lobby, are recommended and are expected to increase awareness of nearby pedestrian and cycling routes and provide incentive for employees to utilize the existing network. Future employees can also be informed of all the active transportation and TDM opportunities of the proposed development.

Informational material about site specific TDM measures should also be included in the information package to keep employees informed about ongoing initiative.

10.0 Conclusion

The findings and recommendations of our analysis are summarized as the following:

- The elements envisioned for this development include up to 396 residential units, 130 hotel suites, and commercial units consisting of a retail, restaurant, café, event center, spa, a lobby and sky bar, and an outdoor amenity area.

- Under Existing Conditions, critical movements are noted at Victoria Avenue and South Service Road on the South Service Road approach.

- There are two background developments located near the Subject Lands, Prudhommes Landing and 3221 North Service Road. The trips generated from these sites are included in the future background and future total analysis.

- It is noted that the background developments' trips were distributed by the same methodology as in this study as the TIS' for these developments were not available.

- Under 2036 Background Conditions, critical movements are noted at four intersections, Victoria Avenue North and North Service Road, QEW Toronto Bound Ramps and North Service Road, Victoria Avenue and South Service Road, and QEW Niagara Bound Ramps and South Service Road. These intersections are also operating at level of service 'F' during the 2036 Background Conditions.

- The proposed mixed-use development is estimated to generate 313, 373, and 407 trips during the a.m., p.m., and Saturday peak periods, respectively.

- Under 2036 Total Conditions:

    - Under existing traffic control and lane configurations, critical movements are noted at the same intersections as the 2036 Future Background operations.

    - Recommendations to the roadway surrounding the proposed development were implemented based upon the ZBA application for Prudhommes Landing by Prudhommes General Partners Inc. submitted to the Town in July 2019. Additional recommended improvements to the roadway were applied based on the intersection operations after implementing the Prudhommes recommendations.

    - Some of the recommendations from the Prudhommes report were implemented, however as the status of the Prudhommes report is unknown at this time, we have added additional recommendations based on the intersection operations outlined in the report. Some of our recommendations include signalizing all unsignalized intersections in the study area, optimizing signal timing, and adding through, right, and left turn lanes where necessary to improve vehicle operations.

- The sight distances and access spacing at the proposed entrance to the development exceed TAC requirements.

- Vehicle maneuvering checks were performed for the expected vehicles on site including emergency and delivery vehicles.

- Multiple active transportation initiatives can be considered to increase sustainability and reduce the number of single occupancy vehicle trips.

In conclusion, the proposed development located at 4993 Victoria Avenue North, in the Town of Lincoln can be supported from a transportation operations perspective. The volumes that are expected to be generated by this development are lower than the volumes by other nearby background developments. We trust that this review satisfies any transportation concerns associated with the Concept Plan for this development.

Please feel free to contact the undersigned for any further information required.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Shaira Ahmed, EIT
Engineering Intern, Transportation

C.F. CROZIER & ASSOCIATES INC.

R. Aaron Wignall, Associate
Senior Project Manager, Transportation

C.F. CROZIER & ASSOCIATES INC.

Ian Lindley, P.Eng. MASc.
Project Engineer, Transportation

IL/sa/la

J:\2500\2571 - 4933 Vic Court Globizen LP\6892 - 4933 Victoria Avenue N (Vineland)\Reports\TIS\2024.05.02 (2571-6892) 4933 Victoria Avenue North TIS.docx

APPENDIX A

Correspondence

From: Constantine, Neave (MTO) <Neave.Constantine@ontario.ca>
Sent: November 22, 2023 12:10 PM
To: Shaira Ahmed; Melissa Shih; Aaron Wignall; Ian Lindley
Cc: Ted Lagakos; Nunes, Paul (MTO)
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Hi Shaira,

Re: Request for Comments – Terms of Reference
4933 Victoria Avenue North
Town of Lincoln

The subject property described above do not appear to be within the MTO Permit Control area and therefore we have no comments.

Thanks,

Neave Constantine | Corridor Management Planner (Hamilton/ Niagara)
Highway Corridor Management Section | Central Operations | Ministry of Transportation
159 Sir William Hearst Avenue, 7th Floor |Toronto, ON M3M 0B7
Telephone: 437 688-2943 | Email: Neave.Constantine@ontario.ca

Ontario

Upcoming absence: December 19th, 2023 – January 12th, 2024.

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: November 22, 2023 11:52 AM
To: Melissa Shih <mshih@lincoln.ca>; Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>
Cc: Lagakos, Ted (MTO) <Ted.Lagakos@ontario.ca>; Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>; Constantine, Neave (MTO) <Neave.Constantine@ontario.ca>
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

We are looking to follow up on the MTO and Town comments for the terms of reference sent below for this project. If you have any questions or concerns, please let us know.

Kind regards,

Shaira Ahmed
Engineering Intern, Transportation
Office: 905.875.0026
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Melissa Shih <mshih@lincoln.ca>
Sent: Wednesday, November 8, 2023 2:43 PM
To: Dunsmore, Susan <susan.dunsmore@niagararegion.ca>; Shaira Ahmed <sahmed@cfcrozier.ca>; Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>
Cc: Ted Lagakos <ted.lagakos@ontario.ca>; Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>; Constantine, Neave (MTO) <Neave.Constantine@ontario.ca>
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Good Afternoon Shaira,

Thank you for reaching out. I am the Town planner on this file and will provide you with Town comments, once our review is finalized. I am copying MTO staff on this e-mail as well to seek their input on the TofR.

Sincerely,

Melissa Shih , MCIP, RPP
Manager, Prudhommes & Special Projects
Town of Lincoln
Direct: 905-563-2799 ext. 250
Tel: 905-563-8205
Cell: 289-968-2216
mshih@lincoln.ca

lincoln.ca
@TownofLincolnON

From: Planning Applications <planningapplications@lincoln.ca>
Sent: Wednesday, November 8, 2023 11:06 AM
To: Melissa Shih <mshih@lincoln.ca>
Subject: FW: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Melissa, FYI.

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: Monday, November 6, 2023 10:21 AM
To: Dunsmore, Susan <susan.dunsmore@niagararegion.ca>; Planning Applications <planningapplications@lincoln.ca>; Diane Maceira <DMaceira@lincoln.ca>

Cc: Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>
Subject: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Hello,

C.F. Crozier and Associates (Crozier) has been retained to prepare a Transportation Impact Study (TIS) for a mixed-use development located at 4933 Victoria Avenue North, in the Town of Lincoln in support of the Zoning By-Law Amendment (ZBA).

According to the Concept Plan, the elements envisioned for this development include:

- A 16-storey mixed residential, hotel and retail building, with 455 residential units, and 130 hotel suites
- Ground floor restaurant, bar and club/lounge
- Four levels of parking with a total of 600 spaces above and below ground
- A mutli-use path around the building
- Bicycle parking and car rental

Please see the attached concept plan for more details.

This letter and its attachment are intended to serve as the Terms of Reference (ToR) for the TIS to support the development application.

We are kindly requesting that you review the ToR and provide feedback regarding our scope of work and request for data. Should you not be the appropriate person for correspondence, it would be appreciated to be directed to the appropriate contact.

Study Methodology for the Transportation Impact Study

The following intersections are proposed to be analyzed as part of the scope of the study:

- Victoria Avenue North and Viceroy Avenue/Site Access
- Victoria Avenue North and North Service Road
- Victoria Avenue North and Laurie Avenue
- Victoria Avenue North and Dustan Street

We will consult specialty traffic counting firms we typically work with to obtain traffic data for the intersections listed above unless the Town of Lincoln (Town) has data for these intersections. If the Town's data is available and preferred, please let us know. **Please confirm the above noted intersections are sufficient for the study.**

Analysis Periods and Scenarios

The above intersections will be analyzed in the weekday a.m. and p.m. peak hours of current year (2023), the full build-out year (2025), and 10-years from the build out year (2032). The horizon years will be analyzed for future background and total traffic conditions. **Please confirm if the peak hour periods and the horizon year is sufficient for the analysis.**

Background Developments

Please confirm if any background development should be included in the analysis. If there are developments that need to be considered, please provide the associated transportation impact studies that should be included in our analysis.

Roadway and Transit Improvements
Please provide us with the details on any roadway improvements planned within the study area network.

Traffic Growth
We kindly request a recommended growth rate applicable to traffic volumes in the study area, to sufficiently reflect future conditions in the horizon years. If a growth rate is not available, an industry standard of 2% is suggested to forecast future traffic growth at the intersections of the study. **Please confirm if this is acceptable.**

Trip Generation and Distribution
Trip generation for the proposed development will be forecasted using the Trip Generation Manual, 11th Edition, prepared by the Institute of Transportation Engineers (ITE). Hotel (LUC 310), Multifamily High-Rise (LUC 222), Fine Dining Restaurant (LUC 931), and Shopping Center (LUC 820) will be used to calculate the trips. **Please confirm if this is acceptable.**

Existing traffic and data from the 2016 Transportation Tomorrow Survey (TTS) will be used to determine the trip distribution for the A.M. and P.M. periods to the proposed development. **Please confirm if this is acceptable.**

Analysis Procedures
Weekday A.M. and P.M. peak hours will be analyzed using Synchro 11.0 analysis software based on Highway Capacity Manual (HCM) procedures. **Please confirm if this acceptable.**

Parking Justification Study (PJS) Scope
For off-street parking, the Town of Lincoln vehicle parking requires an Apartment to have 1.25 spaces per dwelling unit and 1 visitor space per 10 dwelling units, a Hotel to have 1 space per guest room, a Dining Eating Establishment to have 1 space per 4.5 sqm PFA, and Retail to have 1 space per 30 sqm GFA. A mixed-use development with more than one of these uses listed can have their parking requirements reduced through sharing of parking spaces. The proposed developments parking can be reduced justified by the evening time period occupancy rate. **Please confirm if this methodology is acceptable or what requirements are needed for the PJS.**

We will also examine the bicycle parking requirements. The Town of Lincoln requires an Apartment to have 0.25 spaces per dwelling unit, a Hotel to have 1 space per 200 sqm GFA, a Dining Eating Establishment to have 1 space per 100 sqm GFA, and Retail Use to have 1 space per 200 sqm GFA.

Summary
We request the following information for inclusion in the study, along with any comments that arise with regards to the above Terms of Reference.
Please provide:

- Confirmation that the intersections of study are sufficient.
- Relevant growth rate(s) applicable to the roadways of study.
- Confirm the study horizon years are acceptable.
- Any relevant background developments and the associated traffic impact studies that are to be included in our analysis.

- Details of any planned roadway or transit improvements in the surrounding study area within the horizon years, if there are any.
- Confirmation of analysis methodology.
- Confirmation of parking rates and parking study Methodology

I hope the contents outlined in this email are acceptable.

Should you have any questions or require any further information, please feel free to contact Ian Lindley or myself.

Regards,
Shaira

Shaira Ahmed
Engineering Intern, Transportation
Office: 905.875.0026
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: November 23, 2023 11:36 AM
To: Shaira Ahmed; planningapplications@lincoln.ca; dmaceira@lincoln.ca; Melissa Shih
Cc: Aaron Wignall; Ian Lindley; Development Planning Applications; Bureau, Stephen
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Hello

Thank you for confirming these scenarios are adequate.

Susan

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: Thursday, November 23, 2023 10:57 AM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>; planningapplications@lincoln.ca; dmaceira@lincoln.ca; Melissa Shih <mshih@lincoln.ca>
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>; Development Planning Applications <devtplanningapplications@niagararegion.ca>; Bureau, Stephen <Stephen.Bureau@niagararegion.ca>
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

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Good morning,

The development will now be completed in 2 phases. The scenarios will be analyzed in the current year (2023), phase 1 (2025), full build-out (2026), 5-years from full build-out (2031), and 10-years from full build-out (2036). Please confirm if the horizon years are sufficient.

Please let me know if there are any questions or concerns.

Regards,

Shaira Ahmed
Engineering Intern, Transportation
Office: 905.875.0026
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: Tuesday, November 14, 2023 7:02 AM
To: Shaira Ahmed <sahmed@cfcrozier.ca>; planningapplications@lincoln.ca; dmaceira@lincoln.ca
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>; Development Planning Applications <devtplanningapplications@niagararegion.ca>; Bureau, Stephen <Stephen.Bureau@niagararegion.ca>
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Good Morning,

Regional transportation planning staff have reviewed the terms of reference and have provided their comments below in red. Requests for Regional transportation data can be made using the following link: https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx. If the TIS requires changes to any regional roads or intersections, functional drawings are to be included in the TIS. If you require anything further please contact me at your convenience.

Thank you

Susan M. Dunsmore, P.Eng.
MANAGER, DEVELOPMENT ENGINEERING
Niagara Region, 1815 Sir Isaac Brock Way, Thorold, ON, L2V 4T7
P : (905) 980 - 6000 ext. 3661
W : www.niagararegion.ca
E : susan.dunsmore@niagararegion.ca

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: Monday, November 06, 2023 10:21 AM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>; planningapplications@lincoln.ca; dmaceira@lincoln.ca
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>
Subject: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

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Hello,

C.F. Crozier and Associates (Crozier) has been retained to prepare a Transportation Impact Study (TIS) for a mixed-use development located at 4933 Victoria Avenue North, in the Town of Lincoln in support of the Zoning By-Law Amendment (ZBA).

According to the Concept Plan, the elements envisioned for this development include:

- A 16-storey mixed residential, hotel and retail building, with 455 residential units, and 130 hotel suites
- Ground floor restaurant, bar and club/lounge
- Four levels of parking with a total of 600 spaces above and below ground
- A mutli-use path around the building
- Bicycle parking and car rental

Please see the attached concept plan for more details.

This letter and its attachment are intended to serve as the Terms of Reference (ToR) for the TIS to support the development application.

We are kindly requesting that you review the ToR and provide feedback regarding our scope of work and request for data. Should you not be the appropriate person for correspondence, it would be appreciated to be directed to the appropriate contact.

Study Methodology for the Transportation Impact Study

The following intersections are proposed to be analyzed as part of the scope of the study:

- Victoria Avenue North and Viceroy Avenue/Site Access
- Victoria Avenue North and North Service Road– TMC available September 2022
- North Service Road & QEW ramp – TMC available April 2022
- Victoria Avenue and South Service Road – TMC available August 2023
- South Service Road & QEW ramp
- Victoria Avenue North and Laurie Avenue
- Victoria Avenue North and Dustan Street

We will consult specialty traffic counting firms we typically work with to obtain traffic data for the intersections listed above unless the Town of Lincoln (Town) has data for these intersections. If the Town's data is available and preferred, please let us know. **Please confirm the above noted intersections are sufficient for the study.**

Analysis Periods and Scenarios

The above intersections will be analyzed in the weekday a.m. and p.m. peak hours of current year (2023), the full build-out year (2025), and 10-years from the build out year (2032)- (2035). The horizon years will be analyzed for future background and total traffic conditions. **Please confirm if the peak hour periods and the horizon year is sufficient for the analysis.**

- Please add horizon year 2030 to accommodate for 5-years from the build out year traffic analysis.
- If the development will be built in multiple phases, the study should include capacity analysis at the end of each phase, additional to the ultimate buildout year and the 5 & 10 years after buildout.

Background Developments

Please confirm if any background development should be included in the analysis. If there are developments that need to be considered, please provide the associated transportation impact studies that should be included in our analysis.

Roadway and Transit Improvements

Please provide us with the details on any roadway improvements planned within the study area network.

Traffic Growth

We kindly request a recommended growth rate applicable to traffic volumes in the study area, to sufficiently reflect future conditions in the horizon years. If a growth rate is not available, an industry standard of 2% is suggested to forecast future traffic growth at the intersections of the study. **Please confirm if this is acceptable. Accepted**

Trip Generation and Distribution

Trip generation for the proposed development will be forecasted using the Trip Generation Manual, 11th Edition, prepared by the Institute of Transportation Engineers (ITE). Hotel (LUC 310), Multifamily High-Rise (LUC 222), Fine Dining Restaurant (LUC 931), and Shopping Center (LUC 820) will be used to calculate the trips. **Please confirm if this is acceptable.**

Existing traffic and data from the 2016 Transportation Tomorrow Survey (TTS) will be used to determine the trip distribution for the A.M. and P.M. periods to the proposed development. **Please confirm if this is acceptable. Accepted**

Analysis Procedures

Weekday A.M. and P.M. peak hours will be analyzed using Synchro 11.0 analysis software based on Highway Capacity Manual (HCM) procedures. **Please confirm if this acceptable. Accepted**

Parking Justification Study (PJS) Scope

For off-street parking, the Town of Lincoln vehicle parking requires an Apartment to have 1.25 spaces per dwelling unit and 1 visitor space per 10 dwelling units, a Hotel to have 1 space per guest room, a Dining Eating Establishment to have 1 space per 4.5 sqm PFA, and Retail to have 1 space per 30 sqm GFA. A mixed-use development with more than one of these uses listed can have their parking requirements reduced through sharing of parking spaces. The proposed developments parking can be reduced justified by the evening time period occupancy rate. **Please confirm if this methodology is acceptable or what requirements are needed for the PJS.**

We will also examine the bicycle parking requirements. The Town of Lincoln requires an Apartment to have 0.25 spaces per dwelling unit, a Hotel to have 1 space per 200 sqm GFA, a Dining Eating Establishment to have 1 space per 100 sqm GFA, and Retail Use to have 1 space per 200 sqm GFA.

Summary

We request the following information for inclusion in the study, along with any comments that arise with regards to the above Terms of Reference.
Please provide:

- Confirmation that the intersections of study are sufficient.
- Relevant growth rate(s) applicable to the roadways of study.
- Confirm the study horizon years are acceptable.
- Any relevant background developments and the associated traffic impact studies that are to be included in our analysis.
- Details of any planned roadway or transit improvements in the surrounding study area within the horizon years, if there are any.
- Confirmation of analysis methodology.
- Confirmation of parking rates and parking study Methodology

I hope the contents outlined in this email are acceptable.

- General comments:
- Please follow the updated Niagara Region TIA guidelines, accessible at:
    - https://www.niagararegion.ca/business/default.aspx?topnav=1
- If the Consultant utilizes historical traffic counts, traffic counts to be factored to a baseline condition (TIA study year) using a growth rate of 1% per annum.

I hope the contents outlined in this email are acceptable.

Should you have any questions or require any further information, please feel free to contact Ian Lindley or myself.

Regards,
Shaira

Shaira Ahmed
Engineering Intern, Transportation
Office: 905.875.0026
Collingwood | Milton | Toronto | Bradford | Guelph

Learn all about our latest awards & recognition **here**.

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From: Melissa Shih <mshih@lincoln.ca>
Sent: November 27, 2023 1:47 PM
To: Shaira Ahmed
Cc: Aaron Wignall; Ian Lindley; Development Planning Applications; Bureau, Stephen; Dunsmore, Susan; Ted Lagakos; Paul Di Ianni; Constantine, Neave (MTO)
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)
Attachments: Prudhommes Concept Plan June 2022_Final.pdf; 2023 08 14 Meeting Minutes Pre-Con July 27 2023.pdf

Good Afternoon Shaira,

Please see Town comments on the TIS in blue below, and additional information attached.

Regards,

Melissa Shih , MCIP, RPP
Manager, Prudhommes & Special Projects
Town of Lincoln
Direct: 905-563-2799 ext. 250
Tel: 905-563-8205
Cell: 289-968-2216
mshih@lincoln.ca

lincoln.ca
@TownofLincolnON

From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: Tuesday, November 14, 2023 7:02 AM
To: Shaira Ahmed <sahmed@cfcrozier.ca>; Planning Applications <planningapplications@lincoln.ca>; Diane Maceira <DMaceira@lincoln.ca>
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>; Development Planning Applications <devtplanningapplications@niagararegion.ca>; Bureau, Stephen <Stephen.Bureau@niagararegion.ca>
Subject: RE: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

Good Morning,

Regional transportation planning staff have reviewed the terms of reference and have provided their comments below in red. Requests for Regional transportation data can be made using the following link: https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx. If the TIS requires changes to any regional roads or intersections, functional drawings are to be included in the TIS. If you require anything further please contact me at your convenience.

Thank you

Susan M. Dunsmore, P.Eng.
MANAGER, DEVELOPMENT ENGINEERING
Niagara Region, 1815 Sir Isaac Brock Way, Thorold, ON, L2V 4T7
P : (905) 980 - 6000 ext. 3661
W : www.niagararegion.ca
E : susan.dunsmore@niagararegion.ca

From: Shaira Ahmed <sahmed@cfcrozier.ca>
Sent: Monday, November 06, 2023 10:21 AM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>; planningapplications@lincoln.ca; dmaceira@lincoln.ca
Cc: Aaron Wignall <awignall@cfcrozier.ca>; Ian Lindley <ilindley@cfcrozier.ca>
Subject: 4933 Victoria Avenue North Terms of Reference (CFCA#2571-6892)

CAUTION EXTERNAL EMAIL: This email originated from outside of the Niagara Region email system. Use caution when clicking links or opening attachments unless you recognize the sender and know the content is safe.

Hello,

C.F. Crozier and Associates (Crozier) has been retained to prepare a Transportation Impact Study (TIS) for a mixed-use development located at 4933 Victoria Avenue North, in the Town of Lincoln in support of the Zoning By-Law Amendment (ZBA).

According to the Concept Plan, the elements envisioned for this development include:

- A 16-storey mixed residential, hotel and retail building, with 455 residential units, and 130 hotel suites
- Ground floor restaurant, bar and club/lounge
- Four levels of parking with a total of 600 spaces above and below ground
- A mutli-use path around the building
- Bicycle parking and car rental

Please see the attached concept plan for more details.

This letter and its attachment are intended to serve as the Terms of Reference (ToR) for the TIS to support the development application.

We are kindly requesting that you review the ToR and provide feedback regarding our scope of work and request for data. Should you not be the appropriate person for correspondence, it would be appreciated to be directed to the appropriate contact.

Study Methodology for the Transportation Impact Study

The following intersections are proposed to be analyzed as part of the scope of the study:

- Victoria Avenue North and Viceroy Avenue/Site Access – please also include internal traffic movement impacts (queues, delays) within the subject property
- Victoria Avenue North and North Service Road– TMC available September 2022 – please also include left turn; signal warrant analysis
- North Service Road & QEW ramp – TMC available April 2022
- Victoria Avenue and South Service Road – TMC available August 2023
- South Service Road & QEW ramp
- Victoria Avenue North and Laurie Avenue
- Victoria Avenue North and Dustan Street

We will consult specialty traffic counting firms we typically work with to obtain traffic data for the intersections listed above unless the Town of Lincoln (Town) has data for these intersections. If the Town's data is available and preferred, please let us know. **Please confirm the above noted intersections are sufficient for the study. See comments above.**

Analysis Periods and Scenarios

The above intersections will be analyzed in the weekday a.m. and p.m. peak hours of current year (2023), the full build-out year (2025), and 10-years from the build out year (2032)- (2035). The horizon years will be analyzed for future background and total traffic conditions. **Please confirm if the peak hour periods and the horizon year is sufficient for the analysis. Please include Summer weekend midday peak period also.**

- Please add horizon year 2030 to accommodate for 5-years from the build out year traffic analysis.
- If the development will be built in multiple phases, the study should include capacity analysis at the end of each phase, additional to the ultimate buildout year and the 5 & 10 years after buildout.

-Correspondence from Nov 23rd clarifies that the following horizon years are proposed: 2023; 2025 – phase 1; 2026 – full buildout; 2031 at +5 years; 2036 at +10 years. This is satisfactory.

Background Developments

Please confirm if any background development should be included in the analysis. If there are developments that need to be considered, please provide the associated transportation impact studies that should be included in our analysis.

- Prudhommes Landing Subdivision - Zoning Amendment concept plan attached. Full buildout at 2032. The background numbers can be found on the concept plan and are summarized as follows: 96 singles, 347 townhouses, 2834 apartment units, 399 mixed use apartment units. 17,737 sm office use, 24,607 sm commercial use.
- 3221 North Service Road – 453 residential units. Full buildout at 2026

Roadway and Transit Improvements

Please provide us with the details on any roadway improvements planned within the study area network. See Pre-consultation comments - as part of the proposed development, urbanization of Victoria Ave North along the property frontage will be required.

TDM and Active Transportation analysis should also be provided with consideration of the greater network area. Existing and proposed cycling network to be included.

Traffic Growth

We kindly request a recommended growth rate applicable to traffic volumes in the study area, to sufficiently reflect future conditions in the horizon years. If a growth rate is not available, an industry standard of 2% is suggested to forecast future traffic growth at the intersections of the study. **Please confirm if this is acceptable. Accepted Okay.**

Trip Generation and Distribution

Trip generation for the proposed development will be forecasted using the Trip Generation Manual, 11th Edition, prepared by the Institute of Transportation Engineers (ITE). Hotel (LUC 310), Multifamily High-Rise (LUC 222), Fine Dining Restaurant (LUC 931), and Shopping Center (LUC 820) will be used to calculate the trips. **Please confirm if this is acceptable. Town staff consider Mid-rise (LUC 221) as more appropriate for the residential component of this proposal.**

Existing traffic and data from the 2016 Transportation Tomorrow Survey (TTS) will be used to determine the trip distribution for the A.M. and P.M. periods to the proposed development. **Please confirm if this is acceptable. Accepted See comment above re: weekend peak.**

Analysis Procedures

Weekday A.M. and P.M. peak hours will be analyzed using Synchro 11.0 analysis software based on Highway Capacity Manual (HCM) procedures. **Please confirm if this acceptable. Accepted Okay**

Parking Justification Study (PJS) Scope

For off-street parking, the Town of Lincoln vehicle parking requires an Apartment to have 1.25 spaces per dwelling unit and 1 visitor space per 10 dwelling units, a Hotel to have 1 space per guest room, a Dining Eating Establishment to have 1 space per 4.5 sqm PFA, and Retail to have 1 space per 30 sqm GFA. A mixed-use development with more than one of these uses listed can have their parking requirements reduced through sharing of parking spaces. The proposed developments parking can be reduced justified by the evening time period occupancy rate. **Please confirm if this methodology is acceptable or what requirements are needed for the PJS. Please see comments in pre-consultation summary.**

We will also examine the bicycle parking requirements. The Town of Lincoln requires an Apartment to have 0.25 spaces per dwelling unit, a Hotel to have 1 space per 200 sqm GFA, a Dining Eating Establishment to have 1 space per 100 sqm GFA, and Retail Use to have 1 space per 200 sqm GFA.

Summary

We request the following information for inclusion in the study, along with any comments that arise with regards to the above Terms of Reference.
Please provide:

- Confirmation that the intersections of study are sufficient.

- Relevant growth rate(s) applicable to the roadways of study.
- Confirm the study horizon years are acceptable.
- Any relevant background developments and the associated traffic impact studies that are to be included in our analysis.
- Details of any planned roadway or transit improvements in the surrounding study area within the horizon years, if there are any.
- Confirmation of analysis methodology.
- Confirmation of parking rates and parking study Methodology

I hope the contents outlined in this email are acceptable.

- General comments:
- Please follow the updated Niagara Region TIA guidelines, accessible at:
    - https://www.niagararegion.ca/business/default.aspx?topnav=1
- If the Consultant utilizes historical traffic counts, traffic counts to be factored to a baseline condition (TIA study year) using a growth rate of 1% per annum.

I hope the contents outlined in this email are acceptable.

Should you have any questions or require any further information, please feel free to contact Ian Lindley or myself.

Regards,
Shaira

Shaira Ahmed
Engineering Intern, Transportation
Office: 905.875.0026
Collingwood | Milton | Toronto | Bradford | Guelph

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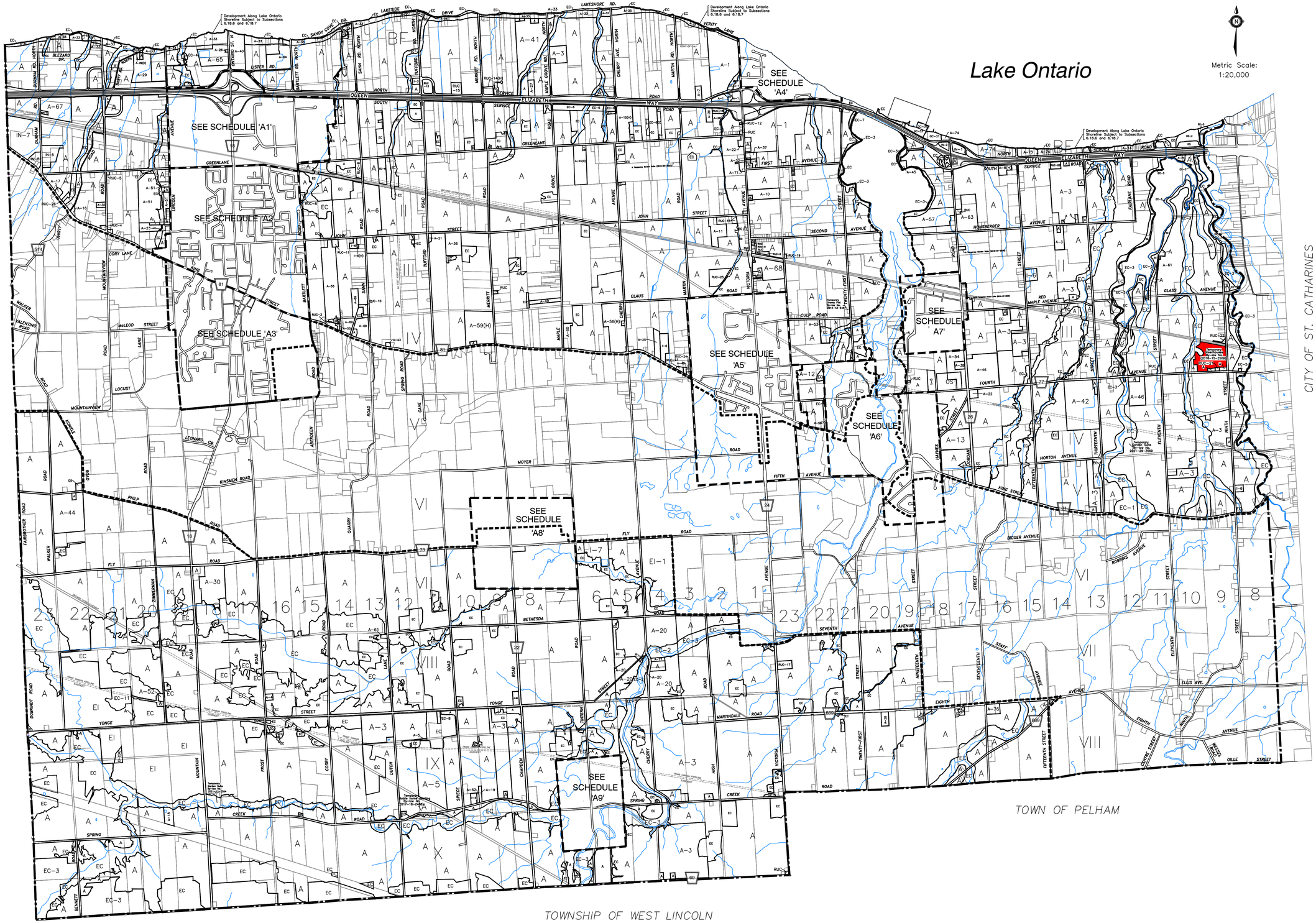
APPENDIX B

Relevant Map Excerpts

TOWN OF LINCOLN
ZONING BY-LAW
No. 2022-50
Schedule 'A'

1970

Metric Scale: 1:20,000



LEGEND

A	–	AGRICULTURAL ZONE
HR	–	HAMLET RESIDENTIAL ZONE
R1	–	RESIDENTIAL 1 ZONE
R2	–	RESIDENTIAL 2 ZONE
R3	–	RESIDENTIAL 3 ZONE
RM1	–	RESIDENTIAL MULTIPLE 1 ZONE
RM2	–	RESIDENTIAL MULTIPLE 2 ZONE
RM3	–	RESIDENTIAL MULTIPLE 3 ZONE
OC	–	OFFICE COMMERCIAL
NC	–	NEIGHBOURHOOD COMMERCIAL ZONE
GC	–	GENERAL COMMERCIAL ZONE
RUC	–	RURAL COMMERCIAL ZONE
RC	–	RECREATIONAL COMMERCIAL ZONE
IN	–	INDUSTRIAL ZONE
EI	–	EXTRACTIVE INDUSTRIAL ZONE
I	–	INSTITUTIONAL ZONE
OS	–	OPEN SPACE ZONE
EC	–	ENVIRONMENTAL CONSERVATION ZONE

LANDS TO WHICH DEVELOPMENT CONTROL OF THE NIAGARA ESCARPMENT COMMISSION APPLIES

TOWN OF LINCOLN BOUNDARY

MAP BOUNDARY

OFFICE CONSOLIDATION

This is an Office Consolidation of Zoning By-law No. 2022-50 for the Corporation of the Town of Lincoln as passed by Council on July 11, 2022 and as amended by the Ontario Municipal Board in an order dated

For accurate reference, recourse should be made to the original Zoning By-law No. 2022-50 and amending By-laws.

CONSOLIDATED VERSION
August 2022

This is Schedule 'A' to By-law No. 2022-50 passed this 11th day of July, 2022.

Mayor: Sandra Easton

Clerk: Julie Kirkleos

REVISIONS

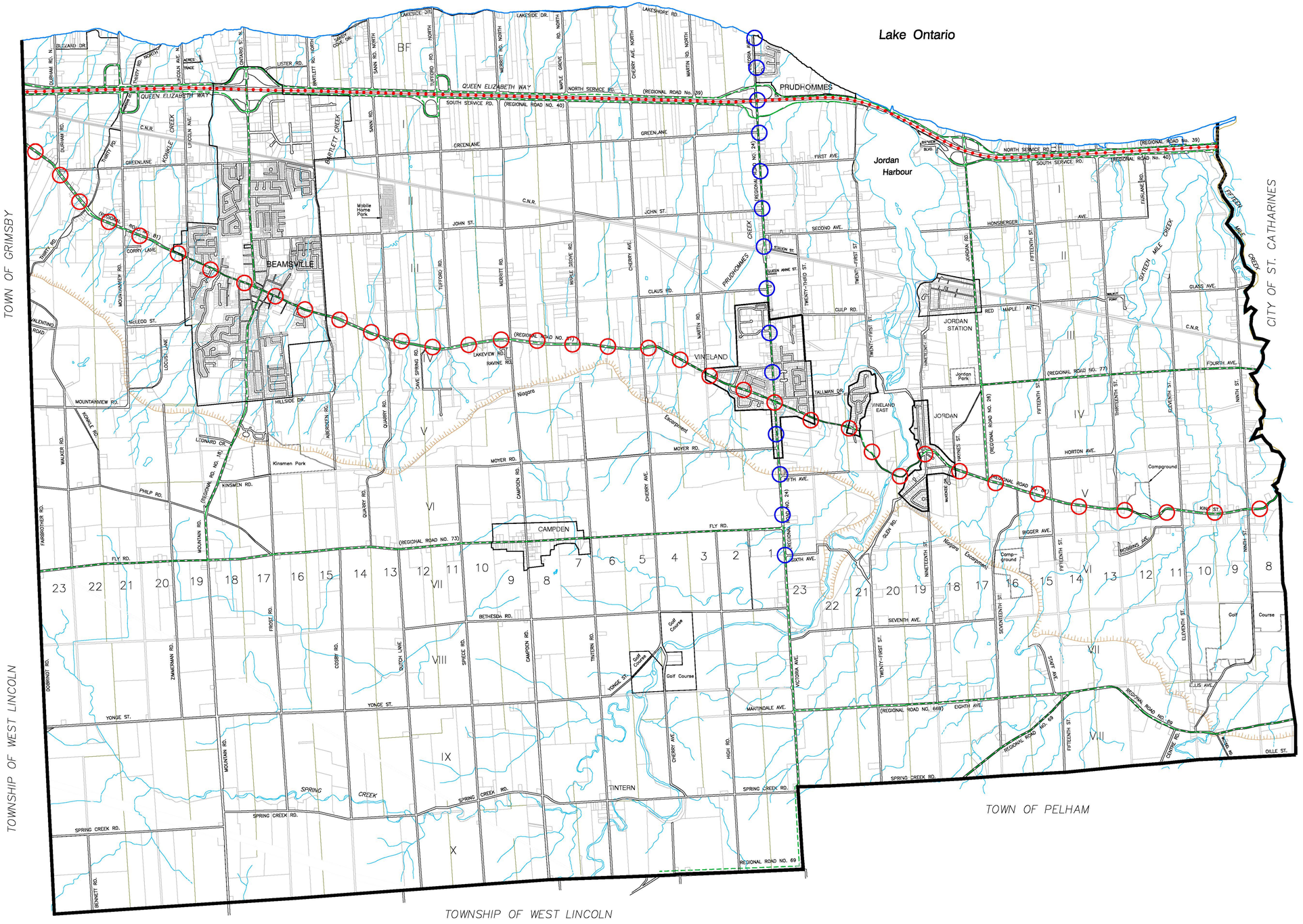
DATE	DESCRIPTION
April 2008	Amendments to By-law up to March 3rd, 2008.
April 2008	Amendments to By-law up to April 7, 2008.
April 2008	Amendments to By-law up to April 21, 2008.
May 2008	Amendments to By-law up to May 5th, 2008.
May 2008	Amendments to By-law up to May 20th, 2008.
July 2008	Amendments to By-law up to July 22nd, 2008.
November 2008	Amendments to By-law up to November 3rd, 2008.
November 2008	Amendments to By-law up to November 17th, 2008.
July 2009	Amendments to By-law up to July 20th, 2009.
October 2009	Amendments to By-law up to October 5th, 2009.
October 2009	Amendments to By-law up to October 19th, 2009.
November 2011	Amendments to By-law up to November 11th, 2011.
September 2012	Amendments to By-law up to September 17th, 2012.
January 2013	Amendments to By-law up to January 21st, 2013.
March 2013	Amendments to By-law up to March, 18th, 2013.
July 2014	Amendments to By-law up to July 7th, 2014.
February 2015	Amendments to By-law up to February 23th, 2015
July 2015	Amendments to By-law up to July 20th, 2015
August 2015	Amendments to By-law up to August 28, 2015
March 2016	Amendments to By-law up to March 21, 2016
January 2017	Amendments to By-law up to January 6th, 2017
July 2017	Amendments to By-law up to July 21st, 2017
July 2017	Amendments to By-law up to July 31st, 2018
May 2021	Amendments to By-law up to May 13th, 2021
March 2022	Amendments to By-law up to March 23rd, 2022
August 2022	Amendments to By-law up to August 31st, 2022

TOWN OF LINCOLN OFFICIAL PLAN

SCHEDULE 'D1'

MAJOR ROADS PLAN

NOTE: THIS MAP MUST BE READ IN CONJUNCTION WITH THE TEXT OF THE OFFICIAL PLAN



LEGEND

ROAD CLASSIFICATION

- PROVINCIAL HIGHWAYS
- REGIONAL ROADS (ARTERIAL)
- LOCAL ROADS
- THE WINE ROUTE
- VICTORIA AVENUE MARKET GREENWAY
- TOWN OF LINCOLN BOUNDARY

0 1000 2000 m

SCALE 1:25,000

DATE: NOVEMBER 18, 2016	DRAWN BY: J.V.R.

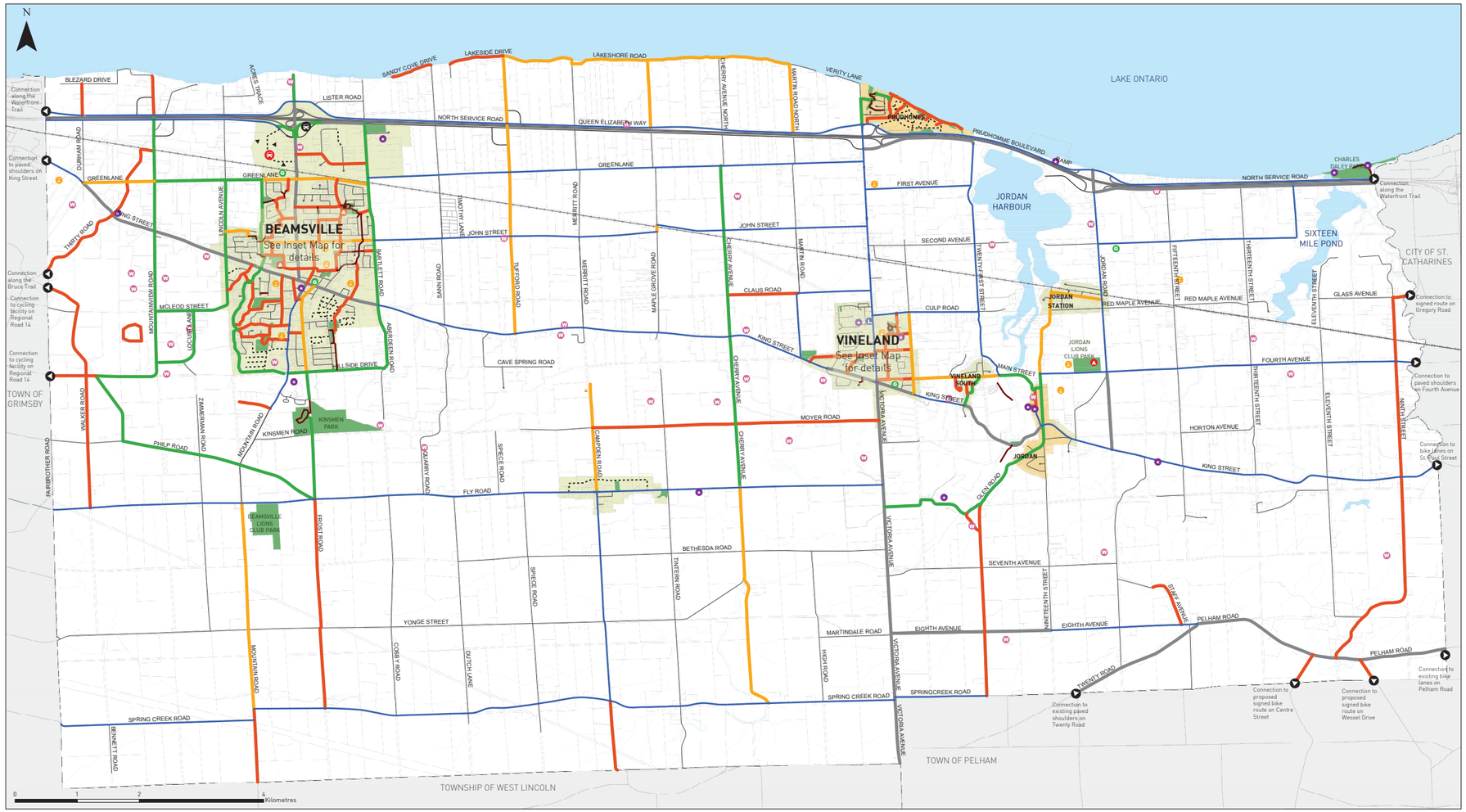
CAD FILE: Schedule 'D1'.dwg

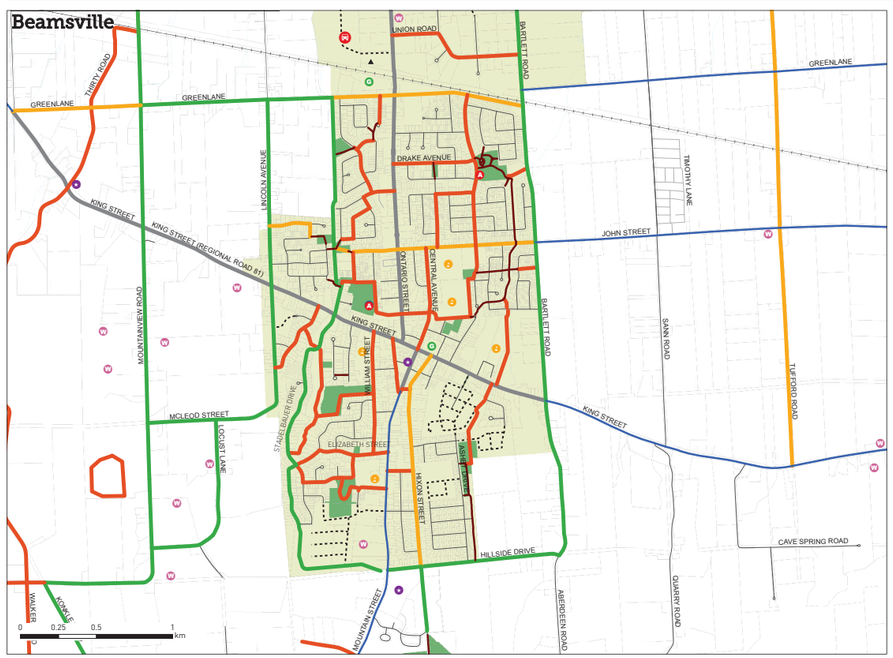
TOWN OF LINCOLN
DIGITAL LAND / USE MAP

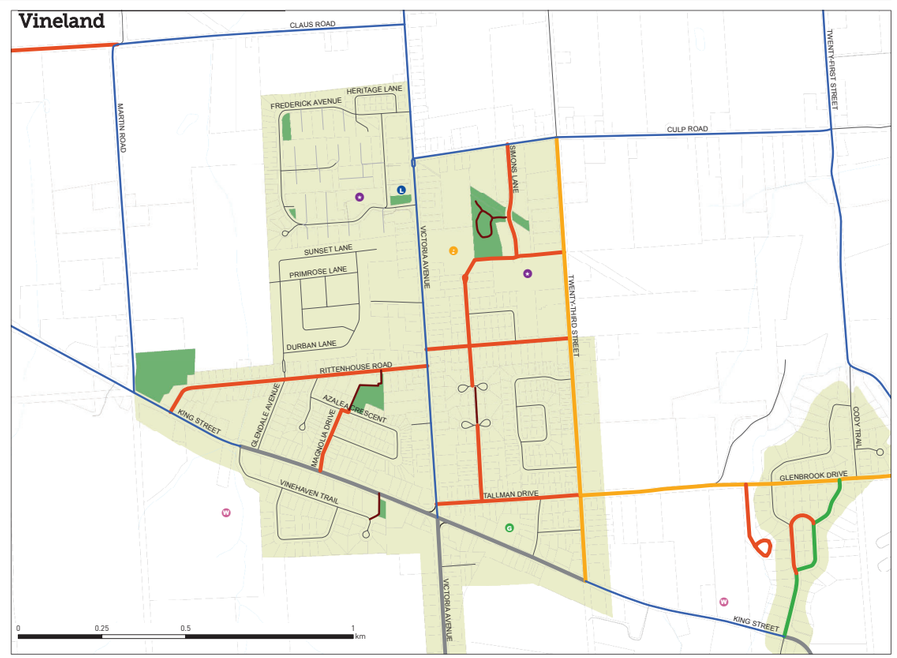
Map 4a

Draft Active Transportation Network Phasing

Town of Lincoln TMP | Draft September 2019







Legend

Proposed Active Transportation Phasing

- Short Term (next 5 years)
- Medium Term (year 6 to 2031)
- Long Term (2031 to 2041 and beyond)
- Regional Route[1]

Existing Active Transportation Facility Types

- On-Road Route
- Off-Road Route

Key Destinations

- Arena
- Grocery Store
- School
- Library
- Winery
- Other Community Destination

Transportation Features

- Provincial Highway
- Regional Road
- Municipal Road
- Private Road
- Proposed Road
- Railway
- Existing GO Transit Bus Stop and Park & Ride Lot
- Potential Transit Station
- Connection to Surrounding Municipality

Land Use Features

- Watercourses
- Urban Area
- Park / Open Space
- Secondary Plan Area
- Parcel Property

Notes:

1. Refer to the Niagara Region Transportation Master Plan - Strategic Cycling Network Development Technical Paper for phasing and costing of routes under the jurisdiction of Niagara Region.

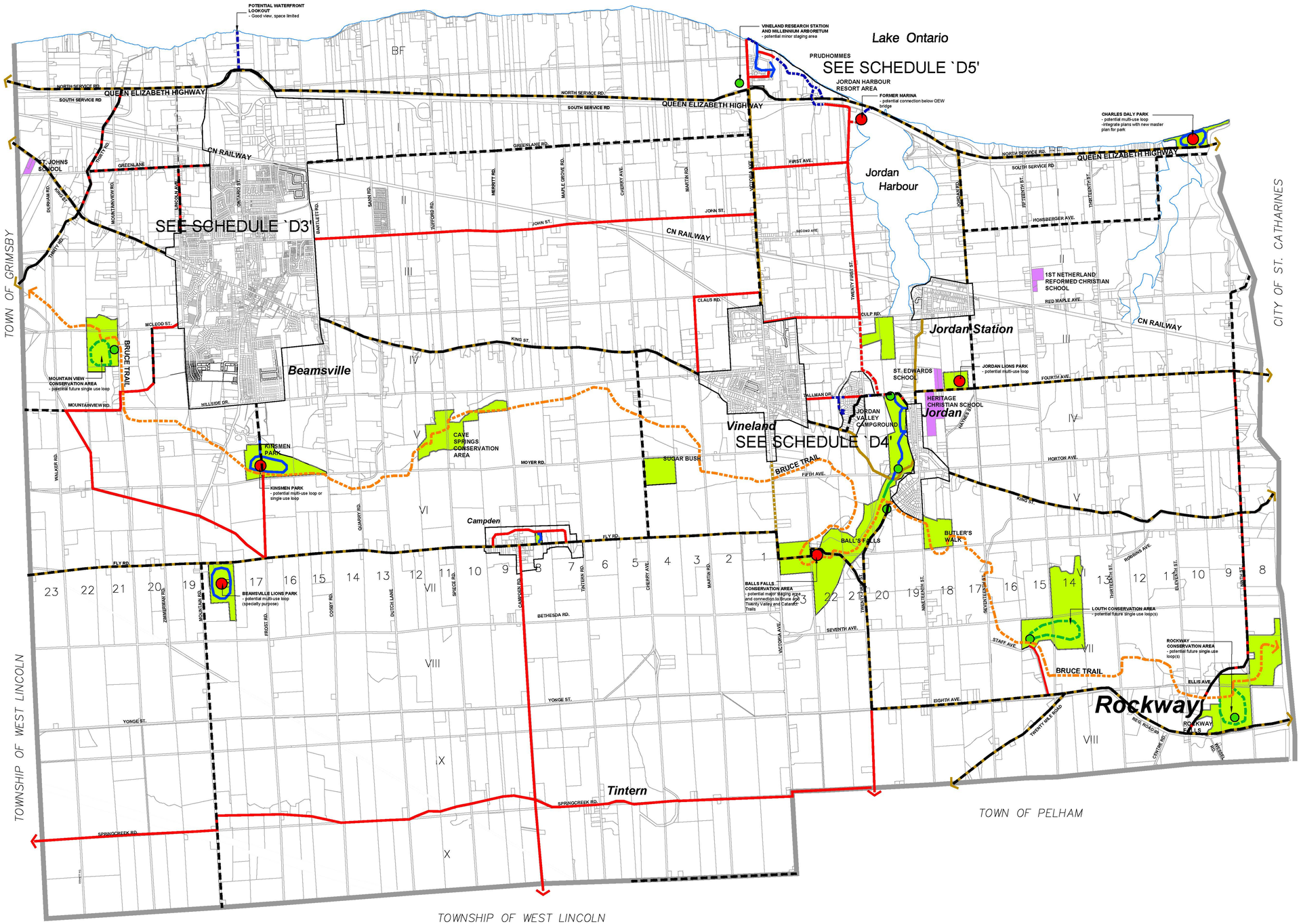
Town of Lincoln *Make Moving Make Sense as Lincoln Grows!*

TOWN OF LINCOLN OFFICIAL PLAN

SCHEDULE 'D2'

TRAIL & BIKEWAY PLAN

NOTE: THIS MAP MUST BE READ IN CONJUNCTION WITH THE TEXT OF THE OFFICIAL PLAN



LEGEND

TRAILS AND BIKEWAYS

- MULTI-USE (OFF-ROAD)
- FUTURE POTENTIAL MULTI-USE (OFF-ROAD)
- BRUCE TRAIL (EXISTING SINGLE USE OFF ROAD)
- OTHER EXISTING OFF-ROAD SINGLE USE TRAIL
- FUTURE POTENTIAL SINGLE USE (OFF-ROAD)
- PAVED SHOULDER / BIKE LANE WITH ROAD RECONSTRUCTION (ON-ROAD)
- SIGNED ROUTE (ON-ROAD)
- FUTURE POTENTIAL SIGNED ROUTE (ON-ROAD)
- NIAGARA REGION BIKEWAY NETWORK
- POTENTIAL MAJOR STAGING AREA
- POTENTIAL MINOR STAGING AREA
- PUBLIC LAND AND PARKS
- SCHOOLS

0 1000 2000 m

SCALE 1:25,000

DATE: NOVEMBER 18, 2016

DRAWN BY: J.V.R.

CAD FILE: Schedule 'D2' .dwg

TOWN OF LINCOLN
DIGITAL LAND / USE MAP

APPENDIX C

Traffic Data

Spectrum

Turning Movement Count
Location Name: NORTH SERVICE RD & QEW WB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Turning Movement Count (6 . NORTH SERVICE RD & QEW WB RAMPS)

Start Time	E Approach NORTH SERVICE RD					S Approach QEW WB RAMPS					W Approach NORTH SERVICE RD					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	UTurn W:W	Peds W:	Approach Total		
06:00:00	17	13	0	0	30	10	24	0	0	34	78	9	0	0	87	151	
06:15:00	14	19	0	0	33	8	40	0	0	48	84	20	0	0	104	185	
06:30:00	32	11	0	0	43	13	89	0	0	102	74	16	0	0	90	235	
06:45:00	26	11	0	0	37	12	123	0	0	135	67	17	0	0	84	256	827
07:00:00	16	10	0	0	26	13	46	0	0	59	54	21	0	0	75	160	836
07:15:00	28	11	0	0	39	12	73	0	0	85	61	14	0	0	75	199	850
07:30:00	26	16	0	0	42	19	75	0	0	94	60	24	0	0	84	220	835
07:45:00	36	10	0	0	46	9	129	0	0	138	69	28	0	0	97	281	860
08:00:00	24	14	0	0	38	9	84	0	0	93	47	28	0	0	75	206	906
08:15:00	35	14	0	0	49	7	83	0	0	90	50	28	0	0	78	217	924
08:30:00	24	6	0	0	30	8	83	0	0	91	54	23	0	0	77	198	902
08:45:00	30	16	0	0	46	9	75	0	0	84	62	20	0	0	82	212	833
09:00:00	12	14	0	0	26	13	54	0	0	67	55	14	0	0	69	162	789
09:15:00	21	10	0	0	31	5	69	0	0	74	59	20	0	0	79	184	756
09:30:00	25	6	0	0	31	12	53	0	0	65	43	25	0	0	68	164	722
09:45:00	21	16	0	0	37	8	62	0	0	70	38	13	0	0	51	158	668
BREAK																	
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15:15:00	23	11	0	0	34	7	78	0	0	85	51	24	0	0	75	194	
15:30:00	45	17	0	0	62	9	62	0	0	71	57	32	0	0	89	222	
15:45:00	33	12	0	0	45	10	69	0	0	79	51	26	0	0	77	201	813
16:00:00	24	9	0	0	33	9	69	0	0	78	53	30	0	0	83	194	811
16:15:00	21	8	0	0	29	5	75	0	0	80	42	16	0	0	58	167	784
16:30:00	28	9	0	0	37	4	67	0	0	71	42	40	0	0	82	190	752
16:45:00	27	7	0	0	34	5	82	0	0	87	50	32	0	0	82	203	754
17:00:00	28	2	0	0	30	5	85	0	0	90	45	40	0	0	85	205	765
17:15:00	33	6	0	0	39	3	95	0	0	98	47	20	0	0	67	204	802
17:30:00	22	3	0	0	25	7	72	0	0	79	54	21	0	0	75	179	791
17:45:00	24	8	0	0	32	1	68	0	0	69	29	18	0	0	47	148	736
18:00:00	19	4	0	0	23	8	45	0	0	53	36	17	0	0	53	129	660
18:15:00	11	5	0	0	16	5	57	0	0	62	33	16	0	0	49	127	583
18:30:00	8	5	0	0	13	3	37	0	0	40	23	13	0	0	36	89	493
18:45:00	12	5	0	0	17	2	39	0	0	41	27	17	0	0	44	102	447

Grand Total	783	317	0	0	1100	255	2223	0	0	2478	1654	706	0	0	2360	**5938**	-
Approach%	71.2%	28.8%	0%		-	10.3%	89.7%	0%		-	70.1%	29.9%	0%		-	**-**	-
Totals %	13.2%	5.3%	0%		18.5%	4.3%	37.4%	0%		41.7%	27.9%	11.9%	0%		39.7%	**-**	-
Heavy	35	15	0		-	14	217	0		-	75	26	0		-	**-**	-
Heavy %	4.5%	4.7%	0%		-	5.5%	9.8%	0%		-	4.5%	3.7%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: NORTH SERVICE RD & QEW WB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (4.13 °C)

Start Time	E Approach NORTH SERVICE RD					S Approach QEW WB RAMPS					W Approach NORTH SERVICE RD					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
07:30:00	26	16	0	0	42	19	75	0	0	94	60	24	0	0	84	220
07:45:00	36	10	0	0	46	9	129	0	0	138	69	28	0	0	97	281
08:00:00	24	14	0	0	38	9	84	0	0	93	47	28	0	0	75	206
08:15:00	35	14	0	0	49	7	83	0	0	90	50	28	0	0	78	217
Grand Total	121	54	0	0	175	44	371	0	0	415	226	108	0	0	334	**924**
Approach%	69.1%	30.9%	0%		-	10.6%	89.4%	0%		-	67.7%	32.3%	0%		-	-
Totals %	13.1%	5.8%	0%		18.9%	4.8%	40.2%	0%		44.9%	24.5%	11.7%	0%		36.1%	-
PHF	0.84	0.84	0		0.89	0.58	0.72	0		0.75	0.82	0.96	0		0.86	-
Heavy	6	1	0		7	3	39	0		42	5	4	0		9	-
Heavy %	5%	1.9%	0%		4%	6.8%	10.5%	0%		10.1%	2.2%	3.7%	0%		2.7%	-
Lights	114	53	0		167	41	332	0		373	221	103	0		324	-
Lights %	94.2%	98.1%	0%		95.4%	93.2%	89.5%	0%		89.9%	97.8%	95.4%	0%		97%	-
Single-Unit Trucks	5	1	0		6	2	23	0		25	2	3	0		5	-
Single-Unit Trucks %	4.1%	1.9%	0%		3.4%	4.5%	6.2%	0%		6%	0.9%	2.8%	0%		1.5%	-
Buses	0	0	0		0	0	1	0		1	0	0	0		0	-
Buses %	0%	0%	0%		0%	0%	0.3%	0%		0.2%	0%	0%	0%		0%	-
Articulated Trucks	1	0	0		1	1	15	0		16	3	1	0		4	-
Articulated Trucks %	0.8%	0%	0%		0.6%	2.3%	4%	0%		3.9%	1.3%	0.9%	0%		1.2%	-
Bicycles on Road	1	0	0		1	0	0	0		0	0	1	0		1	-
Bicycles on Road %	0.8%	0%	0%		0.6%	0%	0%	0%		0%	0%	0.9%	0%		0.3%	-

Spectrum

Turning Movement Count
Location Name: NORTH SERVICE RD & QEW WB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

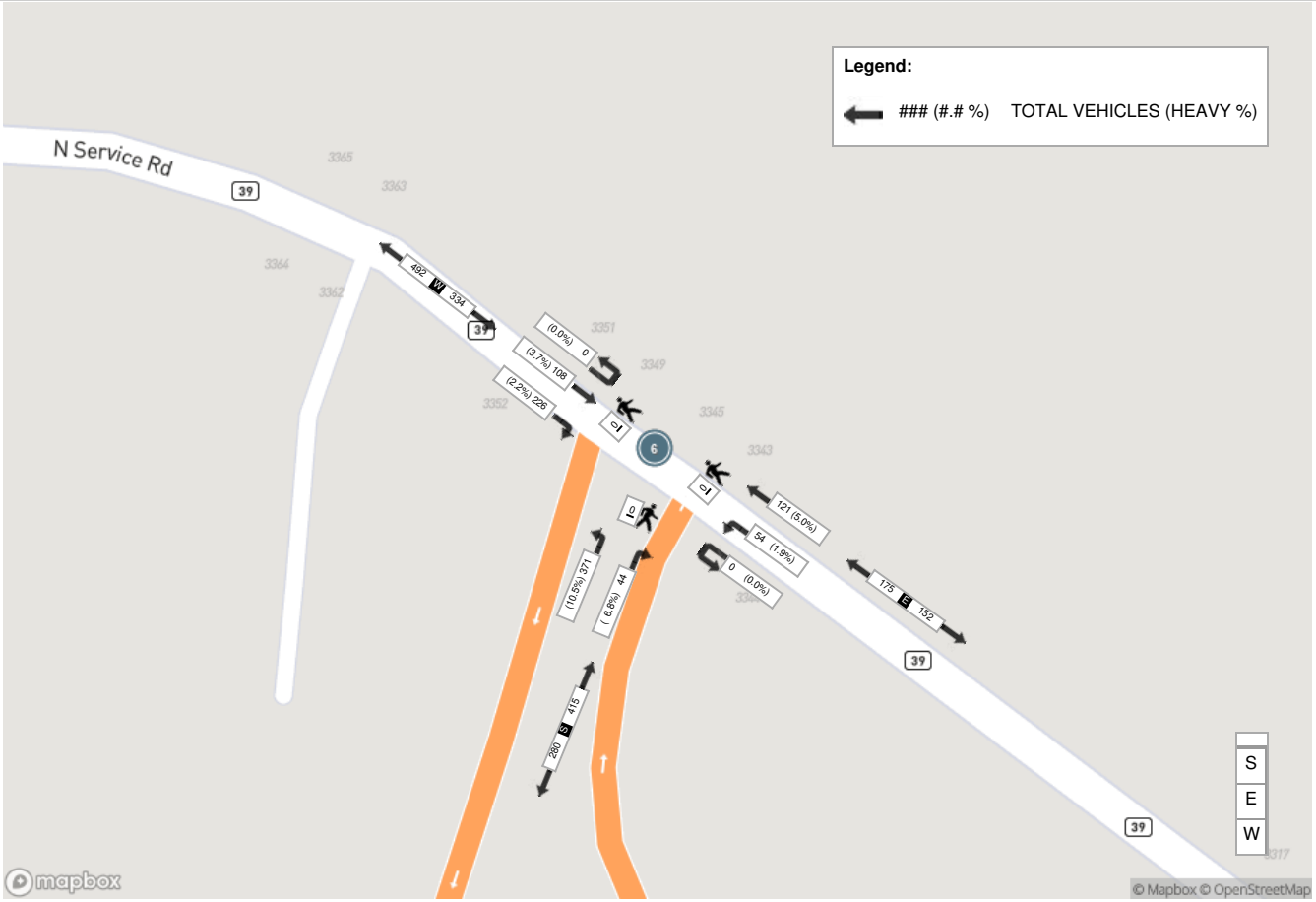
Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (11.95 °C)

Start Time	E Approach NORTH SERVICE RD					S Approach QEW WB RAMPS					W Approach NORTH SERVICE RD					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
15:00:00	38	9	0	0	47	5	61	0	0	66	59	24	0	0	83	196
15:15:00	23	11	0	0	34	7	78	0	0	85	51	24	0	0	75	194
15:30:00	45	17	0	0	62	9	62	0	0	71	57	32	0	0	89	222
15:45:00	33	12	0	0	45	10	69	0	0	79	51	26	0	0	77	201
Grand Total	139	49	0	0	188	31	270	0	0	301	218	106	0	0	324	**813**
Approach%	73.9%	26.1%	0%		-	10.3%	89.7%	0%		-	67.3%	32.7%	0%		-	-
Totals %	17.1%	6%	0%		23.1%	3.8%	33.2%	0%		37%	26.8%	13%	0%		39.9%	-
PHF	0.77	0.72	0		0.76	0.78	0.87	0		0.89	0.92	0.83	0		0.91	-
Heavy	10	5	0		15	3	40	0		43	11	8	0		19	-
Heavy %	7.2%	10.2%	0%		8%	9.7%	14.8%	0%		14.3%	5%	7.5%	0%		5.9%	-
Lights	127	44	0		171	28	230	0		258	207	98	0		305	-
Lights %	91.4%	89.8%	0%		91%	90.3%	85.2%	0%		85.7%	95%	92.5%	0%		94.1%	-
Single-Unit Trucks	5	3	0		8	3	19	0		22	7	5	0		12	-
Single-Unit Trucks %	3.6%	6.1%	0%		4.3%	9.7%	7%	0%		7.3%	3.2%	4.7%	0%		3.7%	-
Buses	1	0	0		1	0	2	0		2	2	1	0		3	-
Buses %	0.7%	0%	0%		0.5%	0%	0.7%	0%		0.7%	0.9%	0.9%	0%		0.9%	-
Articulated Trucks	4	2	0		6	0	19	0		19	2	2	0		4	-
Articulated Trucks %	2.9%	4.1%	0%		3.2%	0%	7%	0%		6.3%	0.9%	1.9%	0%		1.2%	-
Bicycles on Road	2	0	0		2	0	0	0		0	0	0	0		0	-
Bicycles on Road %	1.4%	0%	0%		1.1%	0%	0%	0%		0%	0%	0%	0%		0%	-

Turning Movement Count
Location Name: NORTH SERVICE RD & QEW WB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

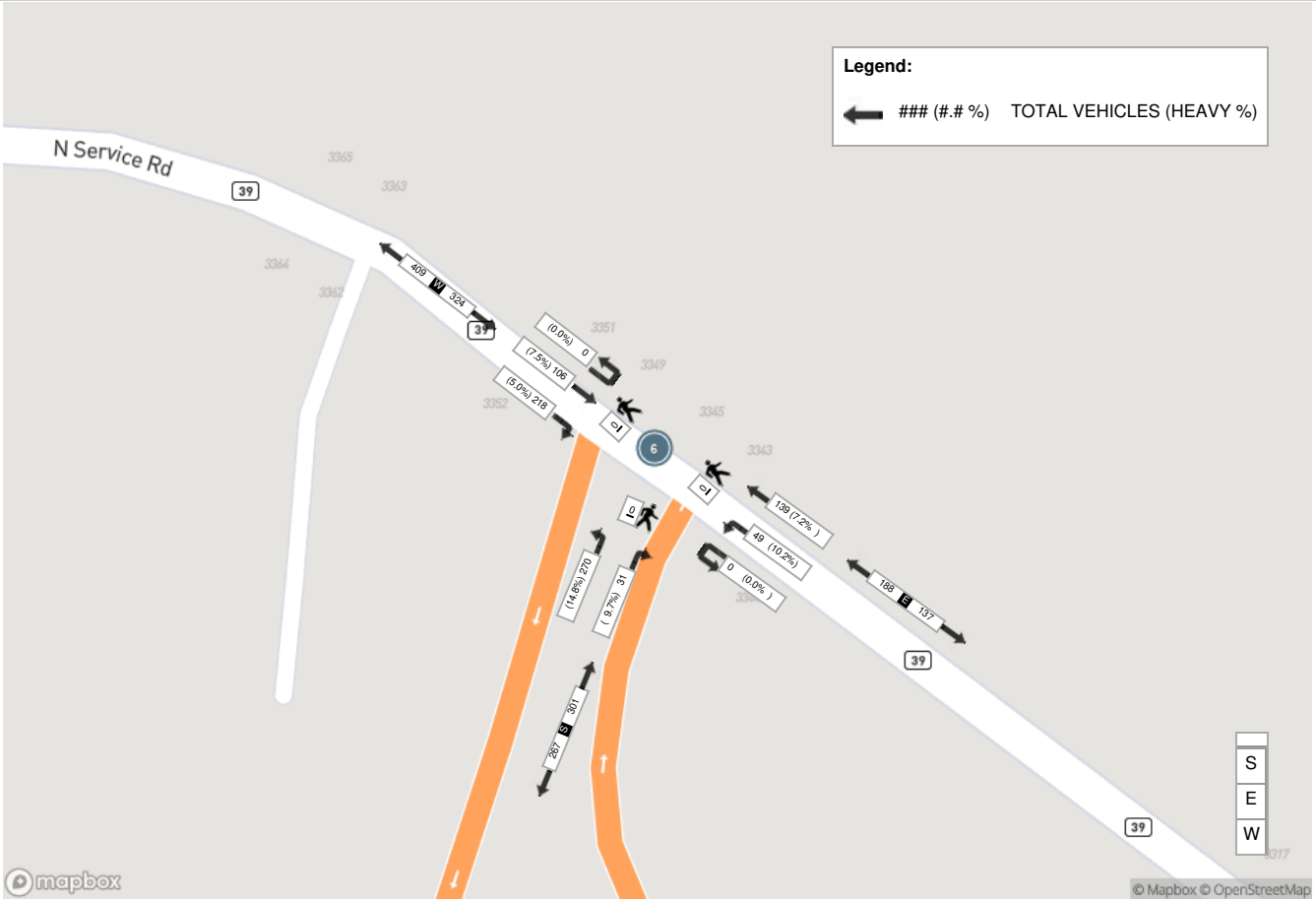
Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (4.13 °C)



Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (11.95 °C)



Spectrum

Turning Movement Count
Location Name: SOUTH SERVICE RD & QEW EB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Turning Movement Count (5 . SOUTH SERVICE RD & QEW EB RAMPS)

Start Time	N Approach QEW EB RAMPS					E Approach S SERVICE RD					W Approach S SERVICE RD					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	16	0	0	0	16	0	4	0	0	4	7	19	0	0	26	46	
06:15:00	27	0	0	0	27	1	11	0	0	12	15	21	0	0	36	75	
06:30:00	25	0	0	0	25	0	4	0	0	4	4	38	0	0	42	71	
06:45:00	25	1	0	0	26	0	7	0	0	7	7	32	0	0	39	72	264
07:00:00	31	0	0	0	31	2	5	0	0	7	8	51	0	0	59	97	315
07:15:00	35	2	0	0	37	4	8	0	0	12	9	58	0	0	67	116	356
07:30:00	47	2	0	0	49	2	3	0	0	5	7	61	0	0	68	122	407
07:45:00	30	2	0	0	32	3	7	0	0	10	7	78	0	0	85	127	462
08:00:00	38	0	0	0	38	2	5	0	0	7	9	66	0	0	75	120	485
08:15:00	55	1	0	0	56	0	4	0	0	4	4	61	0	0	65	125	494
08:30:00	51	1	0	0	52	3	5	0	0	8	6	82	0	0	88	148	520
08:45:00	45	1	0	0	46	0	2	0	0	2	13	58	0	0	71	119	512
09:00:00	34	1	0	0	35	1	6	0	0	7	5	62	0	0	67	109	501
09:15:00	33	1	0	0	34	2	3	0	0	5	4	55	0	0	59	98	474
09:30:00	45	1	0	0	46	0	3	0	0	3	5	45	0	0	50	99	425
09:45:00	46	2	0	0	48	1	1	0	0	2	4	72	0	0	76	126	432
BREAK																	
15:00:00	60	11	0	0	71	4	2	0	0	6	6	100	0	0	106	183	
15:15:00	76	7	0	0	83	6	7	0	0	13	6	78	0	0	84	180	
15:30:00	97	4	0	0	101	11	10	0	0	21	7	106	0	0	113	235	
15:45:00	75	6	0	0	81	10	6	0	0	16	6	106	0	0	112	209	807
16:00:00	75	4	0	0	79	5	9	0	0	14	8	108	0	0	116	209	833
16:15:00	81	7	0	0	88	5	8	0	0	13	7	122	0	0	129	230	883
16:30:00	79	5	0	0	84	9	10	0	0	19	9	140	0	0	149	252	900
16:45:00	90	3	0	0	93	3	2	0	0	5	4	102	0	0	106	204	895
17:00:00	83	7	0	0	90	8	7	0	0	15	3	146	0	0	149	254	940
17:15:00	79	7	0	0	86	9	8	0	0	17	9	106	0	0	115	218	928
17:30:00	64	5	0	0	69	7	4	0	0	11	2	77	0	0	79	159	835
17:45:00	75	6	0	0	81	4	4	0	0	8	3	59	0	0	62	151	782
18:00:00	55	4	0	0	59	2	2	0	0	4	2	52	0	0	54	117	645
18:15:00	62	0	0	0	62	1	1	0	0	2	2	42	0	0	44	108	535
18:30:00	52	2	0	0	54	3	2	0	0	5	1	67	0	0	68	127	503
18:45:00	58	2	0	0	60	2	3	0	0	5	3	42	0	0	45	110	462

Grand Total	1744	95	0	0	1839	110	163	0	0	273	192	2312	0	0	2504	**4616**	-
Approach%	94.8%	5.2%	0%		-	40.3%	59.7%	0%		-	7.7%	92.3%	0%		-	**-**	-
Totals %	37.8%	2.1%	0%		39.8%	2.4%	3.5%	0%		5.9%	4.2%	50.1%	0%		54.2%	**-**	-
Heavy	129	2	0		-	1	3	0		-	5	127	0		-	**-**	-
Heavy %	7.4%	2.1%	0%		-	0.9%	1.8%	0%		-	2.6%	5.5%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: SOUTH SERVICE RD & QEW EB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (4.13 °C)

Start Time	N Approach QEW EB RAMPS					E Approach S SERVICE RD					W Approach S SERVICE RD					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	30	2	0	0	32	3	7	0	0	10	7	78	0	0	85	127
08:00:00	38	0	0	0	38	2	5	0	0	7	9	66	0	0	75	120
08:15:00	55	1	0	0	56	0	4	0	0	4	4	61	0	0	65	125
08:30:00	51	1	0	0	52	3	5	0	0	8	6	82	0	0	88	148
Grand Total	174	4	0	0	178	8	21	0	0	29	26	287	0	0	313	**520**
Approach%	97.8%	2.2%	0%		-	27.6%	72.4%	0%		-	8.3%	91.7%	0%		-	-
Totals %	33.5%	0.8%	0%		34.2%	1.5%	4%	0%		5.6%	5%	55.2%	0%		60.2%	-
PHF	0.79	0.5	0		0.79	0.67	0.75	0		0.73	0.72	0.88	0		0.89	-
Heavy	23	1	0		24	1	0	0		1	0	23	0		23	-
Heavy %	13.2%	25%	0%		13.5%	12.5%	0%	0%		3.4%	0%	8%	0%		7.3%	-
Lights	151	3	0		154	7	21	0		28	26	264	0		290	-
Lights %	86.8%	75%	0%		86.5%	87.5%	100%	0%		96.6%	100%	92%	0%		92.7%	-
Single-Unit Trucks	9	1	0		10	1	0	0		1	0	9	0		9	-
Single-Unit Trucks %	5.2%	25%	0%		5.6%	12.5%	0%	0%		3.4%	0%	3.1%	0%		2.9%	-
Buses	2	0	0		2	0	0	0		0	0	3	0		3	-
Buses %	1.1%	0%	0%		1.1%	0%	0%	0%		0%	0%	1%	0%		1%	-
Articulated Trucks	12	0	0		12	0	0	0		0	0	11	0		11	-
Articulated Trucks %	6.9%	0%	0%		6.7%	0%	0%	0%		0%	0%	3.8%	0%		3.5%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-

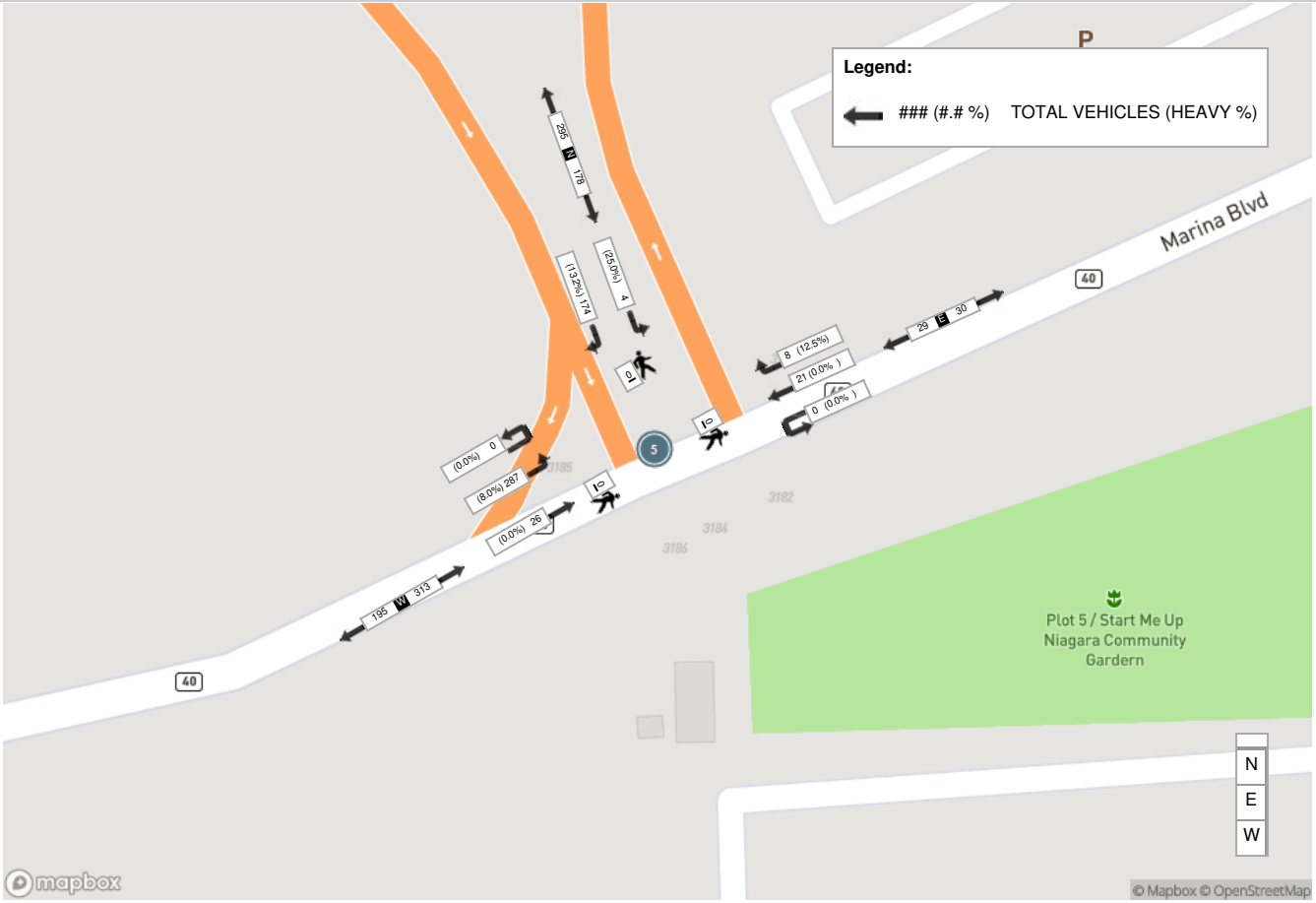
Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (11.95 °C)

Start Time	N Approach QEW EB RAMPS					E Approach S SERVICE RD					W Approach S SERVICE RD					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	81	7	0	0	88	5	8	0	0	13	7	122	0	0	129	230
16:30:00	79	5	0	0	84	9	10	0	0	19	9	140	0	0	149	252
16:45:00	90	3	0	0	93	3	2	0	0	5	4	102	0	0	106	204
17:00:00	83	7	0	0	90	8	7	0	0	15	3	146	0	0	149	254
Grand Total	333	22	0	0	355	25	27	0	0	52	23	510	0	0	533	**940**
Approach%	93.8%	6.2%	0%		-	48.1%	51.9%	0%		-	4.3%	95.7%	0%		-	-
Totals %	35.4%	2.3%	0%		37.8%	2.7%	2.9%	0%		5.5%	2.4%	54.3%	0%		56.7%	-
PHF	0.93	0.79	0		0.95	0.69	0.68	0		0.68	0.64	0.87	0		0.89	-
Heavy	12	0	0		12	0	2	0		2	1	16	0		17	-
Heavy %	3.6%	0%	0%		3.4%	0%	7.4%	0%		3.8%	4.3%	3.1%	0%		3.2%	-
Lights	321	22	0		343	25	25	0		50	22	494	0		516	-
Lights %	96.4%	100%	0%		96.6%	100%	92.6%	0%		96.2%	95.7%	96.9%	0%		96.8%	-
Single-Unit Trucks	7	0	0		7	0	2	0		2	1	8	0		9	-
Single-Unit Trucks %	2.1%	0%	0%		2%	0%	7.4%	0%		3.8%	4.3%	1.6%	0%		1.7%	-
Buses	1	0	0		1	0	0	0		0	0	4	0		4	-
Buses %	0.3%	0%	0%		0.3%	0%	0%	0%		0%	0%	0.8%	0%		0.8%	-
Articulated Trucks	4	0	0		4	0	0	0		0	0	4	0		4	-
Articulated Trucks %	1.2%	0%	0%		1.1%	0%	0%	0%		0%	0%	0.8%	0%		0.8%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-

Turning Movement Count
Location Name: SOUTH SERVICE RD & QEW EB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

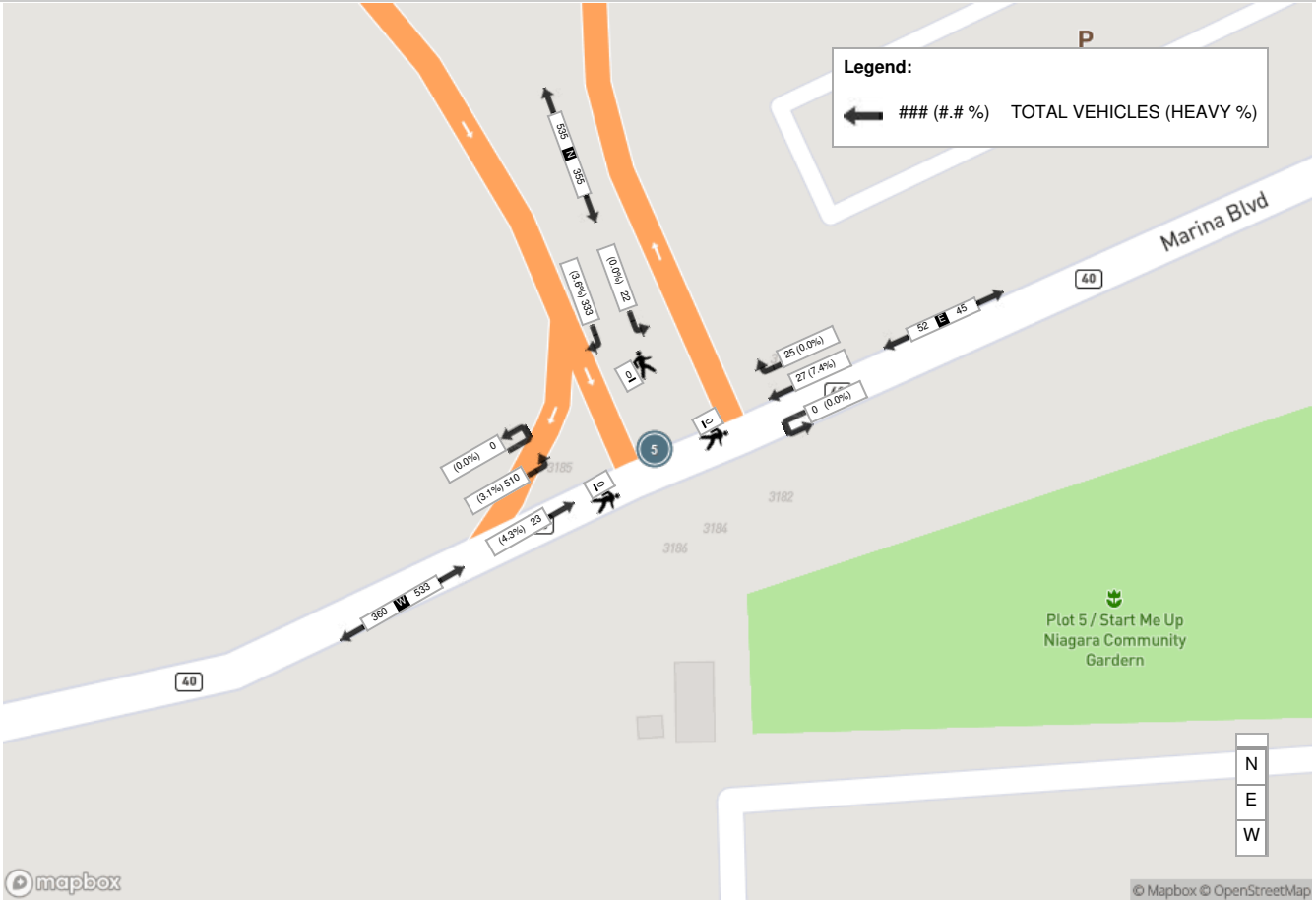
Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (4.13 °C)



Turning Movement Count
Location Name: SOUTH SERVICE RD & QEW EB RAMPS
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

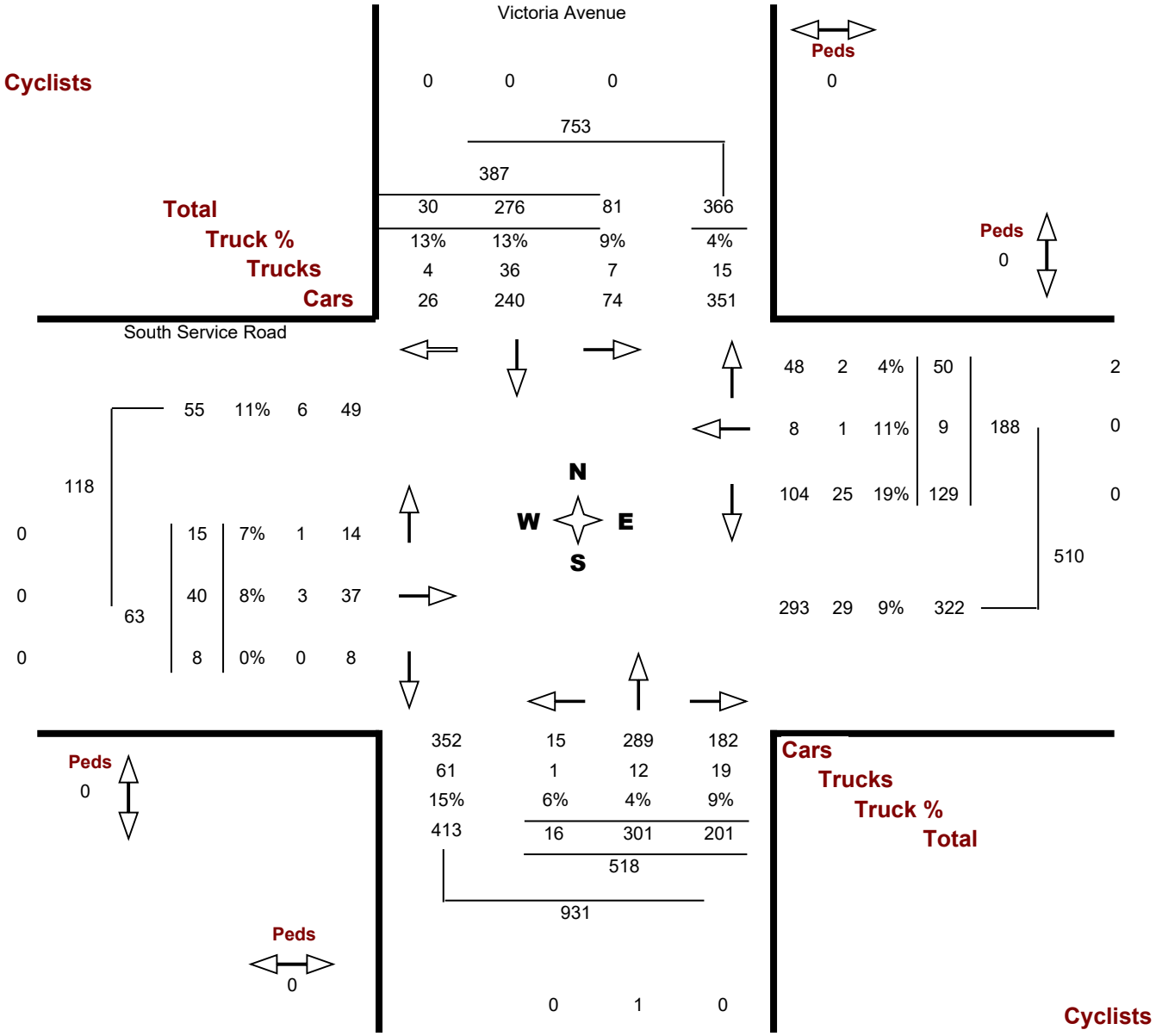
Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (11.95 °C)



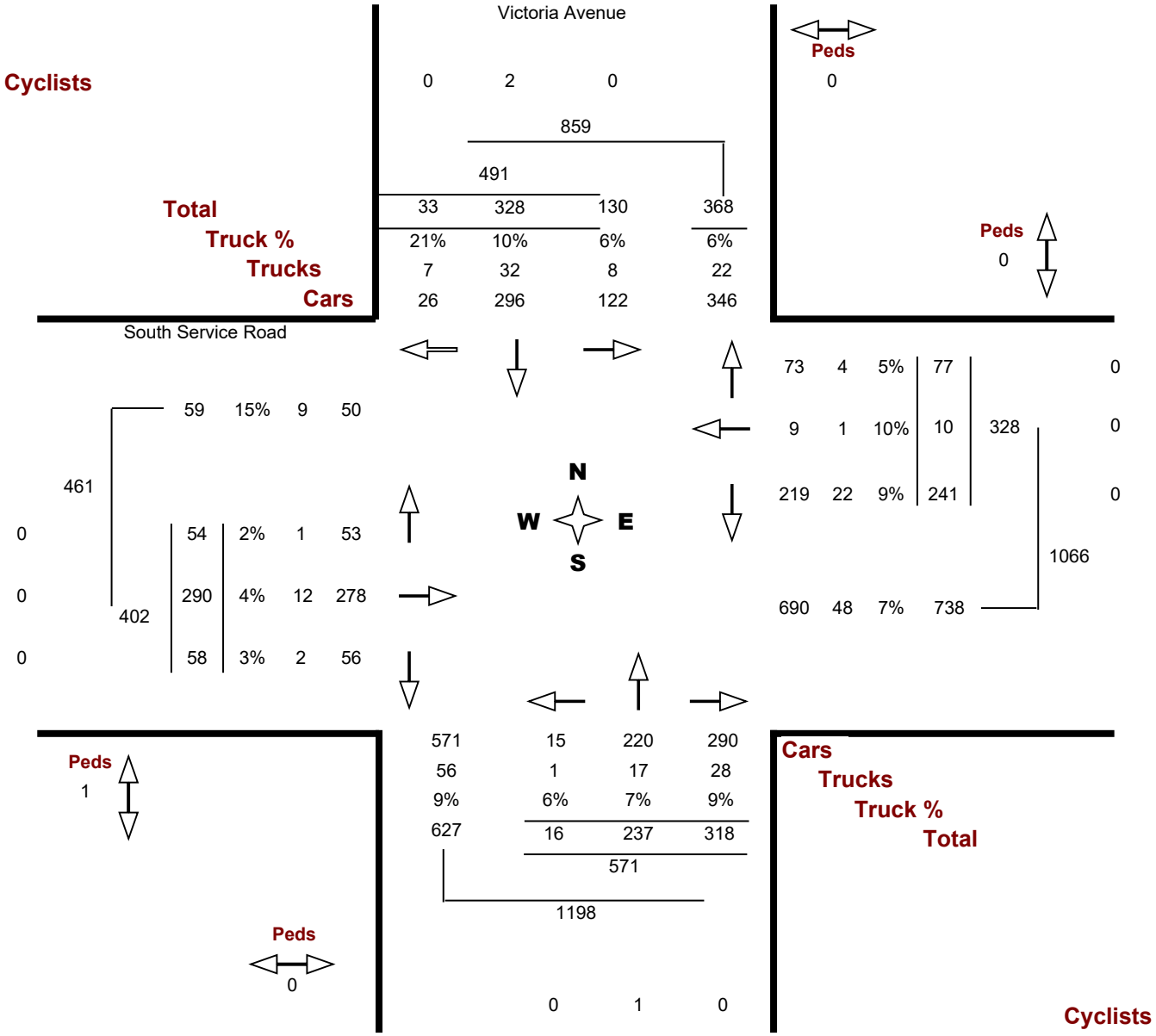
Turning Movements Report - AM Period

Location.....	South Service Road @ Victoria Avenue	**GeoID.....**	01330
Municipality.	LINCOLN	**Count Date.**	Wednesday, 09 August, 2023
Traffic Cont.		**Count Time.**	07:00 AM — 09:00 AM
Major Dir.....	North south	**Peak Hour..**	08:00 AM — 09:00 AM



Turning Movements Report - PM Period

Location.....	South Service Road @ Victoria Avenue	**GeoID.....**	01330
Municipality.	LINCOLN	**Count Date.**	Wednesday, 09 August, 2023
Traffic Cont.		**Count Time.**	03:00 PM — 06:00 PM
Major Dir.....	North south	**Peak Hour..**	03:00 PM — 04:00 PM



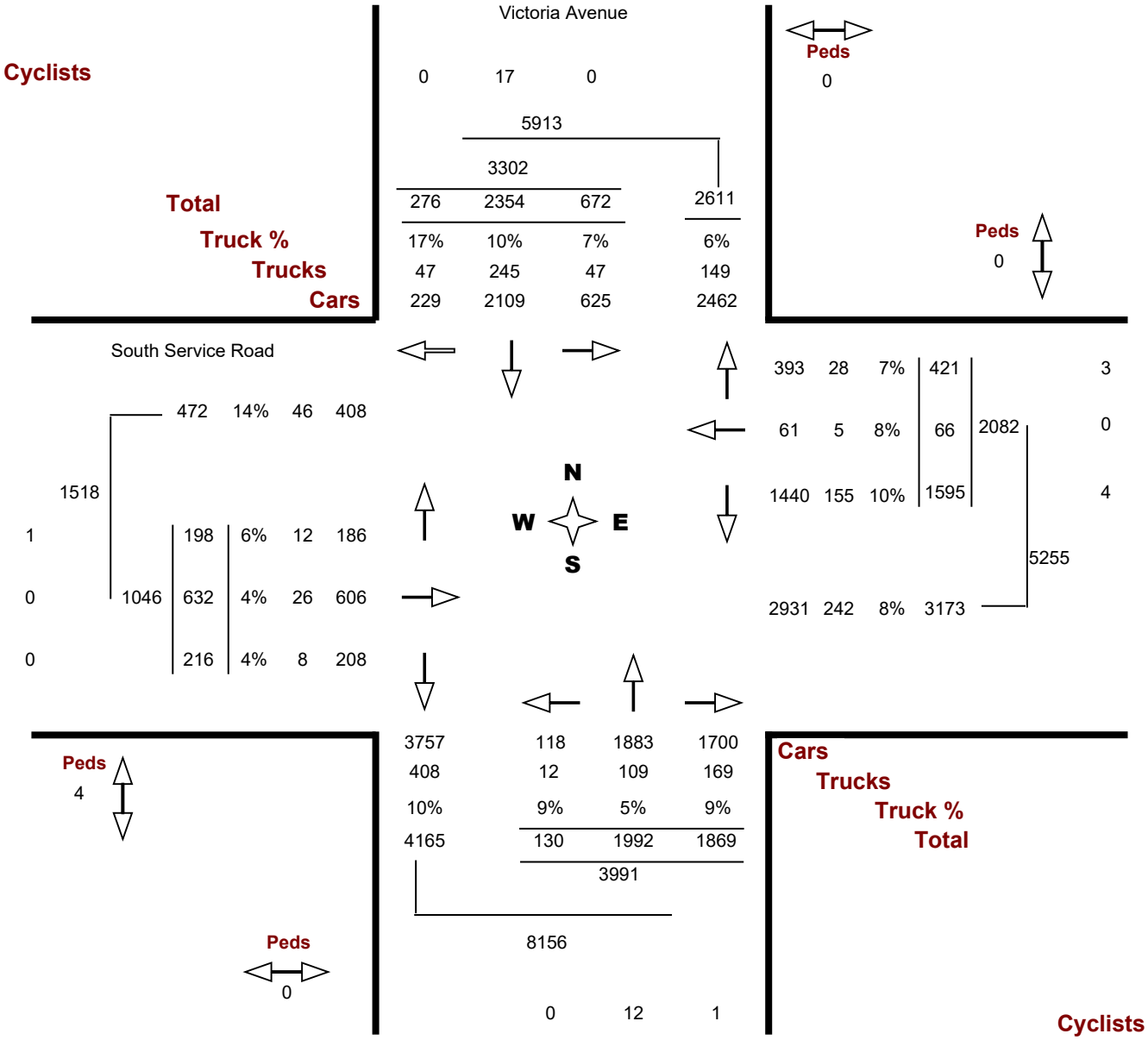
Turning Movement Count Report
Full Study

Location..... South Service Road @ Victoria Avenue

Municipality..... LINCOLN

GeoID..... 01330

Count Date..... Wednesday, 09 August, 2023



Turning Movement Count - Details Report (15 min)

Location..... South Service Road @ Victoria Avenue

Municipality..... LINCOLN

Count Date..... Wednesday, August 09, 2023

		Victoria Avenue										South Service Road									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	16	44	10	0	70	7	51	40	0	98	27	0	6	0	33	2	5	4	0	11
07:15	07:30	8	49	8	0	65	8	90	35	0	133	27	0	9	0	36	1	3	3	0	7
07:30	07:45	11	78	9	0	98	3	89	59	0	151	24	2	10	0	36	5	5	3	0	13
07:45	08:00	21	69	17	0	107	9	79	44	0	132	31	3	5	0	39	5	5	1	0	11
Hourly Total		56	240	44	0	340	27	309	178	0	514	109	5	30	0	144	13	18	11	0	42
08:00	08:15	20	63	9	0	92	2	93	55	0	150	29	2	16	0	47	5	12	1	0	18
08:15	08:30	14	63	7	0	84	4	74	40	0	118	29	4	13	0	46	6	4	3	0	13
08:30	08:45	22	68	6	0	96	3	73	54	0	130	36	1	14	0	51	4	12	1	0	17
08:45	09:00	25	82	8	0	115	7	61	52	0	120	35	2	7	0	44	0	12	3	0	15
Hourly Total		81	276	30	0	387	16	301	201	0	518	129	9	50	0	188	15	40	8	0	63
11:00	11:15	16	59	4	0	79	2	56	40	0	98	46	1	11	0	58	5	8	4	0	17
11:15	11:30	11	76	5	0	92	1	57	51	0	109	35	3	11	0	49	8	7	3	0	18
11:30	11:45	14	75	11	0	100	4	64	51	0	119	39	2	10	0	51	5	12	9	0	26
11:45	12:00	16	91	10	0	117	4	50	46	0	100	44	2	18	0	64	3	7	9	0	19
Hourly Total		57	301	30	0	388	11	227	188	0	426	164	8	50	0	222	21	34	25	0	80
12:00	12:15	20	75	8	0	103	6	47	58	0	111	52	1	18	0	71	7	10	3	0	20
12:15	12:30	17	62	9	0	88	4	88	64	0	156	49	6	8	0	63	3	12	4	0	19
12:30	12:45	15	72	9	0	96	5	48	49	0	102	45	3	12	0	60	8	12	6	0	26
12:45	13:00	20	82	11	0	113	3	67	60	0	130	46	0	12	0	58	9	8	4	0	21
Hourly Total		72	291	37	0	400	18	250	231	0	499	192	10	50	0	252	27	42	17	0	86
13:00	13:15	18	72	4	0	94	3	54	42	0	99	48	3	14	0	65	3	6	10	0	19
13:15	13:30	11	51	10	0	72	2	66	49	0	117	46	3	15	0	64	5	11	5	0	21
13:30	13:45	11	76	10	0	97	7	38	55	0	100	35	0	12	0	47	7	11	2	0	20
13:45	14:00	8	93	12	0	113	3	61	55	0	119	39	1	16	0	56	8	11	7	0	26
Hourly Total		48	292	36	0	376	15	219	201	0	435	168	7	57	0	232	23	39	24	0	86
15:00	15:15	49	92	4	0	145	5	62	73	0	140	36	5	10	0	51	9	94	24	0	127
15:15	15:30	48	83	10	0	141	1	55	82	0	138	49	2	11	0	62	10	97	12	0	119
15:30	15:45	18	85	8	0	111	6	60	102	0	168	78	0	31	0	109	26	75	14	0	115
15:45	16:00	15	68	11	0	94	4	60	61	0	125	78	3	25	0	106	9	24	8	0	41
Hourly Total		130	328	33	0	491	16	237	318	0	571	241	10	77	0	328	54	290	58	0	402
16:00	16:15	21	82	4	0	107	4	60	106	0	170	75	2	8	0	85	9	30	8	0	47

		Victoria Avenue												South Service Road							
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
16:15	16:30	15	81	15	0	111	4	66	66	0	136	70	4	14	0	88	5	11	13	0	29
16:30	16:45	50	101	13	0	164	7	52	86	0	145	66	3	15	0	84	7	41	13	0	61
16:45	17:00	23	96	9	0	128	3	63	59	0	125	77	1	19	0	97	7	15	8	0	30
Hourly Total		109	360	41	0	510	18	241	317	0	576	288	10	56	0	354	28	97	42	0	167
17:00	17:15	58	90	10	0	158	2	51	76	0	129	74	0	10	0	84	6	37	11	0	54
17:15	17:30	29	68	8	0	105	3	58	62	0	123	89	3	14	0	106	2	16	13	0	31
17:30	17:45	19	49	2	0	70	3	60	59	0	122	71	2	13	0	86	6	8	6	0	20
17:45	18:00	13	59	5	0	77	1	39	38	0	78	70	2	14	0	86	3	11	1	0	15
Hourly Total		119	266	25	0	410	9	208	235	0	452	304	7	51	0	362	17	72	31	0	120
Grand Total		672	2354	276	0	3302	130	1992	1869	0	3991	1595	66	421	0	2082	198	632	216	0	1046
Truck %		7%	10%	17%	0%	10%	9%	5%	9%	0%	7%	10%	8%	7%	0%	9%	6%	4%	4%	0%	4%

APPENDIX B

Traffic Counts

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 11:00:00
To: 12:00:00

Municipality: Lincoln
Site #: 1804200001
Intersection: North Service Rd & QEW On/Off rar
TFR File #: 8
Count date: 27-Jan-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: North Service Rd runs W/E

East Leg Total:	394
East Entering:	197
East Peds:	0
Peds Cross:	

North Service Rd

Cyclists	Trucks	Cars	Totals
0	7	288	295

North Service Rd

Cyclists	Trucks	Cars	Totals
0	2	139	141
0	2	174	176
0	4	313	

N
W E
S

QEW On/Off ramp

Cars	Trucks	Cyclists	Totals
123	2	0	125
68	4	0	72
191	6	0	

North Service Rd

Cars	Trucks	Cyclists	Totals
192	5	0	197

Peds Cross:	
West Peds:	0
West Entering:	317
West Leg Total:	612

Cars	242
Trucks	6
Cyclists	0
Totals	248

Cars	165	53	218
Trucks	5	3	8
Cyclists	0	0	0
Totals	170	56	

Peds Cross:	
South Peds:	0
South Entering:	226
South Leg Total:	474

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Lincoln
Site #: 1804200001
Intersection: North Service Rd & QEW On/Off rar
TFR File #: 8
Count date: 27-Jan-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: North Service Rd runs W/E

East Leg Total:	1458
East Entering:	773
East Peds:	0
Peds Cross:	⧗

North Service Rd

Cyclists	Trucks	Cars	Totals
0	21	1164	1185

Cars	Trucks	Cyclists	Totals
439	4	0	443
318	12	0	330
757	16	0	

N
W E
S

North Service Rd

Cyclists	Trucks	Cars	Totals
0	5	453	458
0	6	625	631
0	11	1078	

Cars	Trucks	Cyclists	Totals
676	9	0	685

QEW On/Off ramp

Peds Cross:	⧗
West Peds:	0
West Entering:	1089
West Leg Total:	2274

Cars	943
Trucks	18
Cyclists	0
Totals	961

Cars	725	223	948
Trucks	17	4	21
Cyclists	0	0	0
Totals	742	227	

Peds Cross:	⋈
South Peds:	0
South Entering:	969
South Leg Total:	1930

Comments

Ontario Traffic Inc.

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Lincoln
Site #: 1804200002
Intersection: South Service Rd & QEW On/Off ra
TFR File #: 1
Count date: 27-Jan-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: South Service Rd runs W/E

North Leg Total:	509
North Entering:	231
North Peds:	0
Peds Cross:	⋈

Cyclists	0	0	0
Trucks	4	0	4
Cars	207	20	227
Totals	211	20	

Cyclists	0
Trucks	0
Cars	278
Totals	278

East Leg Total:	53
East Entering:	17
East Peds:	0
Peds Cross:	⧗

QEW On/Off ramp

Cyclists	Trucks	Cars	Totals
0	4	214	218

Cars	Trucks	Cyclists	Totals
10	0	0	10
7	0	0	7
17	0	0	

South Service Rd

N
W E
S

Cyclists	Trucks	Cars	Totals
0	0	268	268
0	0	16	16
0	0	284	

South Service Rd

Cars	Trucks	Cyclists	Totals
36	0	0	36

Peds Cross:	⧗
West Peds:	0
West Entering:	284
West Leg Total:	502

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Lincoln
Site #: 1804200002
Intersection: South Service Rd & QEW On/Off ra
TFR File #: 1
Count date: 27-Jan-18

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: South Service Rd runs W/E

North Leg Total: 1837
North Entering: 825
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	7	0	7
Cars	761	57	818
Totals	768	57	

Cyclists	0
Trucks	10
Cars	1002
Totals	1012

East Leg Total: 192
East Entering: 79
East Peds: 0
Peds Cross: ⧗

QEW On/Off ramp

Cyclists	Trucks	Cars	Totals
0	8	802	810

South Service Rd

Cyclists	Trucks	Cars	Totals
0	9	966	975
0	1	55	56
0	10	1021	

N
W E
S

Cars	Trucks	Cyclists	Totals
36	1	0	37
41	1	0	42
77	2	0	

South Service Rd

Cars	Trucks	Cyclists	Totals
112	1	0	113

Peds Cross: ⧗
West Peds: 0
West Entering: 1031
West Leg Total: 1841

Comments

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & DUSTAN ST
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Turning Movement Count (4 . VICTORIA AVE N & DUSTAN ST)

Start Time	N Approach VICTORIA AVE N					E Approach DUSTAN ST					S Approach VICTORIA AVE N					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total		
06:00:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	
06:15:00	1	0	0	0	1	0	3	0	0	3	0	4	0	0	4	8	
06:30:00	0	0	0	0	0	0	5	0	0	5	1	1	1	0	3	8	
06:45:00	1	0	0	2	1	0	0	0	0	0	1	0	0	0	1	2	20
07:00:00	3	0	0	0	3	0	3	0	0	3	1	2	0	0	3	9	27
07:15:00	3	0	1	1	4	0	8	0	0	8	3	3	0	0	6	18	37
07:30:00	1	1	0	2	2	0	4	0	0	4	1	3	0	0	4	10	39
07:45:00	3	0	0	4	3	0	4	0	0	4	1	7	0	0	8	15	52
08:00:00	3	0	0	0	3	1	8	0	0	9	2	1	0	0	3	15	58
08:15:00	3	2	0	0	5	2	6	0	0	8	1	11	0	0	12	25	65
08:30:00	2	3	0	3	5	1	5	0	0	6	4	15	0	0	19	30	85
08:45:00	2	2	0	1	4	1	8	0	0	9	4	5	0	0	9	22	92
09:00:00	1	0	0	2	1	0	5	0	0	5	1	7	0	0	8	14	91
09:15:00	2	0	0	0	2	0	1	0	0	1	2	7	0	0	9	12	78
09:30:00	3	0	0	0	3	0	11	0	0	11	4	2	0	0	6	20	68
09:45:00	7	1	0	0	8	0	5	0	0	5	3	7	0	0	10	23	69
BREAK																	
15:00:00	7	0	0	2	7	0	1	0	0	1	2	4	0	0	6	14	
15:15:00	7	1	0	0	8	0	3	0	0	3	5	5	0	0	10	21	
15:30:00	8	2	0	4	10	0	2	0	0	2	2	3	0	0	5	17	
15:45:00	7	1	0	0	8	0	7	0	0	7	5	5	0	0	10	25	77
16:00:00	5	0	0	4	5	0	9	0	0	9	6	2	0	1	8	22	85
16:15:00	12	2	0	0	14	0	4	0	0	4	3	6	0	0	9	27	91
16:30:00	5	2	0	0	7	0	2	0	0	2	5	6	0	0	11	20	94
16:45:00	5	1	0	0	6	1	1	0	0	2	7	10	0	0	17	25	94
17:00:00	3	1	0	0	4	0	2	0	0	2	5	3	0	0	8	14	86
17:15:00	3	0	0	1	3	1	2	0	0	3	8	4	0	0	12	18	77
17:30:00	5	1	0	1	6	0	5	0	0	5	7	2	0	0	9	20	77
17:45:00	4	2	0	2	6	0	4	0	0	4	1	4	0	0	5	15	67
18:00:00	0	2	0	0	2	0	3	0	0	3	5	1	0	0	6	11	64
18:15:00	3	0	0	0	3	0	4	0	1	4	3	3	0	0	6	13	59
18:30:00	1	0	0	1	1	0	5	0	0	5	5	3	0	0	8	14	53
18:45:00	1	1	0	0	2	0	4	0	0	4	5	2	0	0	7	13	51

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Grand Total	111	25	1	30	137	7	136	0	1	143	103	138	1	1	242	**522**	-
Approach%	81%	18.2%	0.7%		-	4.9%	95.1%	0%		-	42.6%	57%	0.4%		-	**-**	-
Totals %	21.3%	4.8%	0.2%		26.2%	1.3%	26.1%	0%		27.4%	19.7%	26.4%	0.2%		46.4%	**-**	-
Heavy	6	5	0		-	5	7	0		-	7	7	0		-	**-**	-
Heavy %	5.4%	20%	0%		-	71.4%	5.1%	0%		-	6.8%	5.1%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & DUSTAN ST
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (4.13 °C)

Start Time	N Approach VICTORIA AVE N					E Approach DUSTAN ST					S Approach VICTORIA AVE N					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
08:00:00	3	0	0	0	3	1	8	0	0	9	2	1	0	0	3	15
08:15:00	3	2	0	0	5	2	6	0	0	8	1	11	0	0	12	25
08:30:00	2	3	0	3	5	1	5	0	0	6	4	15	0	0	19	30
08:45:00	2	2	0	1	4	1	8	0	0	9	4	5	0	0	9	22
Grand Total	10	7	0	4	17	5	27	0	0	32	11	32	0	0	43	**92**
Approach%	58.8%	41.2%	0%		-	15.6%	84.4%	0%		-	25.6%	74.4%	0%		-	-
Totals %	10.9%	7.6%	0%		18.5%	5.4%	29.3%	0%		34.8%	12%	34.8%	0%		46.7%	-
PHF	0.83	0.58	0		0.85	0.63	0.84	0		0.89	0.69	0.53	0		0.57	-
Heavy	1	4	0		5	4	1	0		5	1	1	0		2	-
Heavy %	10%	57.1%	0%		29.4%	80%	3.7%	0%		15.6%	9.1%	3.1%	0%		4.7%	-
Lights	8	3	0		11	1	26	0		27	10	30	0		40	-
Lights %	80%	42.9%	0%		64.7%	20%	96.3%	0%		84.4%	90.9%	93.8%	0%		93%	-
Single-Unit Trucks	1	4	0		5	4	0	0		4	0	1	0		1	-
Single-Unit Trucks %	10%	57.1%	0%		29.4%	80%	0%	0%		12.5%	0%	3.1%	0%		2.3%	-
Buses	0	0	0		0	0	1	0		1	1	0	0		1	-
Buses %	0%	0%	0%		0%	0%	3.7%	0%		3.1%	9.1%	0%	0%		2.3%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Bicycles on Road	1	0	0		1	0	0	0		0	0	1	0		1	-
Bicycles on Road %	10%	0%	0%		5.9%	0%	0%	0%		0%	0%	3.1%	0%		2.3%	-
Pedestrians	-	-	-	4	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	100%		-	-	-	0%		-	-	-	0%		-

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & DUSTAN ST
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

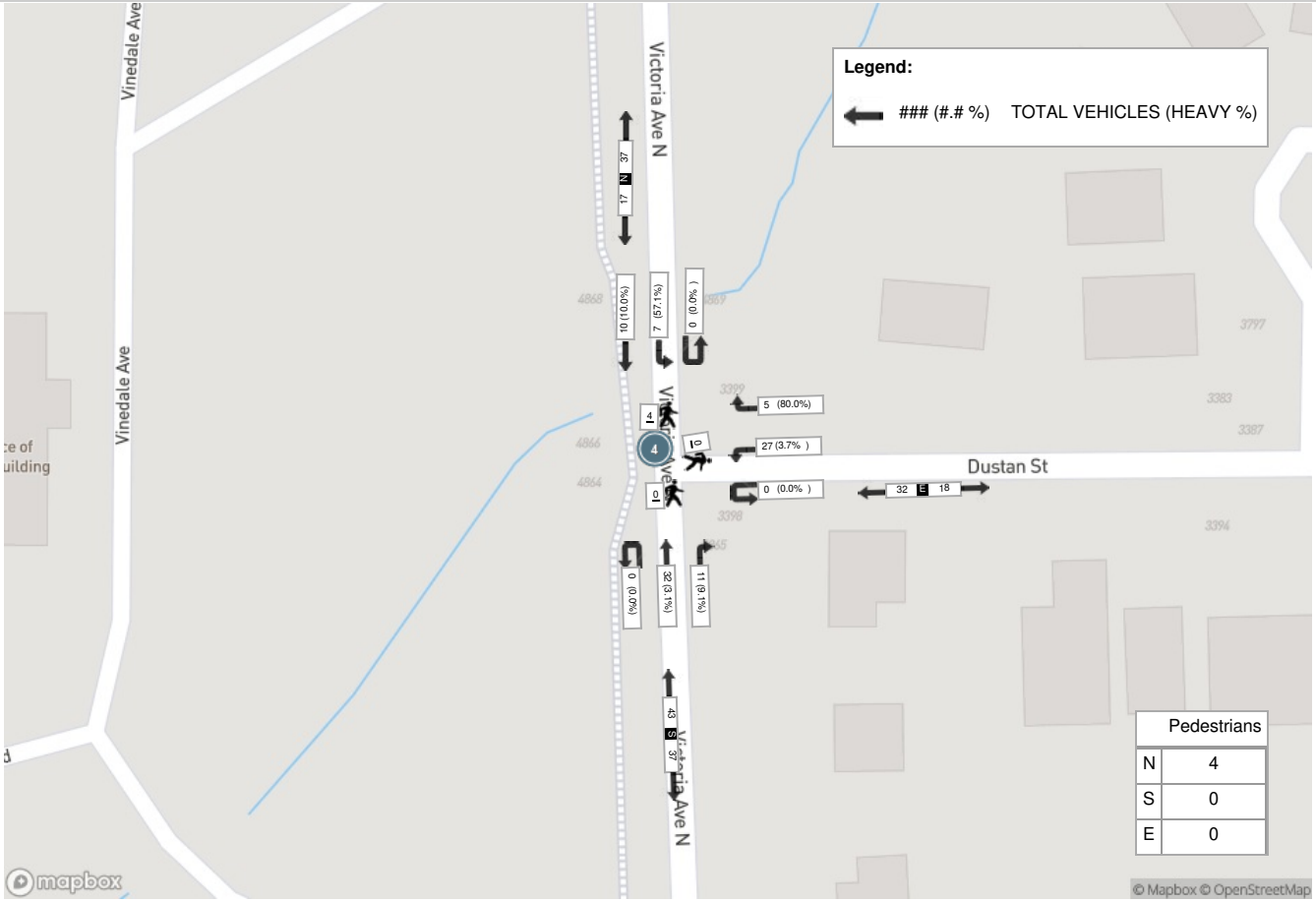
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (11.95 °C)

Start Time	N Approach VICTORIA AVE N					E Approach DUSTAN ST					S Approach VICTORIA AVE N					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:00:00	5	0	0	4	5	0	9	0	0	9	6	2	0	1	8	22
16:15:00	12	2	0	0	14	0	4	0	0	4	3	6	0	0	9	27
16:30:00	5	2	0	0	7	0	2	0	0	2	5	6	0	0	11	20
16:45:00	5	1	0	0	6	1	1	0	0	2	7	10	0	0	17	25
Grand Total	27	5	0	4	32	1	16	0	0	17	21	24	0	1	45	**94**
Approach%	84.4%	15.6%	0%		-	5.9%	94.1%	0%		-	46.7%	53.3%	0%		-	-
Totals %	28.7%	5.3%	0%		34%	1.1%	17%	0%		18.1%	22.3%	25.5%	0%		47.9%	-
PHF	0.56	0.63	0		0.57	0.25	0.44	0		0.47	0.75	0.6	0		0.66	-
Heavy	1	0	0		1	0	1	0		1	0	2	0		2	-
Heavy %	3.7%	0%	0%		3.1%	0%	6.3%	0%		5.9%	0%	8.3%	0%		4.4%	-
Lights	26	5	0		31	1	15	0		16	21	22	0		43	-
Lights %	96.3%	100%	0%		96.9%	100%	93.8%	0%		94.1%	100%	91.7%	0%		95.6%	-
Single-Unit Trucks	1	0	0		1	0	1	0		1	0	2	0		2	-
Single-Unit Trucks %	3.7%	0%	0%		3.1%	0%	6.3%	0%		5.9%	0%	8.3%	0%		4.4%	-
Buses	0	0	0		0	0	0	0		0	0	0	0		0	-
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	4	-	-	-	-	0	-	-	-	-	1	-	-
Pedestrians%	-	-	-	80%		-	-	-	0%		-	-	-	20%		-

Turning Movement Count
Location Name: VICTORIA AVE N & DUSTAN ST
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

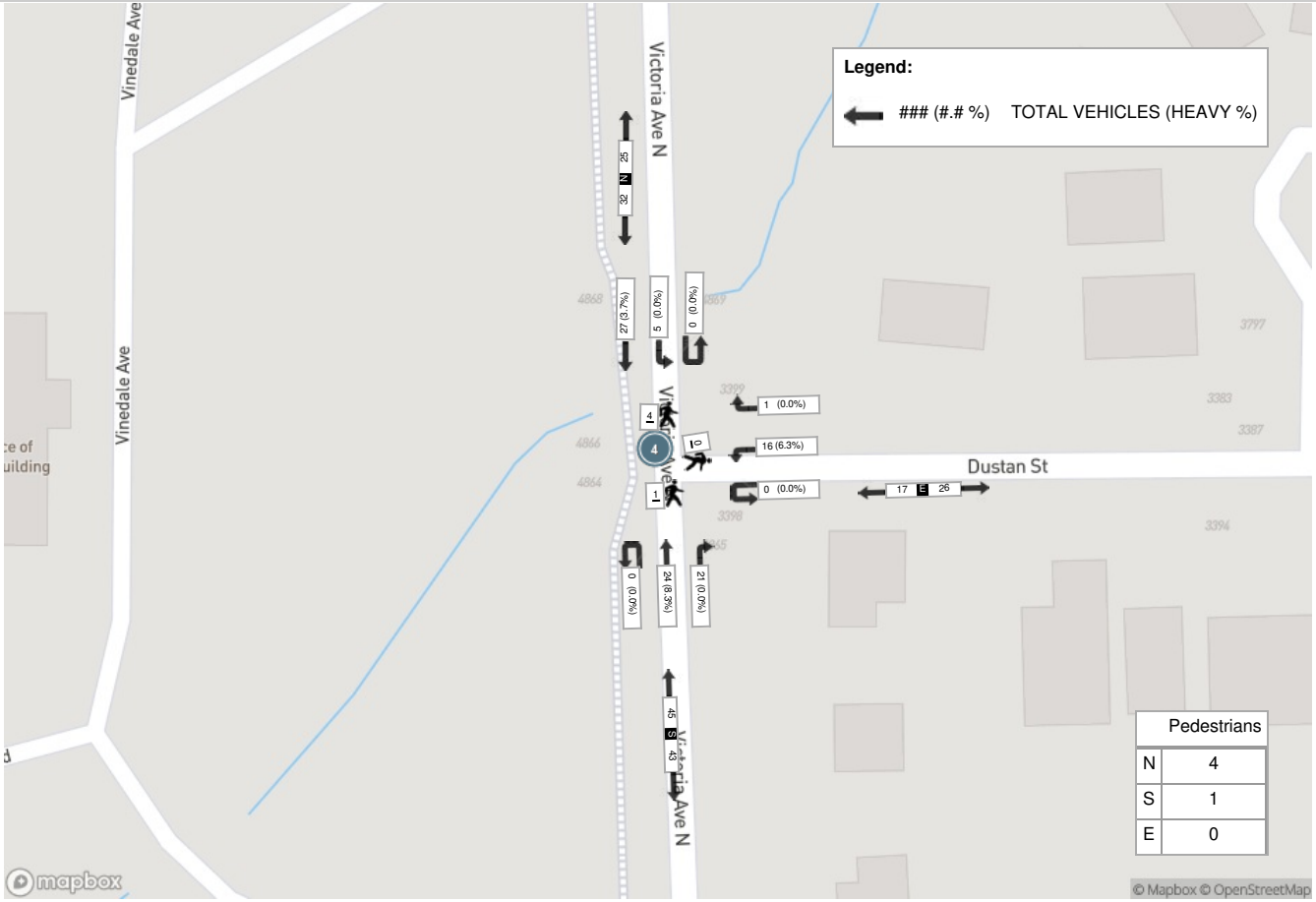
Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (4.13 °C)



Turning Movement Count
Location Name: VICTORIA AVE N & DUSTAN ST
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (11.95 °C)



Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & LAURIE AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Turning Movement Count (3 . VICTORIA AVE N & LAURIE AVE)

Start Time	N Approach VICTORIA AVE N					E Approach LAURIE AVE					S Approach VICTORIA AVE N					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total		
06:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
06:15:00	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4	4	
06:30:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
06:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	5
07:00:00	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	1	6
07:15:00	1	0	0	2	1	0	1	0	0	1	1	1	0	2	2	4	6
07:30:00	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2	7
07:45:00	0	0	0	0	0	0	2	0	2	2	0	0	0	3	0	2	9
08:00:00	1	0	0	0	1	0	1	0	0	1	1	1	0	0	2	4	12
08:15:00	3	0	0	0	3	0	1	0	0	1	1	4	1	0	6	10	18
08:30:00	2	0	0	0	2	0	2	0	0	2	4	4	1	1	9	13	29
08:45:00	2	0	0	0	2	0	2	0	0	2	0	2	0	3	2	6	33
09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	29
09:15:00	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	22
09:30:00	1	0	0	0	1	0	2	0	2	2	0	2	0	0	2	5	14
09:45:00	2	0	0	0	2	0	3	0	0	3	3	0	0	7	3	8	16
BREAK																	
15:00:00	4	0	0	0	4	0	1	0	0	1	0	3	0	0	3	8	
15:15:00	3	0	0	0	3	0	0	0	0	0	0	2	0	1	2	5	
15:30:00	5	0	0	0	5	0	3	0	0	3	2	2	0	5	4	12	
15:45:00	2	0	0	0	2	0	2	0	0	2	3	0	0	1	3	7	32
16:00:00	2	0	0	1	2	0	0	0	1	0	0	0	0	1	0	2	26
16:15:00	3	0	0	0	3	0	3	0	0	3	3	4	0	0	7	13	34
16:30:00	3	0	0	0	3	0	1	0	0	1	3	1	0	0	4	8	30
16:45:00	1	0	0	0	1	0	1	0	0	1	2	2	0	0	4	6	29
17:00:00	2	0	0	0	2	0	2	0	0	2	3	0	0	1	3	7	34
17:15:00	2	0	0	0	2	0	0	0	0	0	3	2	0	0	5	7	28
17:30:00	1	0	0	0	1	0	3	0	0	3	1	0	0	0	1	5	25
17:45:00	1	0	0	0	1	0	2	0	0	2	1	0	0	2	1	4	23
18:00:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	18
18:15:00	3	0	0	0	3	0	1	0	0	1	0	1	0	1	1	5	16
18:30:00	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	3	14
18:45:00	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	3	13

Grand Total	46	0	0	3	46	0	38	0	5	38	37	37	2	34	76	**160**	-
Approach%	100%	0%	0%		-	0%	100%	0%		-	48.7%	48.7%	2.6%		-	**-**	-
Totals %	28.8%	0%	0%		28.8%	0%	23.8%	0%		23.8%	23.1%	23.1%	1.3%		47.5%	**-**	-
Heavy	1	0	0		-	0	6	0		-	6	2	0		-	**-**	-
Heavy %	2.2%	0%	0%		-	0%	15.8%	0%		-	16.2%	5.4%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & LAURIE AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (4.13 °C)

Start Time	N Approach VICTORIA AVE N					E Approach LAURIE AVE					S Approach VICTORIA AVE N					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
08:00:00	1	0	0	0	1	0	1	0	0	1	1	1	0	0	2	4
08:15:00	3	0	0	0	3	0	1	0	0	1	1	4	1	0	6	10
08:30:00	2	0	0	0	2	0	2	0	0	2	4	4	1	1	9	13
08:45:00	2	0	0	0	2	0	2	0	0	2	0	2	0	3	2	6
Grand Total	8	0	0	0	8	0	6	0	0	6	6	11	2	4	19	**33**
Approach%	100%	0%	0%		-	0%	100%	0%		-	31.6%	57.9%	10.5%		-	-
Totals %	24.2%	0%	0%		24.2%	0%	18.2%	0%		18.2%	18.2%	33.3%	6.1%		57.6%	-
PHF	0.67	0	0		0.67	0	0.75	0		0.75	0.38	0.69	0.5		0.53	-
Heavy	1	0	0		1	0	4	0		4	4	1	0		5	-
Heavy %	12.5%	0%	0%		12.5%	0%	66.7%	0%		66.7%	66.7%	9.1%	0%		26.3%	-
Lights	6	0	0		6	0	2	0		2	2	10	2		14	-
Lights %	75%	0%	0%		75%	0%	33.3%	0%		33.3%	33.3%	90.9%	100%		73.7%	-
Single-Unit Trucks	1	0	0		1	0	4	0		4	4	1	0		5	-
Single-Unit Trucks %	12.5%	0%	0%		12.5%	0%	66.7%	0%		66.7%	66.7%	9.1%	0%		26.3%	-
Bicycles on Road	1	0	0		1	0	0	0		0	0	0	0		0	-
Bicycles on Road %	12.5%	0%	0%		12.5%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	4	-	-
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	100%		-

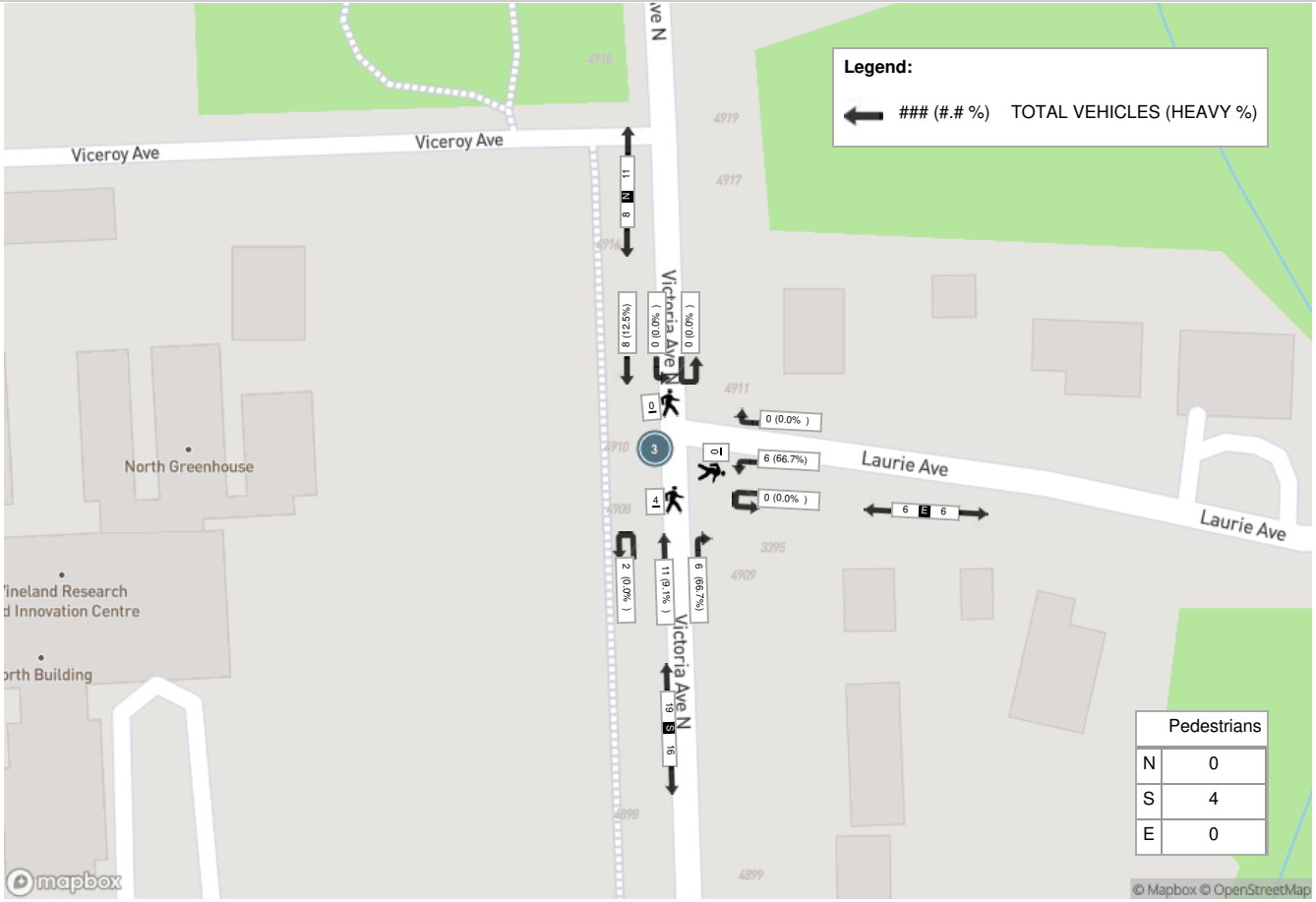
Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (11.95 °C)

Start Time	N Approach VICTORIA AVE N					E Approach LAURIE AVE					S Approach VICTORIA AVE N					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:15:00	3	0	0	0	3	0	3	0	0	3	3	4	0	0	7	13
16:30:00	3	0	0	0	3	0	1	0	0	1	3	1	0	0	4	8
16:45:00	1	0	0	0	1	0	1	0	0	1	2	2	0	0	4	6
17:00:00	2	0	0	0	2	0	2	0	0	2	3	0	0	1	3	7
Grand Total	9	0	0	0	9	0	7	0	0	7	11	7	0	1	18	**34**
Approach%	100%	0%	0%		-	0%	100%	0%		-	61.1%	38.9%	0%		-	-
Totals %	26.5%	0%	0%		26.5%	0%	20.6%	0%		20.6%	32.4%	20.6%	0%		52.9%	-
PHF	0.75	0	0		0.75	0	0.58	0		0.58	0.92	0.44	0		0.64	-
Heavy	0	0	0		0	0	1	0		1	1	0	0		1	-
Heavy %	0%	0%	0%		0%	0%	14.3%	0%		14.3%	9.1%	0%	0%		5.6%	-
Lights	9	0	0		9	0	6	0		6	10	7	0		17	-
Lights %	100%	0%	0%		100%	0%	85.7%	0%		85.7%	90.9%	100%	0%		94.4%	-
Single-Unit Trucks	0	0	0		0	0	1	0		1	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	14.3%	0%		14.3%	9.1%	0%	0%		5.6%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	100%		-

Turning Movement Count
Location Name: VICTORIA AVE N & LAURIE AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

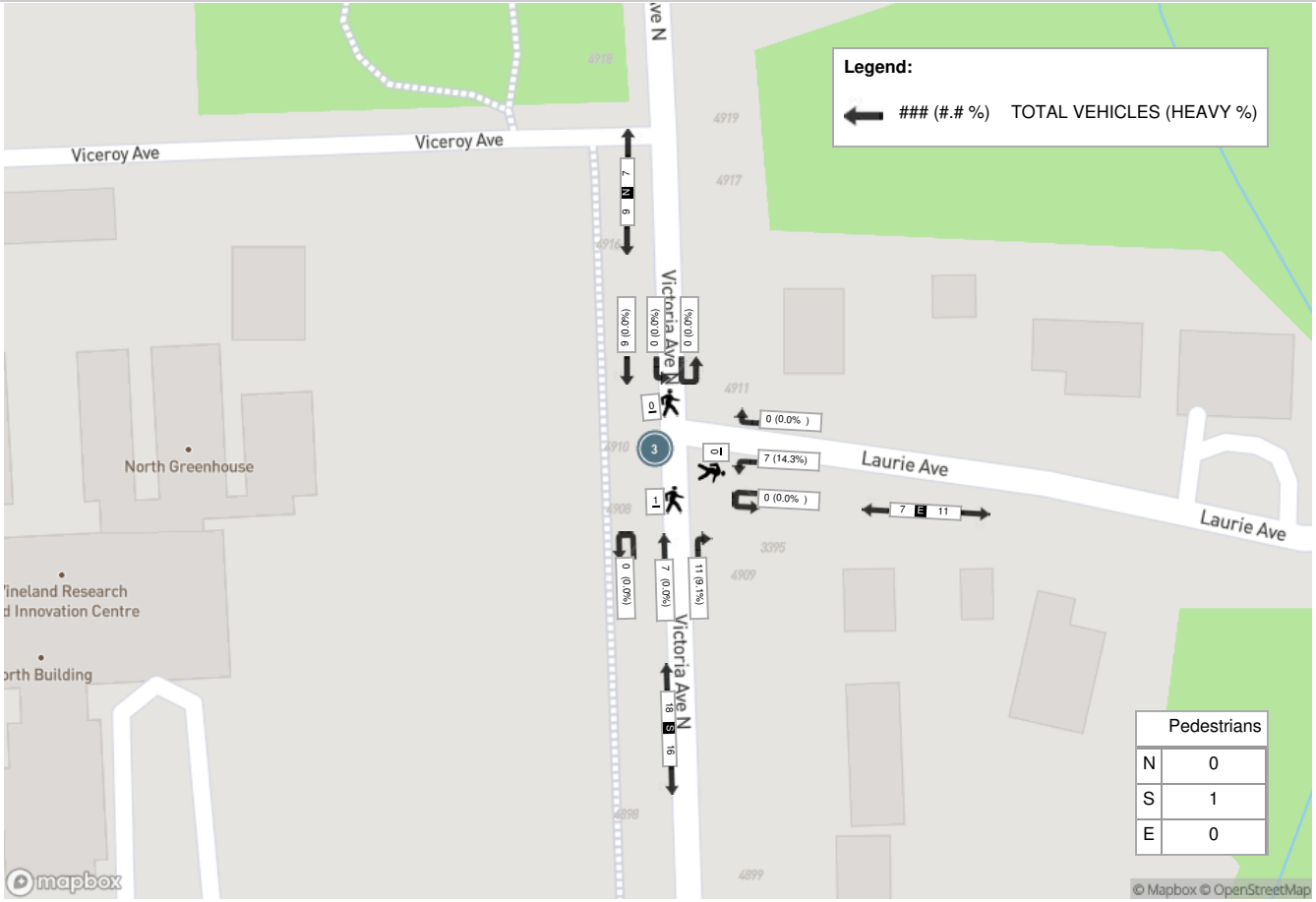
Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (4.13 °C)



Turning Movement Count
Location Name: VICTORIA AVE N & LAURIE AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (11.95 °C)



Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & NORTH SERVICE RD
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Turning Movement Count (2 . VICTORIA AVE N & NORTH SERVICE RD)

Start Time	N Approach VICTORIA AVE N						E Approach N SERVICE RD						S Approach VICTORIA AVE N						W Approach N SERVICE RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	3	0	0	3	0	12	28	0	0	40	75	1	3	0	0	79	0	1	0	0	0	1	123	
06:15:00	1	1	1	0	0	3	2	10	43	0	0	55	99	2	1	0	0	102	6	4	1	0	0	11	171	
06:30:00	0	5	3	0	0	8	1	33	83	0	0	117	81	1	0	0	0	82	2	5	1	0	0	8	215	
06:45:00	0	1	0	0	0	1	0	47	104	0	0	151	79	3	7	0	0	89	3	4	0	0	0	7	248	757
07:00:00	1	3	1	0	0	5	1	19	44	0	0	64	73	4	1	0	0	78	3	1	1	0	0	5	152	786
07:15:00	1	7	1	0	0	9	5	21	77	0	0	103	74	7	14	0	0	95	7	1	1	0	2	9	216	831
07:30:00	0	4	4	0	1	8	0	27	73	0	0	100	73	4	10	0	0	87	13	5	0	0	1	18	213	829
07:45:00	1	2	6	0	0	9	9	53	100	0	0	162	85	6	12	0	0	103	12	5	1	0	0	18	292	873
08:00:00	1	8	2	0	0	11	5	23	74	0	0	102	74	4	4	0	0	82	8	4	0	0	0	12	207	928
08:15:00	1	6	2	0	0	9	14	24	83	0	0	121	70	12	3	0	0	85	4	4	2	0	0	10	225	937
08:30:00	2	6	5	0	0	13	16	24	73	0	0	113	67	13	4	0	0	84	15	3	2	0	0	20	230	954
08:45:00	2	6	5	0	0	13	12	17	72	0	0	101	76	9	6	0	0	91	13	1	0	0	0	14	219	881
09:00:00	1	6	1	0	1	8	7	9	53	0	0	69	67	10	4	0	0	81	10	2	0	0	1	12	170	844
09:15:00	1	3	3	0	0	7	8	19	65	0	0	92	69	7	4	0	0	80	7	7	0	0	0	14	193	812
09:30:00	0	12	6	0	0	18	5	11	60	0	0	76	55	4	3	0	0	62	8	6	0	0	0	14	170	752
09:45:00	2	9	1	0	0	12	10	9	66	0	0	85	44	9	2	0	0	55	4	5	0	0	1	9	161	694
BREAK																										
15:00:00	2	6	3	0	0	11	0	15	81	0	0	96	76	3	11	0	0	90	23	5	3	0	0	31	228	
15:15:00	1	5	8	0	0	14	7	15	75	0	0	97	62	7	1	0	0	70	5	8	0	0	0	13	194	
15:30:00	2	12	10	0	0	24	3	21	89	0	0	113	67	3	7	0	0	77	10	6	2	0	0	18	232	
15:45:00	2	10	5	0	0	17	5	17	77	0	0	99	59	7	5	0	0	71	13	10	0	0	0	23	210	864
16:00:00	1	11	9	0	0	21	3	15	77	0	0	95	62	7	2	0	0	71	13	12	0	0	1	25	212	848
16:15:00	2	11	10	0	0	23	5	10	82	0	0	97	46	6	5	0	0	57	13	4	0	0	0	17	194	848
16:30:00	1	13	4	0	0	18	7	18	69	0	0	94	56	5	12	0	0	73	57	26	0	0	0	83	268	884
16:45:00	1	6	4	0	0	11	3	17	92	0	0	112	63	2	5	0	0	70	20	10	2	0	0	32	225	899
17:00:00	2	7	3	0	0	12	6	19	87	0	0	112	58	3	3	0	0	64	61	23	0	0	0	84	272	959
17:15:00	0	11	2	0	0	13	7	17	102	0	0	126	60	5	3	0	0	68	19	7	1	0	0	27	234	999
17:30:00	0	5	6	0	0	11	4	16	75	0	0	95	66	6	3	0	0	75	14	2	2	0	0	18	199	930
17:45:00	1	6	1	0	0	8	2	13	75	0	0	90	46	3	2	0	0	51	7	3	1	0	0	11	160	865
18:00:00	0	2	1	0	0	3	4	14	48	0	0	66	44	3	1	0	0	48	10	6	0	0	0	16	133	726
18:15:00	0	5	6	0	0	11	5	12	49	0	0	66	43	4	2	0	0	49	6	4	0	0	0	10	136	628
18:30:00	1	5	1	0	0	7	4	6	38	0	0	48	38	6	1	0	0	45	5	4	0	0	0	9	109	538
18:45:00	0	5	0	0	0	5	6	10	36	0	0	52	38	4	2	0	0	44	6	4	1	0	0	11	112	490
Grand Total	30	199	117	0	2	346	166	593	2250	0	0	3009	2045	170	143	0	0	2358	397	192	21	0	6	610	**6323**	-
Approach%	8.7%	57.5%	33.8%	0%		-	5.5%	19.7%	74.8%	0%		-	86.7%	7.2%	6.1%	0%		-	65.1%	31.5%	3.4%	0%		-	-	-
Totals %	0.5%	3.1%	1.9%	0%		5.5%	2.6%	9.4%	35.6%	0%		47.6%	32.3%	2.7%	2.3%	0%		37.3%	6.3%	3%	0.3%	0%		9.6%	-	-
Heavy	4	7	5	0		-	2	51	195	0		-	85	10	15	0		-	31	9	3	0		-	-	-
Heavy %	13.3%	3.5%	4.3%	0%		-	1.2%	8.6%	8.7%	0%		-	4.2%	5.9%	10.5%	0%		-	7.8%	4.7%	14.3%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & NORTH SERVICE RD
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (4.13 °C)

Start Time	N Approach VICTORIA AVE N						E Approach N SERVICE RD						S Approach VICTORIA AVE N						W Approach N SERVICE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	1	2	6	0	0	9	9	53	100	0	0	162	85	6	12	0	0	103	12	5	1	0	0	18	292
08:00:00	1	8	2	0	0	11	5	23	74	0	0	102	74	4	4	0	0	82	8	4	0	0	0	12	207
08:15:00	1	6	2	0	0	9	14	24	83	0	0	121	70	12	3	0	0	85	4	4	2	0	0	10	225
08:30:00	2	6	5	0	0	13	16	24	73	0	0	113	67	13	4	0	0	84	15	3	2	0	0	20	230
Grand Total	5	22	15	0	0	42	44	124	330	0	0	498	296	35	23	0	0	354	39	16	5	0	0	60	**954**
Approach%	11.9%	52.4%	35.7%	0%		-	8.8%	24.9%	66.3%	0%		-	83.6%	9.9%	6.5%	0%		-	65%	26.7%	8.3%	0%		-	-
Totals %	0.5%	2.3%	1.6%	0%		4.4%	4.6%	13%	34.6%	0%		52.2%	31%	3.7%	2.4%	0%		37.1%	4.1%	1.7%	0.5%	0%		6.3%	-
PHF	0.63	0.69	0.63	0		0.81	0.69	0.58	0.83	0		0.77	0.87	0.67	0.48	0		0.86	0.65	0.8	0.63	0		0.75	-
Heavy	0	2	0	0		2	0	8	42	0		50	10	1	2	0		13	4	0	1	0		5	-
Heavy %	0%	9.1%	0%	0%		4.8%	0%	6.5%	12.7%	0%		10%	3.4%	2.9%	8.7%	0%		3.7%	10.3%	0%	20%	0%		8.3%	-
Lights	5	20	15	0		40	43	116	288	0		447	286	34	21	0		341	35	15	4	0		54	-
Lights %	100%	90.9%	100%	0%		95.2%	97.7%	93.5%	87.3%	0%		89.8%	96.6%	97.1%	91.3%	0%		96.3%	89.7%	93.8%	80%	0%		90%	-
Single-Unit Trucks	0	1	0	0		1	0	5	24	0		29	7	0	1	0		8	0	0	1	0		1	-
Single-Unit Trucks %	0%	4.5%	0%	0%		2.4%	0%	4%	7.3%	0%		5.8%	2.4%	0%	4.3%	0%		2.3%	0%	0%	20%	0%		1.7%	-
Buses	0	1	0	0		1	0	0	2	0		2	0	1	1	0		2	2	0	0	0		2	-
Buses %	0%	4.5%	0%	0%		2.4%	0%	0%	0.6%	0%		0.4%	0%	2.9%	4.3%	0%		0.6%	5.1%	0%	0%	0%		3.3%	-
Articulated Trucks	0	0	0	0		0	0	3	16	0		19	3	0	0	0		3	2	0	0	0		2	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	2.4%	4.8%	0%		3.8%	1%	0%	0%	0%		0.8%	5.1%	0%	0%	0%		3.3%	-
Bicycles on Road	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	0	1	0	0		1	-
Bicycles on Road %	0%	0%	0%	0%		0%	2.3%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	6.3%	0%	0%		1.7%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & NORTH SERVICE RD
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

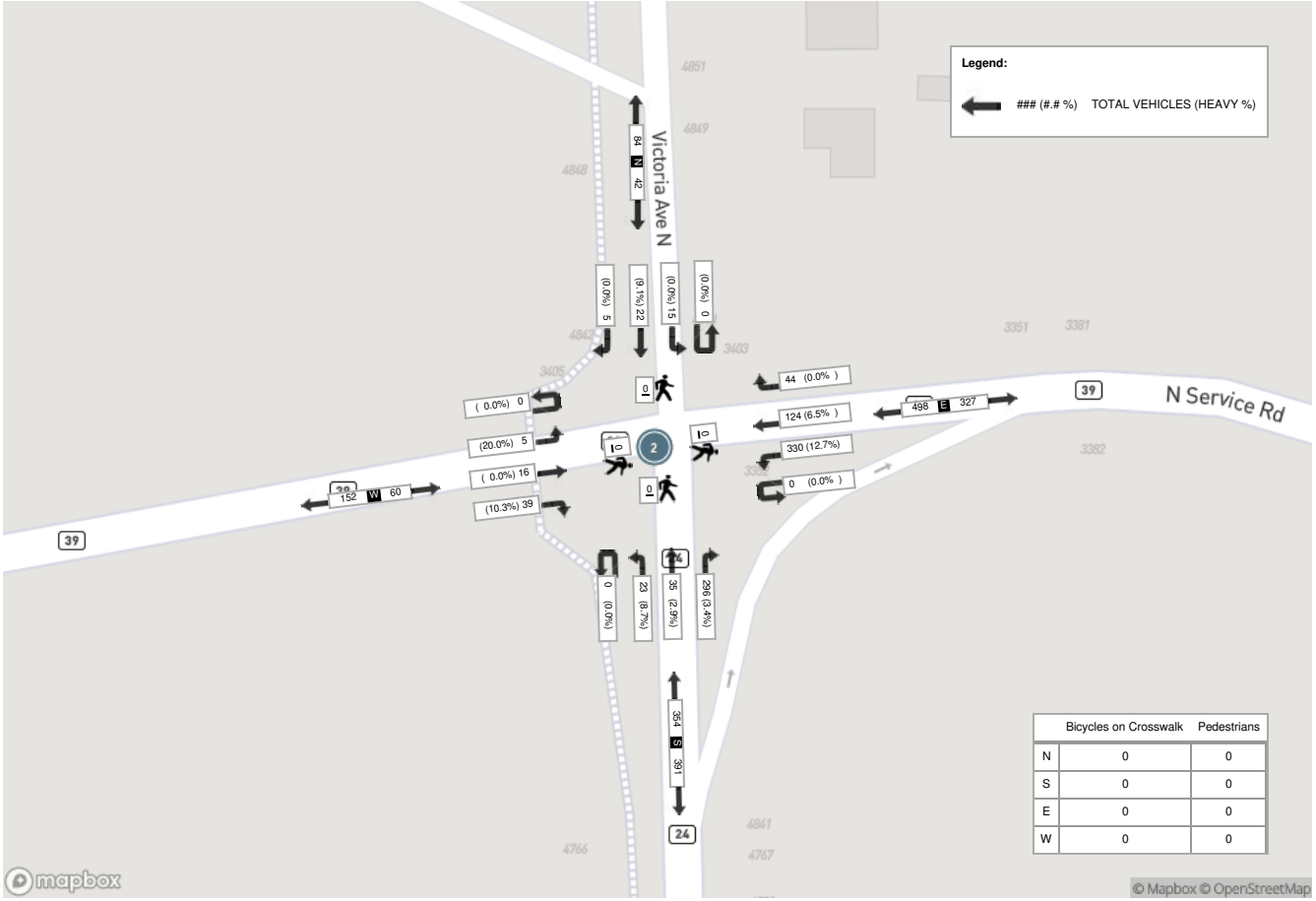
Peak Hour: 04:30 PM - 05:30 PM Weather: Overcast Clouds (11.95 °C)

Start Time	N Approach VICTORIA AVE N						E Approach N SERVICE RD						S Approach VICTORIA AVE N						W Approach N SERVICE RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	1	13	4	0	0	18	7	18	69	0	0	94	56	5	12	0	0	73	57	26	0	0	0	83	268
16:45:00	1	6	4	0	0	11	3	17	92	0	0	112	63	2	5	0	0	70	20	10	2	0	0	32	225
17:00:00	2	7	3	0	0	12	6	19	87	0	0	112	58	3	3	0	0	64	61	23	0	0	0	84	272
17:15:00	0	11	2	0	0	13	7	17	102	0	0	126	60	5	3	0	0	68	19	7	1	0	0	27	234
Grand Total	4	37	13	0	0	54	23	71	350	0	0	444	237	15	23	0	0	275	157	66	3	0	0	226	**999**
Approach%	7.4%	68.5%	24.1%	0%		-	5.2%	16%	78.8%	0%		-	86.2%	5.5%	8.4%	0%		-	69.5%	29.2%	1.3%	0%		-	-
Totals %	0.4%	3.7%	1.3%	0%		5.4%	2.3%	7.1%	35%	0%		44.4%	23.7%	1.5%	2.3%	0%		27.5%	15.7%	6.6%	0.3%	0%		22.6%	-
PHF	0.5	0.71	0.81	0		0.75	0.82	0.93	0.86	0		0.88	0.94	0.75	0.48	0		0.94	0.64	0.63	0.38	0		0.67	-
Heavy	1	0	1	0		2	1	7	13	0		21	9	1	3	0		13	3	2	0	0		5	-
Heavy %	25%	0%	7.7%	0%		3.7%	4.3%	9.9%	3.7%	0%		4.7%	3.8%	6.7%	13%	0%		4.7%	1.9%	3%	0%	0%		2.2%	-
Lights	3	37	12	0		52	22	63	337	0		422	228	14	20	0		262	154	64	3	0		221	-
Lights %	75%	100%	92.3%	0%		96.3%	95.7%	88.7%	96.3%	0%		95%	96.2%	93.3%	87%	0%		95.3%	98.1%	97%	100%	0%		97.8%	-
Single-Unit Trucks	1	0	1	0		2	1	4	7	0		12	4	1	2	0		7	0	0	0	0		0	-
Single-Unit Trucks %	25%	0%	7.7%	0%		3.7%	4.3%	5.6%	2%	0%		2.7%	1.7%	6.7%	8.7%	0%		2.5%	0%	0%	0%	0%		0%	-
Buses	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	1	1	0	0		2	-
Buses %	0%	0%	0%	0%		0%	0%	1.4%	0%	0%		0.2%	0%	0%	0%	0%		0%	0.6%	1.5%	0%	0%		0.9%	-
Articulated Trucks	0	0	0	0		0	0	2	6	0		8	5	0	1	0		6	2	1	0	0		3	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	2.8%	1.7%	0%		1.8%	2.1%	0%	4.3%	0%		2.2%	1.3%	1.5%	0%	0%		1.3%	-
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	1.4%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Turning Movement Count
Location Name: VICTORIA AVE N & NORTH SERVICE RD
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (4.13 °C)

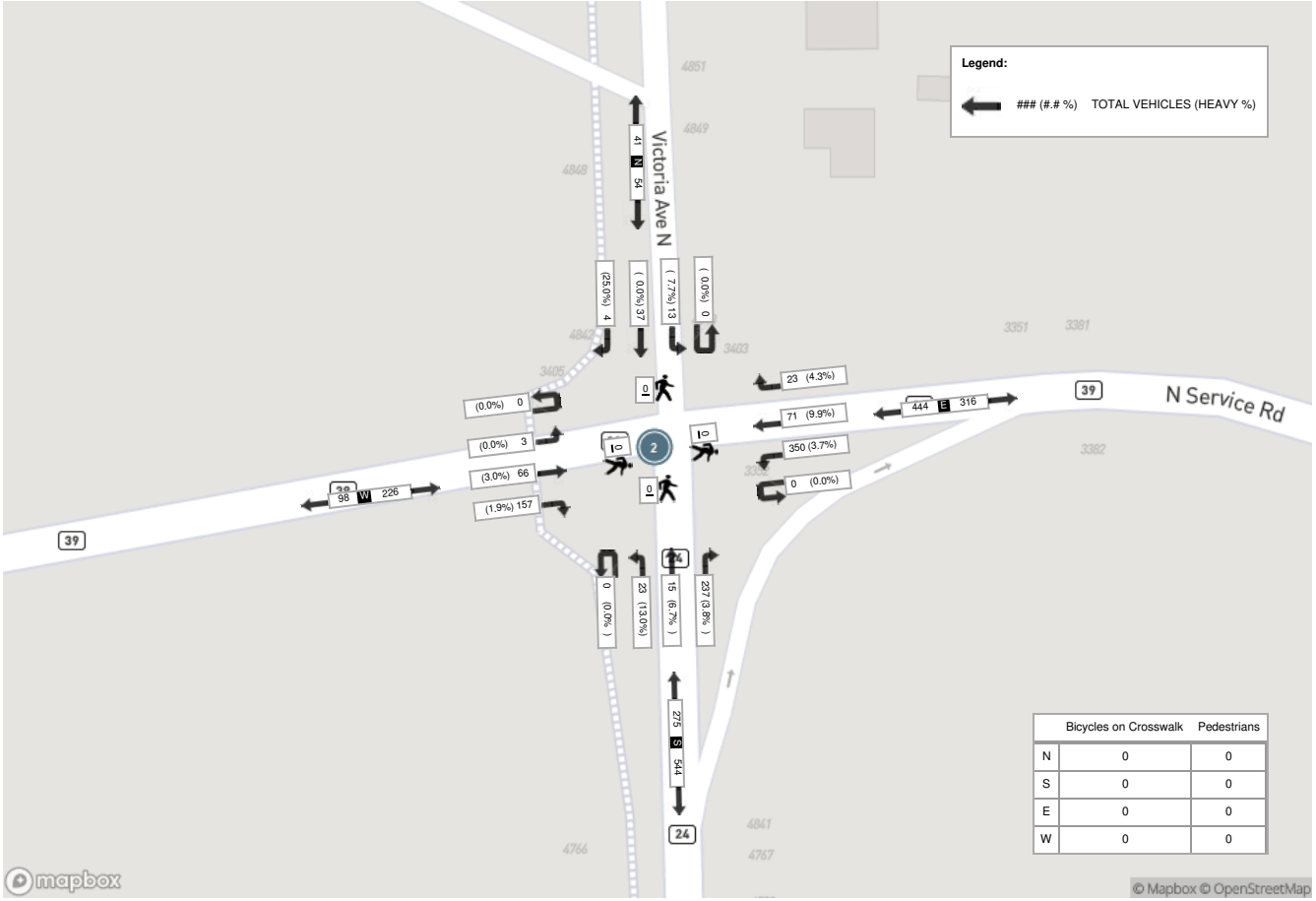


	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
E	0	0
W	0	0

Turning Movement Count
Location Name: VICTORIA AVE N & NORTH SERVICE RD
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 04:30 PM - 05:30 PM Weather: Overcast Clouds (11.95 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
E	0	0
W	0	0

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & VICEROY AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Turning Movement Count (1 . VICTORIA AVE N & VICEROY AVE)

Start Time	N Approach VICTORIA AVE N					S Approach VICTORIA AVE N					W Approach VICEROY AVE					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	
06:15:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	
06:30:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	
06:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:15:00	0	1	0	0	1	1	0	0	2	1	0	0	0	2	0	2	3
07:30:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	3
07:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:00:00	0	1	0	0	1	1	0	0	0	1	0	0	0	2	0	2	5
08:15:00	0	3	0	0	3	3	2	0	0	5	0	0	0	0	0	8	11
08:30:00	0	0	0	0	0	1	3	0	0	4	3	0	0	0	3	7	17
08:45:00	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	3	20
09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	18
09:15:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	13
09:30:00	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2	8
09:45:00	0	0	0	0	0	0	0	0	0	0	1	0	0	6	1	1	6
BREAK																	
15:00:00	0	3	0	0	3	2	0	0	0	2	1	0	0	0	1	6	
15:15:00	0	2	0	0	2	2	1	0	0	3	1	0	0	3	1	6	
15:30:00	0	3	0	0	3	2	0	0	0	2	2	0	0	4	2	7	
15:45:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	21
16:00:00	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2	17
16:15:00	0	3	0	0	3	3	1	0	0	4	0	0	0	0	0	7	18
16:30:00	0	1	0	0	1	1	0	0	0	1	2	0	0	1	2	4	15
16:45:00	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	3	16
17:00:00	0	1	0	0	1	0	0	0	0	0	1	0	0	1	1	2	16
17:15:00	0	1	0	0	1	1	1	0	0	2	1	0	0	0	1	4	13
17:30:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	10
17:45:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	8
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
18:15:00	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	4	6
18:30:00	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2	7
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Grand Total	0	23	0	0	23	21	16	1	3	38	21	0	0	24	21	**82**	-
Approach%	0%	100%	0%		-	55.3%	42.1%	2.6%		-	100%	0%	0%		-	**-**	-
Totals %	0%	28%	0%		28%	25.6%	19.5%	1.2%		46.3%	25.6%	0%	0%		25.6%	**-**	-
Heavy	0	0	0		-	0	2	0		-	1	0	0		-	**-**	-
Heavy %	0%	0%	0%		-	0%	12.5%	0%		-	4.8%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: VICTORIA AVE N & VICEROY AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (4.13 °C)

Start Time	N Approach VICTORIA AVE N					S Approach VICTORIA AVE N					W Approach VICEROY AVE					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
08:00:00	0	1	0	0	1	1	0	0	0	1	0	0	0	2	0	2
08:15:00	0	3	0	0	3	3	2	0	0	5	0	0	0	0	0	8
08:30:00	0	0	0	0	0	1	3	0	0	4	3	0	0	0	3	7
08:45:00	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	3
Grand Total	0	5	0	0	5	5	6	1	0	12	3	0	0	2	3	**20**
Approach%	0%	100%	0%		-	41.7%	50%	8.3%		-	100%	0%	0%		-	-
Totals %	0%	25%	0%		25%	25%	30%	5%		60%	15%	0%	0%		15%	-
PHF	0	0.42	0		0.42	0.42	0.5	0.25		0.6	0.25	0	0		0.25	-
Heavy	0	0	0		0	0	1	0		1	1	0	0		1	-
Heavy %	0%	0%	0%		0%	0%	16.7%	0%		8.3%	33.3%	0%	0%		33.3%	-
Lights	0	4	0		4	4	5	1		10	2	0	0		2	-
Lights %	0%	80%	0%		80%	80%	83.3%	100%		83.3%	66.7%	0%	0%		66.7%	-
Single-Unit Trucks	0	0	0		0	0	1	0		1	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	16.7%	0%		8.3%	33.3%	0%	0%		33.3%	-
Bicycles on Road	0	1	0		1	1	0	0		1	0	0	0		0	-
Bicycles on Road %	0%	20%	0%		20%	20%	0%	0%		8.3%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	100%		-

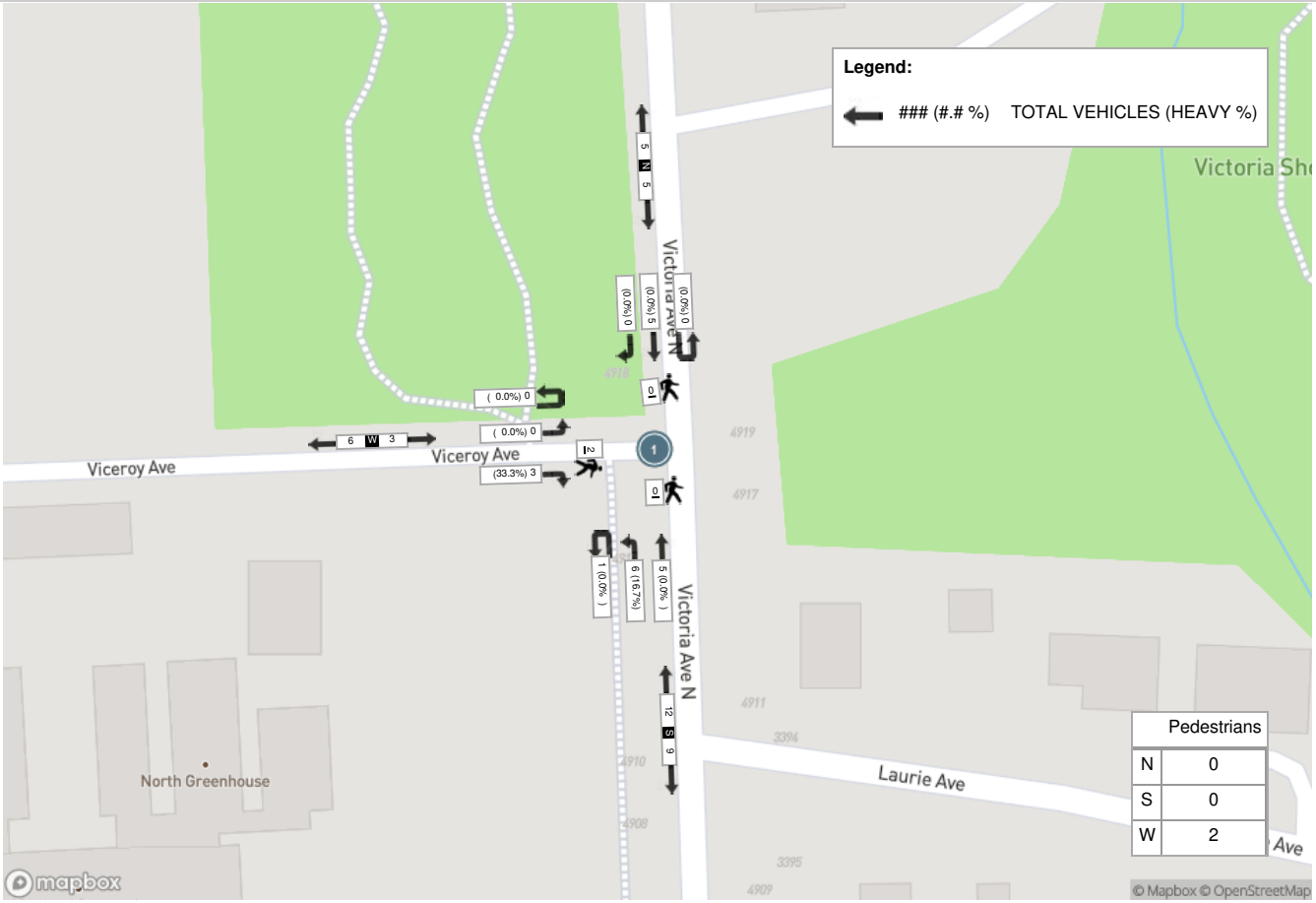
Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (11.95 °C)

Start Time	N Approach VICTORIA AVE N					S Approach VICTORIA AVE N					W Approach VICEROY AVE					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
15:00:00	0	3	0	0	3	2	0	0	0	2	1	0	0	0	1	6
15:15:00	0	2	0	0	2	2	1	0	0	3	1	0	0	3	1	6
15:30:00	0	3	0	0	3	2	0	0	0	2	2	0	0	4	2	7
15:45:00	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
Grand Total	0	8	0	0	8	6	1	0	0	7	6	0	0	7	6	**21**
Approach%	0%	100%	0%		-	85.7%	14.3%	0%		-	100%	0%	0%		-	-
Totals %	0%	38.1%	0%		38.1%	28.6%	4.8%	0%		33.3%	28.6%	0%	0%		28.6%	-
PHF	0	0.67	0		0.67	0.75	0.25	0		0.58	0.75	0	0		0.75	-
Heavy	0	0	0		0	0	0	0		0	0	0	0		0	-
Heavy %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Lights	0	8	0		8	6	1	0		7	6	0	0		6	-
Lights %	0%	100%	0%		100%	100%	100%	0%		100%	100%	0%	0%		100%	-
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	7	-	-
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	100%		-

Turning Movement Count
Location Name: VICTORIA AVE N & VICEROY AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (4.13 °C)

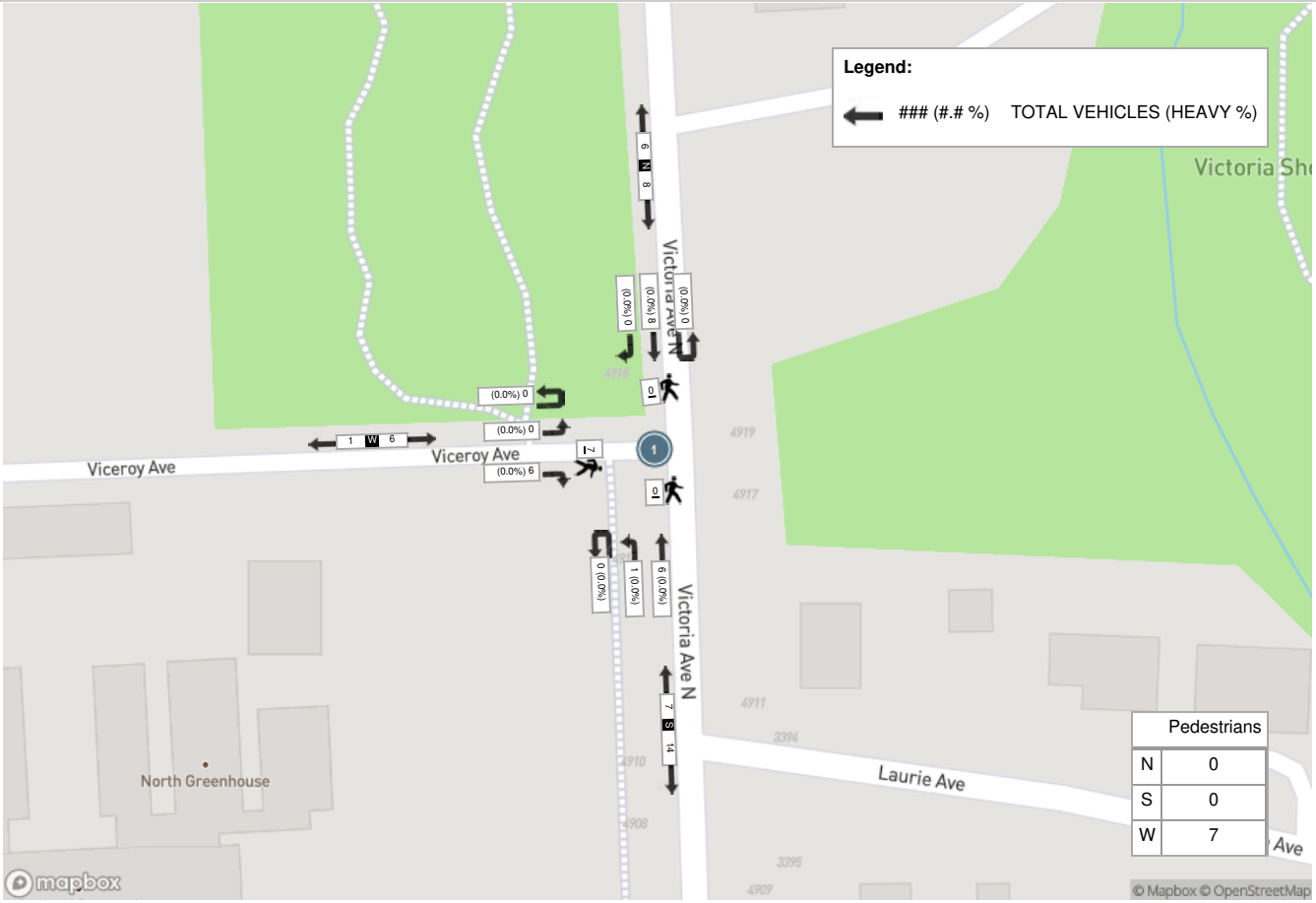


	Pedestrians
N	0
S	0
W	2

Turning Movement Count
Location Name: VICTORIA AVE N & VICEROY AVE
Date: Thu, Nov 16, 2023 Deployment Lead: David Chu

Crozier & Associates
ACCOUNTS PAYABLE
TORONTO - SELECT PROVINCE -, M1W1Y6
- SELECT COUNTRY -

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (11.95 °C)



APPENDIX D

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX E

Detailed Capacity Analysis

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	16	39	330	124	44	23	35	296	15	22	5
Future Volume (vph)	5	16	39	330	124	44	23	35	296	15	22	5
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.960				0.850		0.984	
Flt Protected	0.950			0.950			0.950				0.983	
Satd. Flow (prot)	1191	1151	0	2102	1267	0	1311	1582	1104	0	1362	0
Flt Permitted	0.950			0.950			0.950				0.983	
Satd. Flow (perm)	1191	1151	0	2102	1267	0	1311	1582	1104	0	1362	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	6	20	48	402	151	54	28	43	361	18	27	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	68	0	402	205	0	28	43	361	0	51	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 43.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	16	39	330	124	44	23	35	296	15	22	5
Future Volume (vph)	5	16	39	330	124	44	23	35	296	15	22	5
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	6	20	48	402	151	54	28	43	361	18	27	6

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	6	68	402	205	28	43	361	51
Volume Left (vph)	6	0	402	0	28	0	0	18
Volume Right (vph)	0	48	0	54	0	0	361	6
Hadj (s)	0.84	-0.36	0.72	-0.10	0.65	0.05	-0.63	0.09
Departure Headway (s)	6.4	5.2	5.7	4.9	6.8	6.2	3.2	6.2
Degree Utilization, x	0.01	0.10	0.64	0.28	0.05	0.07	0.32	0.09
Capacity (veh/h)	534	662	623	724	488	531	1113	540
Control Delay (s)	8.3	7.5	16.9	8.5	9.0	8.5	6.5	9.8
Approach Delay (s)	7.6		14.0		6.9			9.8
Approach LOS	A		B		A			A

Intersection Summary			
Delay	10.8		
Level of Service	B		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	0	32	11	7	10
Future Volume (vph)	27	0	32	11	7	10
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.966			
Flt Protected	0.950					0.980
Satd. Flow (prot)	1374	0	1271	0	0	928
Flt Permitted	0.950					0.980
Satd. Flow (perm)	1374	0	1271	0	0	928
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	35	0	42	14	9	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	56	0	0	22
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	0	32	11	7	10
Future Volume (Veh/h)	27	0	32	11	7	10
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	35	0	42	14	9	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	80	49			56	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80	49			56	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	96	100			99	
cM capacity (veh/h)	911	1020			1256	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	35	56	22
Volume Left	35	0	9
Volume Right	0	14	0
cSH	911	1700	1256
Volume to Capacity	0.04	0.03	0.01
Queue Length 95th (m)	1.0	0.0	0.2
Control Delay (s)	9.1	0.0	3.3
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	3.3
Approach LOS	A		

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	0	11	6	0	8
Future Volume (vph)	6	0	11	6	0	8
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.950			
Flt Protected	0.950					
Satd. Flow (prot)	856	0	1006	0	0	1087
Flt Permitted	0.950					
Satd. Flow (perm)	856	0	1006	0	0	1087
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	10	0	17	10	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	27	0	0	13
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	0	11	6	0	8
Future Volume (Veh/h)	6	0	11	6	0	8
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	10	0	17	10	0	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	35	22			27	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35	22			27	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	836	1055			1587	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	27	13
Volume Left	10	0	0
Volume Right	0	10	0
cSH	836	1700	1587
Volume to Capacity	0.01	0.02	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	7	5	5	0
Future Volume (vph)	0	3	7	5	5	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.972		
Satd. Flow (prot)	779	0	0	1098	1388	0
Flt Permitted				0.972		
Satd. Flow (perm)	779	0	0	1098	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Adj. Flow (vph)	0	5	11	8	8	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	0	19	8	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	7	5	5	0
Future Volume (Veh/h)	0	3	7	5	5	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	5	11	8	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	38	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38	8	8			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	967	912	1531			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	19	8
Volume Left	0	11	0
Volume Right	5	0	0
cSH	912	1531	1700
Volume to Capacity	0.01	0.01	0.00
Queue Length 95th (m)	0.1	0.2	0.0
Control Delay (s)	9.0	4.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	108	226	54	121	371	44
Future Volume (vph)	108	226	54	121	371	44
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		276				54
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	132	276	66	148	452	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	276	66	148	452	54
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.1	23.1	5.8	30.1	24.1	24.1
Actuated g/C Ratio	0.34	0.34	0.09	0.45	0.36	0.36
v/c Ratio	0.25	0.49	0.55	0.21	0.98	0.13
Control Delay	18.2	5.9	49.4	12.1	63.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	5.9	49.4	12.1	63.7	5.9
LOS	B	A	D	B	E	A
Approach Delay	9.9			23.6	57.6	
Approach LOS	A			C	E	
Queue Length 50th (m)	12.8	0.0	8.8	11.3	~61.3	0.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	22.9	11.1	#21.1	19.6	#102.4	5.7
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	538	563	125	741	460	419
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.49	0.53	0.20	0.98	0.13

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 67.2	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 53.5%	ICU Level of Service A
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: 5: QEW Toronto Bound Ramps & North Service Road

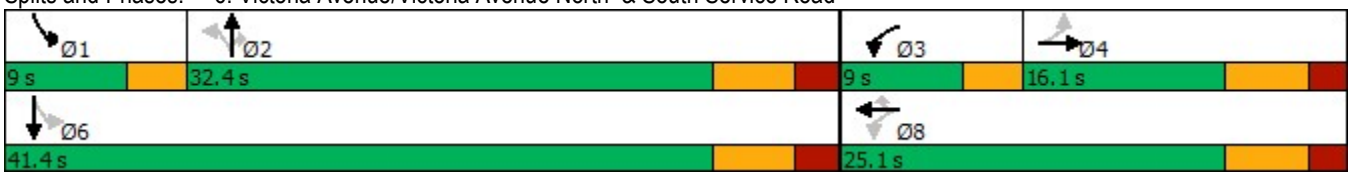
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	40	8	129	9	50	16	301	201	81	276	30
Future Volume (vph)	15	40	8	129	9	50	16	301	201	81	276	30
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1335	1268	0	1191	1454	1104	1335	1566	1044	1311	1199	0
Flt Permitted	0.751			0.474			0.560			0.491		
Satd. Flow (perm)	1056	1268	0	594	1454	1104	787	1566	1044	677	1199	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				105			218		13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	16	43	9	140	10	54	17	327	218	88	300	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	52	0	140	10	54	17	327	218	88	333	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		16.7	15.2	15.2	32.9	32.9	32.9	42.0	40.0	
Actuated g/C Ratio	0.16	0.16		0.27	0.24	0.24	0.52	0.52	0.52	0.67	0.64	
v/c Ratio	0.09	0.25		0.61	0.03	0.16	0.04	0.40	0.33	0.17	0.43	
Control Delay	26.1	24.9		30.3	17.4	2.1	13.2	15.8	4.0	7.0	11.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.1	24.9		30.3	17.4	2.1	13.2	15.8	4.0	7.0	11.0	
LOS	C	C		C	B	A	B	B	A	A	B	
Approach Delay		25.1			22.2			11.1			10.2	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	1.8	5.0		13.6	1.0	0.0	1.3	31.7	0.0	4.7	24.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	6.9	14.3		#28.3	4.1	2.3	5.0	54.8	12.3	10.4	46.9	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	169	211		230	443	409	413	822	651	514	769	
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	0.09	0.25		0.61	0.02	0.13	0.04	0.40	0.33	0.17	0.43	

Intersection Summary	
Area Type: Other	
Cycle Length: 66.5	
Actuated Cycle Length: 62.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	287	26	21	8	4	174
Future Volume (vph)	287	26	21	8	4	174
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.963			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1291	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1291	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	326	30	24	9	5	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	326	30	33	0	5	198
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	287	26	21	8	4	174
Future Volume (Veh/h)	287	26	21	8	4	174
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	326	30	24	9	5	198
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	33				710	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33				710	28
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	79				98	80
cM capacity (veh/h)	1535				289	1013

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	326	30	33	5	198
Volume Left	326	0	0	5	0
Volume Right	0	0	9	0	198
cSH	1535	1700	1700	289	1013
Volume to Capacity	0.21	0.02	0.02	0.02	0.20
Queue Length 95th (m)	6.4	0.0	0.0	0.4	5.8
Control Delay (s)	8.0	0.0	0.0	17.7	9.4
Lane LOS	A			C	A
Approach Delay (s)	7.3		0.0	9.6	
Approach LOS				A	

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	LTR
Maximum Queue (m)	12.0	19.6	44.8	24.2	16.2	16.8	15.6
Average Queue (m)	1.1	8.5	22.5	12.1	5.3	7.1	5.9
95th Queue (m)	6.1	16.1	36.7	19.5	14.3	14.9	12.8
Link Distance (m)		375.4		163.8		373.7	131.4
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	62.0		160.0		112.0		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.9	3.7
Average Queue (m)	5.3	0.2
95th Queue (m)	12.9	2.0
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	19.0
Average Queue (m)	2.8
95th Queue (m)	12.2
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	16.6	1.9
Average Queue (m)	1.9	0.1
95th Queue (m)	9.9	1.3
Link Distance (m)	244.8	32.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	34.5	30.0	26.7	31.6	57.3	95.6
Average Queue (m)	13.9	14.7	11.7	13.3	41.2	15.1
95th Queue (m)	27.7	25.2	23.6	25.7	63.2	57.5
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)					6	0
Queuing Penalty (veh)					3	0

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	14.5	20.2	51.7	7.9	19.7	12.8	57.1	28.6	20.6	52.1
Average Queue (m)	3.5	7.5	22.0	1.2	5.2	2.7	22.3	13.2	9.2	20.2
95th Queue (m)	11.1	16.7	40.7	5.6	12.8	10.0	43.0	23.6	18.5	41.4
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)							0			
Queuing Penalty (veh)							0			

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	SB
Directions Served	L	L
Maximum Queue (m)	16.5	11.8
Average Queue (m)	2.7	0.9
95th Queue (m)	10.8	6.0
Link Distance (m)		130.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	109.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	66	157	350	71	23	23	15	237	13	37	4
Future Volume (vph)	3	66	157	350	71	23	23	15	237	13	37	4
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.963				0.850		0.991	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1429	1210	0	2284	1229	0	1253	1522	1104	0	1401	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1429	1210	0	2284	1229	0	1253	1522	1104	0	1401	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	3	72	171	380	77	25	25	16	258	14	40	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	243	0	380	102	0	25	16	258	0	58	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 53.1% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	66	157	350	71	23	23	15	237	13	37	4
Future Volume (vph)	3	66	157	350	71	23	23	15	237	13	37	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	72	171	380	77	25	25	16	258	14	40	4

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	3	243	380	102	25	16	258	58
Volume Left (vph)	3	0	380	0	25	0	0	14
Volume Right (vph)	0	171	0	25	0	0	258	4
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.07
Departure Headway (s)	5.8	4.9	5.6	5.0	7.1	6.4	3.2	6.3
Degree Utilization, x	0.00	0.33	0.59	0.14	0.05	0.03	0.23	0.10
Capacity (veh/h)	599	716	630	698	463	502	1122	521
Control Delay (s)	7.6	9.0	15.2	7.6	9.2	8.4	5.9	10.0
Approach Delay (s)	9.0		13.6		6.4			10.0
Approach LOS	A		B		A			B

Intersection Summary			
Delay	10.4		
Level of Service	B		
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	1	24	21	5	27
Future Volume (vph)	16	1	24	21	5	27
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993		0.938			
Flt Protected	0.955					0.992
Satd. Flow (prot)	1338	0	1242	0	0	1179
Flt Permitted	0.955					0.992
Satd. Flow (perm)	1338	0	1242	0	0	1179
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	18	1	28	24	6	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	52	0	0	37
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	1	24	21	5	27
Future Volume (Veh/h)	16	1	24	21	5	27
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	18	1	28	24	6	31
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	83	40			52	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	83	40			52	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	903	1037			1567	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	19	52	37
Volume Left	18	0	6
Volume Right	1	24	0
cSH	909	1700	1567
Volume to Capacity	0.02	0.03	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.0	0.0	1.2
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	1.2
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	0	7	11	0	9
Future Volume (vph)	7	0	7	11	0	9
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.918			
Flt Protected	0.950					
Satd. Flow (prot)	1242	0	1201	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1242	0	1201	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	11	0	11	17	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	28	0	0	14
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	7	11	0	9
Future Volume (Veh/h)	7	0	7	11	0	9
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	11	0	11	17	0	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	34	20			28	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	34	20			28	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	948	1058			1585	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	28	14
Volume Left	11	0	0
Volume Right	0	17	0
cSH	948	1700	1585
Volume to Capacity	0.01	0.02	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	6	1	6	8	0
Future Volume (vph)	0	6	1	6	8	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.994		
Satd. Flow (prot)	1301	0	0	1221	1388	0
Flt Permitted				0.994		
Satd. Flow (perm)	1301	0	0	1221	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	8	1	8	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	9	11	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	1	6	8	0
Future Volume (Veh/h)	0	6	1	6	8	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	8	1	8	11	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	21	11	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21	11	11			
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	99	100			
cM capacity (veh/h)	995	1076	1621			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	9	11
Volume Left	0	1	0
Volume Right	8	0	0
cSH	1076	1621	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	0.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	0.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	106	218	49	139	270	31
Future Volume (vph)	106	218	49	139	270	31
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1508	1083	1287	1508	1242	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1508	1083	1287	1508	1242	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		237				34
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	115	237	53	151	293	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	115	237	53	151	293	34
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.1	23.1	5.7	28.2	24.1	24.1
Actuated g/C Ratio	0.35	0.35	0.09	0.43	0.37	0.37
v/c Ratio	0.22	0.44	0.47	0.23	0.64	0.08
Control Delay	17.5	5.7	44.9	12.5	26.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	5.7	44.9	12.5	26.3	6.6
LOS	B	A	D	B	C	A
Approach Delay	9.6			20.9	24.2	
Approach LOS	A			C	C	
Queue Length 50th (m)	11.1	0.0	7.0	11.6	33.2	0.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	22.7	14.5	#20.3	22.4	#63.4	5.4
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	532	536	118	741	458	406
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.44	0.45	0.20	0.64	0.08

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 65.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 46.4%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: QEW Toronto Bound Ramps & North Service Road

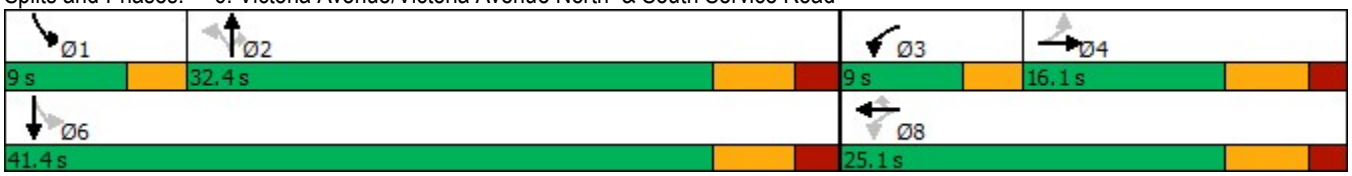
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	290	58	219	9	73	16	237	318	122	296	26
Future Volume (vph)	54	290	58	219	9	73	16	237	318	122	296	26
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1401	1291	0	1287	1454	1083	1335	1508	1054	1335	1221	0
Flt Permitted	0.751			0.308			0.551			0.538		
Satd. Flow (perm)	1107	1291	0	417	1454	1083	774	1508	1054	756	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				105			346		10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	59	315	63	238	10	79	17	258	346	133	322	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	378	0	238	10	79	17	258	346	133	350	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	27.8	27.8	27.8	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.42	0.42	0.42	0.58	0.53	
v/c Ratio	0.36	1.84		1.10	0.02	0.21	0.05	0.41	0.54	0.27	0.54	
Control Delay	32.1	420.8		114.8	17.4	4.2	13.3	17.0	5.5	8.2	14.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	32.1	420.8		114.8	17.4	4.2	13.3	17.0	5.5	8.2	14.0	
LOS	C	F		F	B	A	B	B	A	A	B	
Approach Delay		368.3			85.1			10.5			12.4	
Approach LOS		F			F			B			B	
Queue Length 50th (m)	7.0	~76.5		~28.2	1.0	0.0	1.3	23.9	0.0	7.3	26.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	17.6	#126.3		#76.3	4.1	6.2	5.0	42.7	16.3	14.8	49.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	166	205		217	415	384	323	630	641	488	647	
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	0.36	1.84		1.10	0.02	0.21	0.05	0.41	0.54	0.27	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.84
Intersection Signal Delay: 107.8 Intersection LOS: F
Intersection Capacity Utilization 100.3% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	510	23	27	25	22	333
Future Volume (vph)	510	23	27	25	22	333
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	1551	1246	0	1429	1104
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1374	1551	1246	0	1429	1104
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	548	25	29	27	24	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	548	25	56	0	24	358
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 52.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	510	23	27	25	22	333
Future Volume (Veh/h)	510	23	27	25	22	333
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	548	25	29	27	24	358
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	56				1164	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	56				1164	42
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	64				83	65
cM capacity (veh/h)	1536				140	1022

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	548	25	56	24	358
Volume Left	548	0	0	24	0
Volume Right	0	0	27	0	358
cSH	1536	1700	1700	140	1022
Volume to Capacity	0.36	0.01	0.03	0.17	0.35
Queue Length 95th (m)	13.1	0.0	0.0	4.8	12.7
Control Delay (s)	8.6	0.0	0.0	36.1	10.4
Lane LOS	A			E	B
Approach Delay (s)	8.3		0.0	12.0	
Approach LOS				B	

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	LTR
Maximum Queue (m)	6.0	29.4	52.2	19.8	17.6	13.0	16.2
Average Queue (m)	0.6	14.7	21.3	10.5	4.7	3.8	6.5
95th Queue (m)	3.9	24.3	37.5	17.6	13.8	11.6	13.8
Link Distance (m)		375.4		163.8		373.7	131.4
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	62.0		160.0		112.0		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB
Directions Served	LR
Maximum Queue (m)	14.6
Average Queue (m)	3.4
95th Queue (m)	11.1
Link Distance (m)	257.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	11.7
Average Queue (m)	1.4
95th Queue (m)	7.1
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.4
95th Queue (m)	6.6
Link Distance (m)	244.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	37.4	33.9	29.2	41.4	56.7	46.6
Average Queue (m)	13.4	15.1	12.3	15.5	31.0	6.9
95th Queue (m)	27.9	26.8	23.8	30.7	54.2	25.1
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)					2	
Queuing Penalty (veh)					1	

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	79.5	384.5	86.9	15.4	22.3	12.8	60.7	57.6	34.4	63.3
Average Queue (m)	53.3	366.7	41.5	1.8	7.8	2.7	25.8	25.5	15.4	27.4
95th Queue (m)	113.2	415.1	75.2	8.3	16.1	9.8	47.6	45.2	28.0	49.7
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)		85								
Queuing Penalty (veh)		0								
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)	0	98					0	0		
Queuing Penalty (veh)	0	53					0	0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	21.4	2.5	16.5	16.0
Average Queue (m)	7.2	0.1	4.5	1.2
95th Queue (m)	18.3	1.3	12.5	8.8
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 54

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt												
Flt Protected												
Satd. Flow (prot)	1504	1335	0	2404	1262	0	1319	1522	1299	0	1483	0
Flt Permitted												
Satd. Flow (perm)	1504	1335	0	2404	1262	0	1319	1522	1299	0	1483	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 0.0% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	0	0	0	0	0	0
Volume Left (vph)	0	0	0	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Departure Headway (s)	4.5	4.5	4.5	4.5	4.5	4.5	3.2	4.5
Degree Utilization, x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capacity (veh/h)	806	806	806	806	806	806	1121	806
Control Delay (s)	6.3	6.3	6.3	6.3	6.3	6.3	5.0	7.5
Approach Delay (s)	0.0		0.0		0.0			0.0
Approach LOS	A		A		A			A

Intersection Summary			
Delay	0.0		
Level of Service	A		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1406	0	1273	0	0	1181
Flt Permitted						
Satd. Flow (perm)	1406	0	1273	0	0	1181
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1010	1091			1636	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1308	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1308	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	990	1085			1623	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1475	0	0	1228	1388	0
Flt Permitted						
Satd. Flow (perm)	1475	0	0	1228	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
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	100	100			
cM capacity (veh/h)	1023	1091	1636			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	223	278	114	198	269	89
Future Volume (vph)	223	278	114	198	269	89
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1508	1083	1287	1508	1242	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1508	1083	1287	1508	1242	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		302				97
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	242	302	124	215	292	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	302	124	215	292	97
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.48	0.54	1.12	0.31	0.68	0.23
Control Delay	22.2	6.4	156.0	13.1	28.8	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	6.4	156.0	13.1	28.8	5.4
LOS	C	A	F	B	C	A
Approach Delay	13.5			65.4	23.0	
Approach LOS	B			E	C	
Queue Length 50th (m)	25.6	0.0	~19.7	17.3	33.1	0.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	45.9	16.9	#50.3	31.4	#63.4	9.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	502	562	111	699	432	426
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.54	1.12	0.31	0.68	0.23

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 30.2 Intersection LOS: C
Intersection Capacity Utilization 57.6% ICU Level of Service B
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: 5: QEW Toronto Bound Ramps & North Service Road

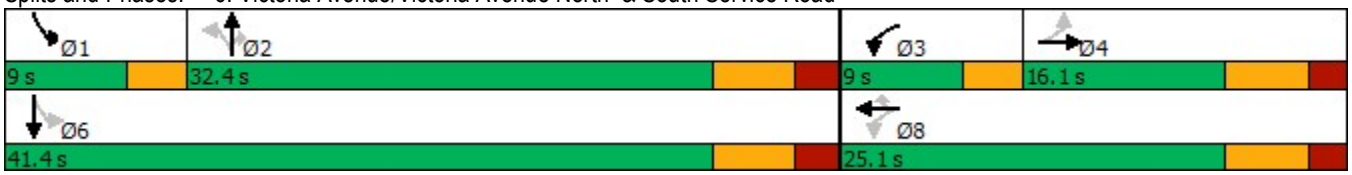
6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt												
Flt Protected												
Satd. Flow (prot)	1475	1322	0	1355	1454	1275	1406	1508	1239	1406	1250	0
Flt Permitted												
Satd. Flow (perm)	1475	1322	0	1355	1454	1275	1406	1508	1239	1406	1250	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt		
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)												
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary	
Area Type:	Other
Cycle Length: 66.5	
Actuated Cycle Length: 56.4	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.00	
Intersection Signal Delay: 0.0	Intersection LOS: A
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	424	26	12	16	32	334
Future Volume (vph)	424	26	12	16	32	334
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.923			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	1551	1238	0	1429	1104
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1374	1551	1238	0	1429	1104
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	456	28	13	17	34	359
Shared Lane Traffic (%)						
Lane Group Flow (vph)	456	28	30	0	34	359
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 46.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	424	26	12	16	32	334
Future Volume (Veh/h)	424	26	12	16	32	334
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	456	28	13	17	34	359
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	30				962	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30				962	22
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				83	66
cM capacity (veh/h)	1570				203	1050

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	456	28	30	34	359
Volume Left	456	0	0	34	0
Volume Right	0	0	17	0	359
cSH	1570	1700	1700	203	1050
Volume to Capacity	0.29	0.02	0.02	0.17	0.34
Queue Length 95th (m)	9.7	0.0	0.0	4.7	12.3
Control Delay (s)	8.2	0.0	0.0	26.2	10.2
Lane LOS	A			D	B
Approach Delay (s)	7.8		0.0	11.6	
Approach LOS				B	

Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	61.1	42.6	63.8	41.5	54.3	22.0
Average Queue (m)	24.8	20.1	28.5	18.5	31.8	10.1
95th Queue (m)	47.8	33.9	56.9	34.8	52.4	20.6
Link Distance (m)				180.9		123.2
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)					1	
Queuing Penalty (veh)					1	

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	38.0	1.3	13.6	3.4
Average Queue (m)	4.4	0.0	6.4	0.1
95th Queue (m)	21.5	0.9	12.9	2.4
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 1

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Future Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.993	
Satd. Flow (prot)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1734	0
Flt Permitted	0.950			0.950			0.950				0.993	
Satd. Flow (perm)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1734	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	21	50	1380	159	56	29	70	627	20	112	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	71	0	1380	215	0	29	70	627	0	139	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 88.8% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Future Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	21	50	1380	159	56	29	70	627	20	112	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	71	1380	215	29	70	627	139
Volume Left (vph)	7	0	1380	0	29	0	0	20
Volume Right (vph)	0	50	0	56	0	0	627	7
Hadj (s)	0.84	-0.36	0.72	-0.09	0.65	0.05	-0.63	0.14
Departure Headway (s)	7.2	6.0	6.2	5.3	7.6	7.0	3.2	6.8
Degree Utilization, x	0.01	0.12	2.36	0.32	0.06	0.14	0.56	0.26
Capacity (veh/h)	477	574	592	663	456	494	1117	515
Control Delay (s)	9.1	8.6	632.7	9.6	9.9	10.0	9.0	12.3
Approach Delay (s)	8.6		548.7		9.1			12.3
Approach LOS	A		F		A			B

Intersection Summary			
Delay	348.4		
Level of Service	F		
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	0	54	12	8	80
Future Volume (vph)	29	0	54	12	8	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975			
Flt Protected	0.950					0.996
Satd. Flow (prot)	1736	0	1762	0	0	1657
Flt Permitted	0.950					0.996
Satd. Flow (perm)	1736	0	1762	0	0	1657
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	38	0	70	16	10	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	86	0	0	114
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	54	12	8	80
Future Volume (Veh/h)	29	0	54	12	8	80
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	38	0	70	16	10	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	202	78			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	78			86	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	95	100			99	
cM capacity (veh/h)	776	983			1222	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	86	114
Volume Left	38	0	10
Volume Right	0	16	0
cSH	776	1700	1222
Volume to Capacity	0.05	0.05	0.01
Queue Length 95th (m)	1.2	0.0	0.2
Control Delay (s)	9.9	0.0	0.8
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.8
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	0	12	27	0	9
Future Volume (vph)	76	0	12	27	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.906			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1151	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1151	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	121	0	19	43	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	62	0	0	14
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	0	12	27	0	9
Future Volume (Veh/h)	76	0	12	27	0	9
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	121	0	19	43	0	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	40			62	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	40			62	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	813	1031			1541	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	62	14
Volume Left	121	0	0
Volume Right	0	43	0
cSH	813	1700	1541
Volume to Capacity	0.15	0.04	0.00
Queue Length 95th (m)	4.2	0.0	0.0
Control Delay (s)	10.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		

4: Victoria Avenue North & Viceroy Avenue

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	8	6	6	0
Future Volume (vph)	0	4	8	6	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.973		
Satd. Flow (prot)	984	0	0	1704	1900	0
Flt Permitted				0.973		
Satd. Flow (perm)	984	0	0	1704	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Adj. Flow (vph)	0	6	13	10	10	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	23	10	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	8	6	6	0
Future Volume (Veh/h)	0	4	8	6	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	13	10	10	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	46	10	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46	10	10			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	956	910	1529			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	23	10
Volume Left	0	13	0
Volume Right	6	0	0
cSH	910	1529	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.2	0.2	0.0
Control Delay (s)	9.0	4.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	319	236	389	914	386	610
Future Volume (vph)	319	236	389	914	386	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		288				415
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	389	288	474	1115	471	744
Shared Lane Traffic (%)						
Lane Group Flow (vph)	389	288	474	1115	471	744
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.64	0.40	3.10	1.33	0.83	0.94
Control Delay	25.2	4.3	977.6	178.0	36.2	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	4.3	977.6	178.0	36.2	31.6
LOS	C	A	F	F	D	C
Approach Delay	16.3			416.5	33.4	
Approach LOS	B			F	C	
Queue Length 50th (m)	44.0	0.0	~114.8	~201.0	57.5	45.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	63.1	10.9	#151.5	#237.2	#91.1	#97.5
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	714	153	839	565	795
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.40	3.10	1.33	0.83	0.94

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 3.10
Intersection Signal Delay: 205.0 Intersection LOS: F
Intersection Capacity Utilization 80.3% ICU Level of Service D
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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	42	9	135	10	279	17	314	210	925	304	32
Future Volume (vph)	16	42	9	135	10	279	17	314	210	925	304	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1735	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.750			0.522			0.544			0.448		
Satd. Flow (perm)	1332	1735	0	827	1696	1553	966	1827	1468	781	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				303			228		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	17	46	10	147	11	303	18	341	228	1005	330	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	56	0	147	11	303	18	341	228	1005	365	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.08	0.20		0.46	0.03	0.50	0.04	0.45	0.31	1.79	0.40	
Control Delay	25.5	23.1		22.2	17.4	5.9	13.1	16.5	3.5	379.3	10.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.5	23.1		22.2	17.4	5.9	13.1	16.5	3.5	379.3	10.0	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		23.7			11.4			11.4			280.9	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	1.9	5.3		13.9	1.0	0.0	1.4	32.1	0.0	~205.7	25.6	

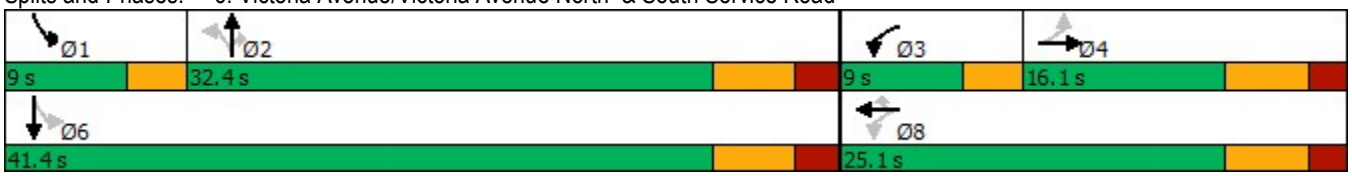
6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.1	14.8		27.5	4.4	16.5	5.1	54.1	12.1	#273.8	43.9	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	285		321	514	682	401	759	742	562	924	
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	0.08	0.20		0.46	0.02	0.44	0.04	0.45	0.31	1.79	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.79
Intersection Signal Delay: 160.0 Intersection LOS: F
Intersection Capacity Utilization 95.8% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1102	65	22	9	5	408
Future Volume (vph)	1102	65	22	9	5	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1761	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1761	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1252	74	25	10	6	464
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1252	74	35	0	6	464
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 77.7%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1102	65	22	9	5	408
Future Volume (Veh/h)	1102	65	22	9	5	408
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1252	74	25	10	6	464
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	35				2608	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				2608	30
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	18				0	54
cM capacity (veh/h)	1532				4	1011

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1252	74	35	6	464
Volume Left	1252	0	0	6	0
Volume Right	0	0	10	0	464
cSH	1532	1700	1700	4	1011
Volume to Capacity	0.82	0.04	0.02	1.45	0.46
Queue Length 95th (m)	82.8	0.0	0.0	13.0	19.7
Control Delay (s)	16.8	0.0	0.0	1738.3	11.5
Lane LOS	C			F	B
Approach Delay (s)	15.8		0.0	33.6	
Approach LOS				D	

Intersection Summary			
Average Delay	20.1		
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	9.9	40.0	163.7	182.0	19.0	20.3	13.2	65.8
Average Queue (m)	1.3	12.9	159.5	167.5	5.1	9.1	0.4	19.6
95th Queue (m)	6.4	32.4	188.6	210.5	14.0	16.8	9.3	47.1
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)			15	40				
Queuing Penalty (veh)			0	525				
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)		1	33	43				
Queuing Penalty (veh)		0	58	490				

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB
Directions Served	LR
Maximum Queue (m)	15.6
Average Queue (m)	5.8
95th Queue (m)	13.5
Link Distance (m)	257.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	23.3
Average Queue (m)	13.5
95th Queue (m)	22.6
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB
Directions Served	LR
Maximum Queue (m)	19.1
Average Queue (m)	2.1
95th Queue (m)	11.1
Link Distance (m)	244.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	75.1	32.4	159.5	194.4	57.4	140.8
Average Queue (m)	37.9	16.5	150.3	187.0	57.1	132.4
95th Queue (m)	62.3	25.7	202.0	191.7	58.7	140.0
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)				85		69
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			5	83	59	20
Queuing Penalty (veh)			48	322	358	76

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	14.6	33.2	46.3	16.5	44.1	14.2	62.6	36.7	276.5	378.4
Average Queue (m)	3.4	11.0	23.2	1.9	21.7	3.2	33.4	18.1	275.4	366.1
95th Queue (m)	10.8	23.7	40.1	8.8	37.8	11.4	54.2	30.6	284.2	415.4
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										24
Queuing Penalty (veh)										303
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)					0		0		37	63
Queuing Penalty (veh)					0		0		126	580

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (m)	29.4	12.6	27.0
Average Queue (m)	7.5	1.4	2.1
95th Queue (m)	21.7	7.6	13.7
Link Distance (m)		130.7	130.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	109.0		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2887

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	69	164	631	74	24	24	108	1248	14	65	5
Future Volume (vph)	4	69	164	631	74	24	24	108	1248	14	65	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.963				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1805	1656	0	1736	1682	0	1583	1776	1553	0	1823	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1805	1656	0	1736	1682	0	1583	1776	1553	0	1823	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	75	178	686	80	26	26	117	1357	15	71	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	253	0	686	106	0	26	117	1357	0	91	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 105.5% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	69	164	631	74	24	24	108	1248	14	65	5
Future Volume (vph)	4	69	164	631	74	24	24	108	1248	14	65	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	75	178	686	80	26	26	117	1357	15	71	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	253	686	106	26	117	1357	91
Volume Left (vph)	4	0	686	0	26	0	0	15
Volume Right (vph)	0	178	0	26	0	0	1357	5
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.05
Departure Headway (s)	6.8	5.8	6.3	5.7	7.9	7.3	3.2	7.3
Degree Utilization, x	0.01	0.41	1.20	0.17	0.06	0.24	1.21	0.18
Capacity (veh/h)	510	602	564	618	438	475	1129	474
Control Delay (s)	8.6	11.6	125.1	8.6	10.2	11.3	113.8	11.9
Approach Delay (s)	11.5		109.5		104.0			11.9
Approach LOS	B		F		F			B

Intersection Summary			
Delay	93.5		
Level of Service	F		
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	2	117	22	6	55
Future Volume (vph)	17	2	117	22	6	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988		0.979			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1689	0	1729	0	0	1825
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1689	0	1729	0	0	1825
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	20	2	134	25	7	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	159	0	0	70
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	2	117	22	6	55
Future Volume (Veh/h)	17	2	117	22	6	55
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	2	134	25	7	63
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	224	146			159	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	224	146			159	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	750	906			1433	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	159	70
Volume Left	20	0	7
Volume Right	2	25	0
cSH	762	1700	1433
Volume to Capacity	0.03	0.09	0.00
Queue Length 95th (m)	0.7	0.0	0.1
Control Delay (s)	9.9	0.0	0.8
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.8
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	0	8	104	0	10
Future Volume (vph)	34	0	8	104	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.874			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1519	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1519	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	52	0	12	160	0	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	172	0	0	15
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	0	8	104	0	10
Future Volume (Veh/h)	34	0	8	104	0	10
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	52	0	12	160	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	107	92			172	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	107	92			172	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	860	965			1405	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	172	15
Volume Left	52	0	0
Volume Right	0	160	0
cSH	860	1700	1405
Volume to Capacity	0.06	0.10	0.00
Queue Length 95th (m)	1.5	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

4: Victoria Avenue North & Viceroy Avenue

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	7	2	7	9	0
Future Volume (vph)	0	7	2	7	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.988		
Satd. Flow (prot)	1644	0	0	1877	1900	0
Flt Permitted				0.988		
Satd. Flow (perm)	1644	0	0	1877	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	9	3	9	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	0	12	12	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	2	7	9	0
Future Volume (Veh/h)	0	7	2	7	9	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	9	3	9	12	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	27	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27	12	12			
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	99	100			
cM capacity (veh/h)	986	1074	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	9	12	12
Volume Left	0	3	0
Volume Right	9	0	0
cSH	1074	1620	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1112	227	1235	411	281	629
Future Volume (vph)	1112	227	1235	411	281	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		176				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1209	247	1342	447	305	684
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1209	247	1342	447	305	684
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.06	0.40	9.52	0.55	0.56	1.03
Control Delay	504.7	7.9	3853.2	16.5	23.0	62.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	504.7	7.9	3853.2	16.5	23.0	62.5
LOS	F	A	F	B	C	E
Approach Delay	420.4			2894.5	50.3	
Approach LOS	F			F	D	
Queue Length 50th (m)	~264.8	6.6	~367.6	41.4	32.8	~79.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#337.4	22.6	#441.9	67.4	56.7	#142.4
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	625	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.06	0.40	9.52	0.55	0.56	1.03

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.52
Intersection Signal Delay: 1379.4 Intersection LOS: F
Intersection Capacity Utilization 156.7% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	302	61	228	10	1169	17	247	331	367	362	28
Future Volume (vph)	57	302	61	228	10	1169	17	247	331	367	362	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1676	0
Flt Permitted	0.750			0.308			0.515			0.519		
Satd. Flow (perm)	1397	1767	0	527	1696	1524	914	1759	1482	922	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				571			360		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	62	328	66	248	11	1271	18	268	360	399	393	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	394	0	248	11	1271	18	268	360	399	423	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.30	1.43		0.91	0.02	1.51	0.05	0.39	0.45	0.66	0.48	
Control Delay	29.4	238.6		58.2	17.4	251.4	13.2	16.7	3.8	14.8	12.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.4	238.6		58.2	17.4	251.4	13.2	16.7	3.8	14.8	12.0	
LOS	C	F		E	B	F	B	B	A	B	B	
Approach Delay		210.2			218.4			9.4			13.4	
Approach LOS		F			F			A			B	
Queue Length 50th (m)	7.3	~70.5		25.0	1.0	~179.6	1.4	24.2	0.0	25.8	31.3	

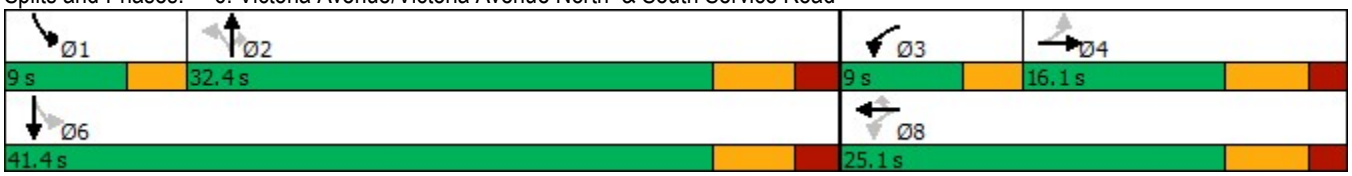
6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	17.6	#121.2		#64.9	4.4	#254.5	5.1	42.2	14.8	43.1	52.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	210	276		274	484	843	357	687	798	601	886	
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	0.30	1.43		0.91	0.02	1.51	0.05	0.39	0.45	0.66	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.51
Intersection Signal Delay: 129.4 Intersection LOS: F
Intersection Capacity Utilization 112.9% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



7: South Service Road & QEW Niagara Bound Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	771	24	29	27	23	1440
Future Volume (vph)	771	24	29	27	23	1440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1706	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1706	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	829	26	31	29	25	1548
Shared Lane Traffic (%)						
Lane Group Flow (vph)	829	26	60	0	25	1548
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 99.2%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	771	24	29	27	23	1440
Future Volume (Veh/h)	771	24	29	27	23	1440
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	829	26	31	29	25	1548
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	60				1730	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				1730	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	46				44	0
cM capacity (veh/h)	1531				45	1018

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	829	26	60	25	1548
Volume Left	829	0	0	25	0
Volume Right	0	0	29	0	1548
cSH	1531	1700	1700	45	1018
Volume to Capacity	0.54	0.02	0.04	0.56	1.52
Queue Length 95th (m)	27.3	0.0	0.0	16.5	592.3
Control Delay (s)	10.1	0.0	0.0	158.1	252.4
Lane LOS	B			F	F
Approach Delay (s)	9.8		0.0	250.9	
Approach LOS				F	

Intersection Summary			
Average Delay	162.0		
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	7.5	29.9	50.8	21.8	119.3	381.0	247.5	16.3
Average Queue (m)	1.0	15.5	23.3	8.0	19.1	369.4	247.4	8.0
95th Queue (m)	5.1	25.1	40.2	16.3	89.5	410.6	247.9	14.4
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)						25		
Queuing Penalty (veh)						372		
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)					0	43	60	
Queuing Penalty (veh)					0	543	79	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.7	5.5
Average Queue (m)	4.7	0.3
95th Queue (m)	12.6	2.8
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	16.0
Average Queue (m)	5.6
95th Queue (m)	13.8
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	9.1	1.7
Average Queue (m)	1.5	0.1
95th Queue (m)	7.0	1.2
Link Distance (m)	244.8	32.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	152.1	209.6	159.5	199.5	57.4	141.8
Average Queue (m)	137.7	200.1	159.1	189.6	56.0	133.4
95th Queue (m)	145.2	206.0	162.3	196.2	65.8	147.8
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	0	75		97		55
Queuing Penalty (veh)	0	500		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			89	29	5	46
Queuing Penalty (veh)			365	358	31	130

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	79.5	387.3	127.5	243.0	52.5	175.3	217.6	75.5	71.0	47.3
Average Queue (m)	69.2	345.1	110.4	235.9	52.5	15.4	112.5	50.9	28.9	18.6
95th Queue (m)	104.0	434.3	179.8	241.6	52.5	89.8	246.1	92.1	51.5	35.1
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)		63		96			22			
Queuing Penalty (veh)		0		1413			0			
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)	14	85	0	3	97		27	5		
Queuing Penalty (veh)	51	48	1	46	230		96	13		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (m)	48.2	31.3	142.3	143.6	145.6
Average Queue (m)	6.9	2.0	58.9	129.0	137.8
95th Queue (m)	32.9	30.4	174.7	173.0	143.5
Link Distance (m)		216.0	221.2	130.7	130.7
Upstream Blk Time (%)			5	85	99
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (m)	109.0				
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			

Network Summary

Network wide Queuing Penalty: 4276

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Future Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.993	
Satd. Flow (prot)	1429	1241	0	2375	1334	0	1429	1629	1148	0	1462	0
Flt Permitted	0.950			0.950			0.950				0.993	
Satd. Flow (perm)	1429	1241	0	2375	1334	0	1429	1629	1148	0	1462	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	21	50	1380	159	56	29	70	627	20	112	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	71	0	1380	215	0	29	70	627	0	139	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Future Volume (vph)	6	17	41	1132	130	46	24	57	514	16	92	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	21	50	1380	159	56	29	70	627	20	112	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	71	1380	215	29	70	627	139
Volume Left (vph)	7	0	1380	0	29	0	0	20
Volume Right (vph)	0	50	0	56	0	0	627	7
Hadj (s)	0.50	-0.49	0.50	-0.18	0.50	0.00	-0.70	0.00
Departure Headway (s)	6.8	5.8	5.9	5.2	7.5	7.0	3.2	6.7
Degree Utilization, x	0.01	0.12	2.27	0.31	0.06	0.14	0.56	0.26
Capacity (veh/h)	501	589	615	676	466	499	1117	526
Control Delay (s)	8.7	8.4	590.9	9.4	9.8	9.9	9.0	12.0
Approach Delay (s)	8.4		512.6		9.1			12.0
Approach LOS	A		F		A			B

Intersection Summary			
Delay	325.6		
Level of Service	F		
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	0	54	12	8	80
Future Volume (vph)	29	0	54	12	8	80
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975			
Flt Protected	0.950					0.996
Satd. Flow (prot)	1429	0	1353	0	0	1223
Flt Permitted	0.950					0.996
Satd. Flow (perm)	1429	0	1353	0	0	1223
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	38	0	70	16	10	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	86	0	0	114
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 23.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	54	12	8	80
Future Volume (Veh/h)	29	0	54	12	8	80
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	38	0	70	16	10	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	202	78			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	78			86	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	100			99	
cM capacity (veh/h)	786	988			1523	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	86	114
Volume Left	38	0	10
Volume Right	0	16	0
cSH	786	1700	1523
Volume to Capacity	0.05	0.05	0.01
Queue Length 95th (m)	1.2	0.0	0.2
Control Delay (s)	9.8	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	0	12	27	0	9
Future Volume (vph)	76	0	12	27	0	9
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.906			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1258	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1258	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	121	0	19	43	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	62	0	0	14
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	0	12	27	0	9
Future Volume (Veh/h)	76	0	12	27	0	9
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	121	0	19	43	0	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	40			62	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	40			62	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	959	1036			1554	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	62	14
Volume Left	121	0	0
Volume Right	0	43	0
cSH	959	1700	1554
Volume to Capacity	0.13	0.04	0.00
Queue Length 95th (m)	3.5	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.3	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

4: Victoria Avenue North & Viceroy Avenue

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	8	6	6	0
Future Volume (vph)	0	4	8	6	6	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.973		
Satd. Flow (prot)	1301	0	0	1195	1388	0
Flt Permitted				0.973		
Satd. Flow (perm)	1301	0	0	1195	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	6	13	10	10	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	23	10	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	8	6	6	0
Future Volume (Veh/h)	0	4	8	6	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	13	10	10	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	46	10	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46	10	10			
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	99	99			
cM capacity (veh/h)	961	1077	1623			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	23	10
Volume Left	0	13	0
Volume Right	6	0	0
cSH	1077	1623	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.1	0.2	0.0
Control Delay (s)	8.4	4.1	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	4.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	319	236	389	914	386	610
Future Volume (vph)	319	236	389	914	386	610
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1597	1126	1348	1597	1387	1094
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1597	1126	1348	1597	1387	1094
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		288				414
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	6%	2%	3%	5%
Adj. Flow (vph)	389	288	474	1115	471	744
Shared Lane Traffic (%)						
Lane Group Flow (vph)	389	288	474	1115	471	744
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.73	0.51	4.05	1.51	0.98	1.14
Control Delay	30.3	6.0	1406.3	256.6	61.5	96.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	6.0	1406.3	256.6	61.5	96.6
LOS	C	A	F	F	E	F
Approach Delay	19.9			599.5	83.0	
Approach LOS	B			F	F	
Queue Length 50th (m)	45.8	0.0	~120.1	~215.3	61.8	~80.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	66.8	11.3	#156.8	#251.4	#103.2	#119.8
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	532	567	117	740	482	650
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.51	4.05	1.51	0.98	1.14

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 4.05	
Intersection Signal Delay: 306.5	Intersection LOS: F
Intersection Capacity Utilization 94.0%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	42	9	135	10	279	17	314	210	925	304	32
Future Volume (vph)	16	42	9	135	10	279	17	314	210	925	304	32
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1429	1351	0	1429	1629	1148	1429	1629	1148	1429	1369	0
Flt Permitted	0.750			0.522			0.544			0.448		
Satd. Flow (perm)	1128	1351	0	785	1629	1148	818	1629	1148	674	1369	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				303			228		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	17	46	10	147	11	303	18	341	228	1005	330	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	56	0	147	11	303	18	341	228	1005	365	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.09	0.25		0.48	0.03	0.60	0.05	0.50	0.37	2.07	0.47	
Control Delay	26.0	24.6		23.2	17.4	8.3	13.3	17.8	4.3	505.9	11.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.0	24.6		23.2	17.4	8.3	13.3	17.8	4.3	505.9	11.5	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		24.9			13.2			12.4			374.2	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	1.9	5.4		14.0	1.0	0.0	1.4	33.1	0.0	~215.8	27.1	

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.1	15.1		27.8	4.4	18.0	5.2	56.8	12.4	#284.0	48.7	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	180	224		305	494	559	339	676	610	485	771	
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	0.09	0.25		0.48	0.02	0.54	0.05	0.50	0.37	2.07	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 66.5

Actuated Cycle Length: 62.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.07

Intersection Signal Delay: 211.9 Intersection LOS: F

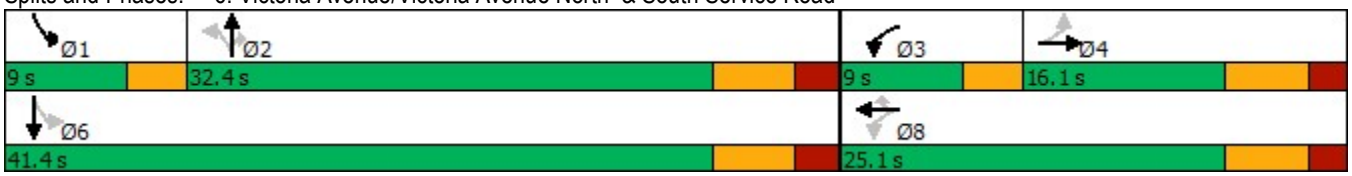
Intersection Capacity Utilization 113.9% ICU Level of Service H

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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1102	65	22	9	5	408
Future Volume (vph)	1102	65	22	9	5	408
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1429	1629	1334	0	1429	1126
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1429	1629	1334	0	1429	1126
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	1252	74	25	10	6	464
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1252	74	35	0	6	464
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 93.8%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1102	65	22	9	5	408
Future Volume (Veh/h)	1102	65	22	9	5	408
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1252	74	25	10	6	464
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	35				2608	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				2608	30
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	21				0	56
cM capacity (veh/h)	1589				6	1044

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1252	74	35	6	464
Volume Left	1252	0	0	6	0
Volume Right	0	0	10	0	464
cSH	1589	1700	1700	6	1044
Volume to Capacity	0.79	0.04	0.02	1.03	0.44
Queue Length 95th (m)	73.2	0.0	0.0	12.1	18.6
Control Delay (s)	15.0	0.0	0.0	1164.8	11.2
Lane LOS	C			F	B
Approach Delay (s)	14.2		0.0	25.9	
Approach LOS				D	

Intersection Summary			
Average Delay	16.9		
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	LTR
Maximum Queue (m)	7.6	23.0	163.7	180.3	14.2	17.0	36.6
Average Queue (m)	1.6	9.8	150.4	153.1	5.2	8.3	13.0
95th Queue (m)	6.5	18.2	204.3	231.0	12.9	15.5	25.7
Link Distance (m)		375.4		163.8		373.7	131.4
Upstream Blk Time (%)			17	32			
Queuing Penalty (veh)			0	415			
Storage Bay Dist (m)	62.0		160.0		112.0		
Storage Blk Time (%)			32	36			
Queuing Penalty (veh)			56	404			

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB
Directions Served	LR
Maximum Queue (m)	11.3
Average Queue (m)	5.9
95th Queue (m)	12.9
Link Distance (m)	257.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.7
Average Queue (m)	6.4
95th Queue (m)	10.1
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.1
95th Queue (m)	5.8
Link Distance (m)	244.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	80.0	29.4	159.5	197.5	57.4	138.5
Average Queue (m)	37.9	16.7	151.2	187.4	56.9	124.1
95th Queue (m)	63.3	26.9	197.4	192.9	60.6	159.5
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)				84		59
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			18	75	53	15
Queuing Penalty (veh)			162	291	326	60

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	12.1	24.4	40.3	10.6	36.3	13.1	55.9	34.8	276.5	379.0
Average Queue (m)	3.9	8.4	18.1	1.5	18.1	3.1	31.0	15.5	274.5	364.0
95th Queue (m)	11.3	18.4	31.7	6.9	30.4	10.5	50.2	26.6	290.4	425.0
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										20
Queuing Penalty (veh)										251
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)					0		0	0	61	59
Queuing Penalty (veh)					0		0	0	204	547

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	SB	SB
Directions Served	L	L	R
Maximum Queue (m)	21.2	8.5	14.6
Average Queue (m)	6.3	1.1	0.8
95th Queue (m)	17.4	5.6	6.9
Link Distance (m)		130.7	130.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	109.0		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2715

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	17	42	1139	132	47	25	58	521	16	93	6
Future Volume (vph)	6	17	42	1139	132	47	25	58	521	16	93	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.993	
Satd. Flow (prot)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1734	0
Flt Permitted	0.950			0.950			0.950				0.993	
Satd. Flow (perm)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1734	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	21	51	1389	161	57	30	71	635	20	113	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	72	0	1389	218	0	30	71	635	0	140	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 89.2%	ICU Level of Service E
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	17	42	1139	132	47	25	58	521	16	93	6
Future Volume (vph)	6	17	42	1139	132	47	25	58	521	16	93	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	21	51	1389	161	57	30	71	635	20	113	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	72	1389	218	30	71	635	140
Volume Left (vph)	7	0	1389	0	30	0	0	20
Volume Right (vph)	0	51	0	57	0	0	635	7
Hadj (s)	0.84	-0.36	0.72	-0.10	0.65	0.05	-0.63	0.14
Departure Headway (s)	7.2	6.0	6.2	5.4	7.7	7.1	3.2	6.8
Degree Utilization, x	0.01	0.12	2.39	0.32	0.06	0.14	0.56	0.27
Capacity (veh/h)	476	573	591	661	456	494	1117	515
Control Delay (s)	9.1	8.6	641.8	9.7	10.0	10.0	9.1	12.3
Approach Delay (s)	8.7		556.1		9.2			12.3
Approach LOS	A		F		A			B

Intersection Summary			
Delay	352.4		
Level of Service	F		
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	0	54	12	8	80
Future Volume (vph)	29	0	54	12	8	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975			
Flt Protected	0.950					0.996
Satd. Flow (prot)	1736	0	1762	0	0	1657
Flt Permitted	0.950					0.996
Satd. Flow (perm)	1736	0	1762	0	0	1657
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	38	0	70	16	10	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	86	0	0	114
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	54	12	8	80
Future Volume (Veh/h)	29	0	54	12	8	80
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	38	0	70	16	10	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	202	78			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	78			86	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	95	100			99	
cM capacity (veh/h)	776	983			1222	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	86	114
Volume Left	38	0	10
Volume Right	0	16	0
cSH	776	1700	1222
Volume to Capacity	0.05	0.05	0.01
Queue Length 95th (m)	1.2	0.0	0.2
Control Delay (s)	9.9	0.0	0.8
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.8
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	0	12	27	0	9
Future Volume (vph)	76	0	12	27	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.906			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1151	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1151	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	121	0	19	43	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	62	0	0	14
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	0	12	27	0	9
Future Volume (Veh/h)	76	0	12	27	0	9
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	121	0	19	43	0	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	40			62	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	40			62	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	813	1031			1541	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	62	14
Volume Left	121	0	0
Volume Right	0	43	0
cSH	813	1700	1541
Volume to Capacity	0.15	0.04	0.00
Queue Length 95th (m)	4.2	0.0	0.0
Control Delay (s)	10.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	8	6	6	0
Future Volume (vph)	0	4	8	6	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.973		
Satd. Flow (prot)	984	0	0	1704	1900	0
Flt Permitted				0.973		
Satd. Flow (perm)	984	0	0	1704	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Adj. Flow (vph)	0	6	13	10	10	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	23	10	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	8	6	6	0
Future Volume (Veh/h)	0	4	8	6	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	13	10	10	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	46	10	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46	10	10			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	956	910	1529			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	23	10
Volume Left	0	13	0
Volume Right	6	0	0
cSH	910	1529	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.2	0.2	0.0
Control Delay (s)	9.0	4.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	321	240	390	917	394	611
Future Volume (vph)	321	240	390	917	394	611
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		293				413
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	391	293	476	1118	480	745
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	293	476	1118	480	745
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.64	0.41	3.11	1.33	0.85	0.94
Control Delay	25.3	4.3	983.4	179.5	37.7	32.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	4.3	983.4	179.5	37.7	32.1
LOS	C	A	F	F	D	C
Approach Delay	16.3			419.6	34.3	
Approach LOS	B			F	C	
Queue Length 50th (m)	44.3	0.0	~115.4	~201.9	59.1	46.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	63.4	10.9	#152.1	#237.7	#93.7	#98.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	718	153	839	565	794
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.41	3.11	1.33	0.85	0.94

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 3.11
Intersection Signal Delay: 206.1 Intersection LOS: F
Intersection Capacity Utilization 80.9% ICU Level of Service D
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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

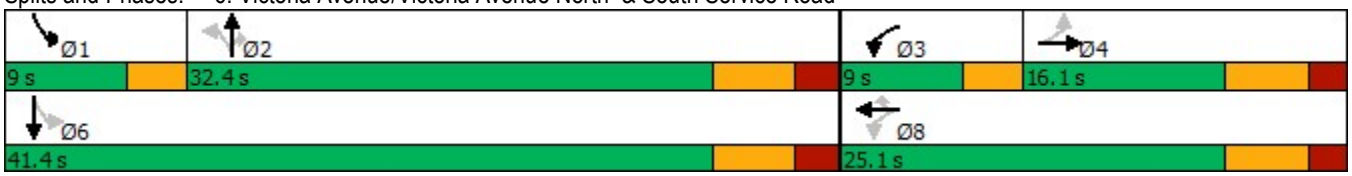
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	43	9	137	10	280	17	320	214	926	309	32
Future Volume (vph)	16	43	9	137	10	280	17	320	214	926	309	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1736	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.750			0.522			0.541			0.441		
Satd. Flow (perm)	1332	1736	0	827	1696	1553	961	1827	1468	769	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				304			233		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	17	47	10	149	11	304	18	348	233	1007	336	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	57	0	149	11	304	18	348	233	1007	371	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.08	0.20		0.46	0.03	0.50	0.05	0.46	0.31	1.81	0.40	
Control Delay	25.5	23.2		22.4	17.4	5.9	13.1	16.7	3.5	388.6	10.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.5	23.2		22.4	17.4	5.9	13.1	16.7	3.5	388.6	10.1	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		23.7			11.5			11.5			286.7	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	1.9	5.4		14.1	1.0	0.0	1.4	33.0	0.0	~207.1	26.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.1	14.9		27.8	4.4	16.4	5.1	55.3	12.2	#275.2	44.9	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	285		321	514	682	399	759	745	557	924	
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	0.08	0.20		0.46	0.02	0.45	0.05	0.46	0.31	1.81	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.81
Intersection Signal Delay: 162.6 Intersection LOS: F
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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1108	65	23	9	5	411
Future Volume (vph)	1108	65	23	9	5	411
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1764	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1764	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1259	74	26	10	6	467
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1259	74	36	0	6	467
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 78.1%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1108	65	23	9	5	411
Future Volume (Veh/h)	1108	65	23	9	5	411
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1259	74	26	10	6	467
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	36				2623	31
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				2623	31
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	18				0	54
cM capacity (veh/h)	1531				4	1010

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1259	74	36	6	467
Volume Left	1259	0	0	6	0
Volume Right	0	0	10	0	467
cSH	1531	1700	1700	4	1010
Volume to Capacity	0.82	0.04	0.02	1.53	0.46
Queue Length 95th (m)	84.7	0.0	0.0	13.1	19.9
Control Delay (s)	17.1	0.0	0.0	1845.2	11.6
Lane LOS	C			F	B
Approach Delay (s)	16.1		0.0	34.9	
Approach LOS				D	

Intersection Summary			
Average Delay	20.6		
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	LTR
Maximum Queue (m)	11.2	30.9	163.8	181.6	15.8	17.6	86.2
Average Queue (m)	1.2	11.1	158.0	165.9	5.3	8.9	22.6
95th Queue (m)	6.5	24.8	182.0	200.1	13.7	15.1	57.9
Link Distance (m)		375.4		163.8		373.7	131.4
Upstream Blk Time (%)			14	39			
Queuing Penalty (veh)			0	518			
Storage Bay Dist (m)	62.0		160.0		112.0		
Storage Blk Time (%)			27	43			
Queuing Penalty (veh)			48	495			

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	14.2	10.4
Average Queue (m)	5.4	0.5
95th Queue (m)	13.4	5.3
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	30.2
Average Queue (m)	13.4
95th Queue (m)	25.0
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB
Directions Served	LR
Maximum Queue (m)	17.2
Average Queue (m)	1.5
95th Queue (m)	9.0
Link Distance (m)	244.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	85.0	55.3	159.5	196.0	57.4	140.4
Average Queue (m)	40.1	18.2	142.8	187.3	56.8	129.8
95th Queue (m)	72.0	45.3	209.1	193.1	59.8	145.2
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)				82		69
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			7	79	58	18
Queuing Penalty (veh)			65	308	357	73

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	17.2	29.9	52.0	12.8	39.6	15.6	67.6	46.8	276.5	378.6
Average Queue (m)	3.7	10.1	23.2	1.8	20.1	3.4	31.7	18.3	273.1	358.4
95th Queue (m)	11.4	21.7	41.7	7.9	34.7	11.3	56.2	33.7	290.3	422.2
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										26
Queuing Penalty (veh)										326
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)					0		0	0	33	56
Queuing Penalty (veh)					0		0	0	112	516

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	26.0	1.2	12.6	31.2
Average Queue (m)	7.1	0.0	1.4	2.7
95th Queue (m)	20.5	0.9	7.1	15.4
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2816

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	71	167	638	76	25	25	108	1253	14	66	5
Future Volume (vph)	4	71	167	638	76	25	25	108	1253	14	66	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.895			0.963				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1805	1657	0	1736	1682	0	1583	1776	1553	0	1823	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1805	1657	0	1736	1682	0	1583	1776	1553	0	1823	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	77	182	693	83	27	27	117	1362	15	72	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	259	0	693	110	0	27	117	1362	0	92	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 106.1% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	71	167	638	76	25	25	108	1253	14	66	5
Future Volume (vph)	4	71	167	638	76	25	25	108	1253	14	66	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	77	182	693	83	27	27	117	1362	15	72	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	259	693	110	27	117	1362	92
Volume Left (vph)	4	0	693	0	27	0	0	15
Volume Right (vph)	0	182	0	27	0	0	1362	5
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.05
Departure Headway (s)	6.8	5.8	6.3	5.7	7.9	7.3	3.2	7.3
Degree Utilization, x	0.01	0.42	1.21	0.17	0.06	0.24	1.21	0.19
Capacity (veh/h)	509	600	565	616	437	473	1129	472
Control Delay (s)	8.6	11.8	131.3	8.7	10.2	11.4	115.6	11.9
Approach Delay (s)	11.7		114.5		105.6			11.9
Approach LOS	B		F		F			B

Intersection Summary			
Delay	95.8		
Level of Service	F		
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	2	118	23	6	55
Future Volume (vph)	17	2	118	23	6	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988		0.978			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1689	0	1728	0	0	1825
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1689	0	1728	0	0	1825
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	20	2	136	26	7	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	162	0	0	70
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	2	118	23	6	55
Future Volume (Veh/h)	17	2	118	23	6	55
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	2	136	26	7	63
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	226	149			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	149			162	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	748	903			1429	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	162	70
Volume Left	20	0	7
Volume Right	2	26	0
cSH	759	1700	1429
Volume to Capacity	0.03	0.10	0.00
Queue Length 95th (m)	0.7	0.0	0.1
Control Delay (s)	9.9	0.0	0.8
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.8
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	0	8	104	0	10
Future Volume (vph)	34	0	8	104	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.874			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1519	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1519	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	52	0	12	160	0	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	172	0	0	15
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	0	8	104	0	10
Future Volume (Veh/h)	34	0	8	104	0	10
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	52	0	12	160	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	107	92			172	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	107	92			172	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	860	965			1405	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	172	15
Volume Left	52	0	0
Volume Right	0	160	0
cSH	860	1700	1405
Volume to Capacity	0.06	0.10	0.00
Queue Length 95th (m)	1.5	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

4: Victoria Avenue North & Viceroy Avenue

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	7	2	7	9	0
Future Volume (vph)	0	7	2	7	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.988		
Satd. Flow (prot)	1644	0	0	1877	1900	0
Flt Permitted				0.988		
Satd. Flow (perm)	1644	0	0	1877	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	9	3	9	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	0	12	12	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	2	7	9	0
Future Volume (Veh/h)	0	7	2	7	9	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	9	3	9	12	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	27	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27	12	12			
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	99	100			
cM capacity (veh/h)	986	1074	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	9	12	12
Volume Left	0	3	0
Volume Right	9	0	0
cSH	1074	1620	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1114	232	1236	414	287	629
Future Volume (vph)	1114	232	1236	414	287	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		179				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1211	252	1343	450	312	684
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1211	252	1343	450	312	684
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.07	0.40	9.52	0.55	0.57	1.03
Control Delay	506.2	8.0	3856.4	16.6	23.3	62.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	506.2	8.0	3856.4	16.6	23.3	62.5
LOS	F	A	F	B	C	E
Approach Delay	420.4			2892.7	50.3	
Approach LOS	F			F	D	
Queue Length 50th (m)	~265.4	6.8	~367.8	41.8	33.7	~79.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#337.9	23.0	#442.1	68.1	58.2	#142.4
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	627	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.07	0.40	9.52	0.55	0.57	1.03

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.52
Intersection Signal Delay: 1376.2 Intersection LOS: F
Intersection Capacity Utilization 157.2% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	308	62	233	10	1171	17	252	338	370	369	28
Future Volume (vph)	58	308	62	233	10	1171	17	252	338	370	369	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1678	0
Flt Permitted	0.750			0.308			0.512			0.512		
Satd. Flow (perm)	1397	1767	0	527	1696	1524	909	1759	1482	909	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				563			367		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	63	335	67	253	11	1273	18	274	367	402	401	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	402	0	253	11	1273	18	274	367	402	431	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.30	1.46		0.92	0.02	1.52	0.05	0.40	0.46	0.68	0.49	
Control Delay	29.5	250.7		61.6	17.4	257.4	13.2	16.8	3.9	15.3	12.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.5	250.7		61.6	17.4	257.4	13.2	16.8	3.9	15.3	12.1	
LOS	C	F		E	B	F	B	B	A	B	B	
Approach Delay		220.7			223.5			9.5			13.7	
Approach LOS		F			F			A			B	
Queue Length 50th (m)	7.4	~72.8		25.6	1.0	~181.9	1.4	24.9	0.0	26.0	32.1	

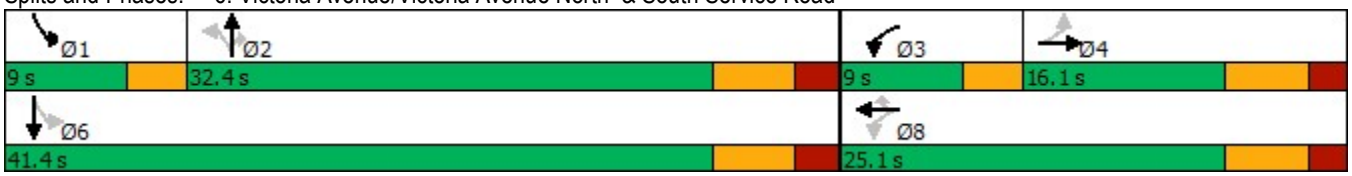
6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	17.9	#124.1		#67.0	4.4	#257.0	5.1	43.2	14.9	43.6	53.9	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	210	276		274	484	837	355	687	802	595	887	
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	0.30	1.46		0.92	0.02	1.52	0.05	0.40	0.46	0.68	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.52
Intersection Signal Delay: 132.7 Intersection LOS: F
Intersection Capacity Utilization 113.0% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	782	25	29	27	24	1447
Future Volume (vph)	782	25	29	27	24	1447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1706	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1706	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	841	27	31	29	26	1556
Shared Lane Traffic (%)						
Lane Group Flow (vph)	841	27	60	0	26	1556
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 99.6%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	782	25	29	27	24	1447
Future Volume (Veh/h)	782	25	29	27	24	1447
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	841	27	31	29	26	1556
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	60				1754	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				1754	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	45				39	0
cM capacity (veh/h)	1531				43	1018

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	841	27	60	26	1556
Volume Left	841	0	0	26	0
Volume Right	0	0	29	0	1556
cSH	1531	1700	1700	43	1018
Volume to Capacity	0.55	0.02	0.04	0.61	1.53
Queue Length 95th (m)	28.1	0.0	0.0	18.0	599.8
Control Delay (s)	10.2	0.0	0.0	176.9	255.9
Lane LOS	B			F	F
Approach Delay (s)	9.9		0.0	254.6	
Approach LOS				F	

Intersection Summary			
Average Delay	163.9		
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	6.1	102.0	52.6	23.7	95.5	378.8	247.2	40.0
Average Queue (m)	0.8	77.9	26.5	9.0	18.7	367.5	246.1	25.8
95th Queue (m)	4.6	294.9	44.5	17.8	87.7	421.8	256.1	94.0
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)		15				39		11
Queuing Penalty (veh)		0				574		8
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)		19			0	34	69	
Queuing Penalty (veh)		1			0	435	91	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	23.8	35.0
Average Queue (m)	7.9	10.3
95th Queue (m)	28.1	63.5
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	16.0
Average Queue (m)	5.4
95th Queue (m)	13.7
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	9.1	1.7
Average Queue (m)	1.6	0.1
95th Queue (m)	7.1	1.2
Link Distance (m)	244.8	32.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	154.6	206.0	159.5	198.1	57.4	140.4
Average Queue (m)	143.3	199.4	159.3	189.7	55.4	125.4
95th Queue (m)	161.6	206.4	160.3	196.3	67.0	165.5
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	20	79		96		46
Queuing Penalty (veh)	131	527		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			89	30	6	39
Queuing Penalty (veh)			368	376	39	113

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	79.5	382.8	102.0	196.7	51.4	73.9	213.1	60.4	56.1	55.0
Average Queue (m)	70.0	350.3	91.1	189.1	51.4	12.4	123.2	40.2	28.3	20.5
95th Queue (m)	104.4	435.0	185.3	345.2	54.9	80.4	252.6	89.5	51.2	41.4
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)		76		77			32			
Queuing Penalty (veh)		0		1142			0			
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)	28	74	0	2	97		42	3		
Queuing Penalty (veh)	105	43	1	33	236		148	7		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	50.5	117.7	134.1	144.4
Average Queue (m)	7.3	53.6	126.2	136.6
95th Queue (m)	30.2	156.8	153.3	144.7
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)		3	71	99
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 4378

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Future Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			0.0		
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
Frt									0.850			
Flt Protected				0.950								
Satd. Flow (prot)	1504	1388	0	2375	1388	0	1504	1629	1148	0	1483	0
Flt Permitted				0.950								
Satd. Flow (perm)	1504	1388	0	2375	1388	0	1504	1629	1148	0	1483	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	279	0	0	0	101	1070	0	26	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	279	0	0	0	101	1070	0	26	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 95.7% ICU Level of Service F
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Future Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	279	0	0	0	101	1070	0	26	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	279	0	0	101	1070	26
Volume Left (vph)	0	0	279	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	0	1070	0
Hadj (s)	0.00	0.00	0.50	0.00	0.00	0.00	-0.70	0.00
Departure Headway (s)	5.1	5.1	5.4	4.9	5.4	5.4	3.2	5.5
Degree Utilization, x	0.00	0.00	0.42	0.00	0.00	0.15	0.95	0.04
Capacity (veh/h)	691	691	654	738	645	636	1122	617
Control Delay (s)	6.9	6.9	10.9	6.7	7.2	8.1	32.6	8.7
Approach Delay (s)	0.0		10.9		30.5			8.7
Approach LOS	A		B		D			A

Intersection Summary			
Delay	26.4		
Level of Service	D		
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	93	0	0	24
Future Volume (vph)	0	0	93	0	0	24
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	107	0	0	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	107	0	0	28
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	93	0	0	24
Future Volume (Veh/h)	0	0	93	0	0	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	107	0	0	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	135	107			107	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	107			107	
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	100			100	
cM capacity (veh/h)	863	953			1497	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	107	28
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1497
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	0	93	0	0
Future Volume (vph)	24	0	0	93	0	0
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1201	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1201	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	0	0	143	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	143	0	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	0	93	0	0
Future Volume (Veh/h)	24	0	0	93	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	37	0	0	143	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72	72			143	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72	72			143	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	938	996			1452	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	143	0
Volume Left	37	0	0
Volume Right	0	143	0
cSH	938	1700	1700
Volume to Capacity	0.04	0.08	0.00
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1475	0	0	1228	1388	0
Flt Permitted						
Satd. Flow (perm)	1475	0	0	1228	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
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	100	100			
cM capacity (veh/h)	1023	1091	1636			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1221	296	1261	468	286	682
Future Volume (vph)	1221	296	1261	468	286	682
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1597	1126	1348	1597	1387	1094
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1597	1126	1348	1597	1387	1094
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		209				229
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	6%	2%	3%	5%
Adj. Flow (vph)	1327	322	1371	509	311	741
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1327	322	1371	509	311	741
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Maximum Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	4.0	4.0	2.0	4.0	3.0	3.0
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.49	0.63	11.72	0.69	0.65	1.40
Control Delay	696.2	13.3	4844.8	20.5	26.3	210.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	696.2	13.3	4844.8	20.5	26.3	210.5
LOS	F	B	F	C	C	F
Approach Delay	562.8			3538.6	156.1	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	F			F	F	
Queue Length 50th (m)	~306.7	11.2	~379.4	51.5	34.8	~116.6
Queue Length 95th (m)	#381.0	37.7	#454.3	85.8	61.5	#181.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	532	514	117	740	482	529
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.49	0.63	11.72	0.69	0.65	1.40

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 11.72
Intersection Signal Delay: 1690.7 Intersection LOS: F
Intersection Capacity Utilization 197.4% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

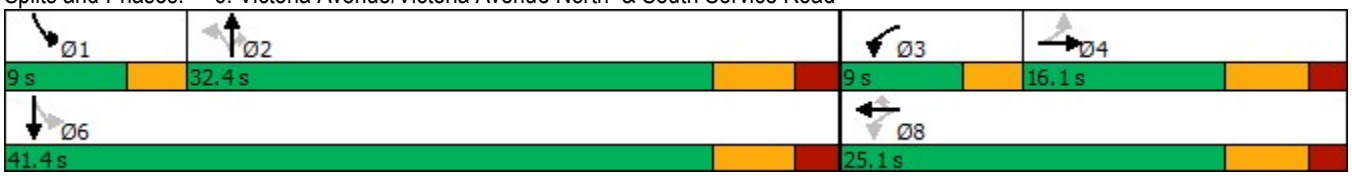
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1077	0	0	0	230	51	0
Future Volume (vph)	0	0	0	0	0	1077	0	0	0	230	51	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	1629	1148	1504	1629	1351	1429	1388	0
Flt Permitted										0.679		
Satd. Flow (perm)	1504	1388	0	1504	1629	1148	1504	1629	1351	1021	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	1171	0	0	0	250	55	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1171	0	0	0	250	55	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Maximum Green (s)	10.0	10.0		6.0	19.0	19.0	26.0	26.0	26.0	6.0	35.0	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		2.0	2.0	2.0	3.0	3.0	3.0	2.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Walk Time (s)							10.0	10.0	10.0		10.0	
Flash Dont Walk (s)							16.0	16.0	16.0		16.0	
Pedestrian Calls (#/hr)							0	0	0		0	
Act Effct Green (s)						19.0				38.4	35.0	
Actuated g/C Ratio						0.29				0.58	0.53	
v/c Ratio						1.06				0.40	0.08	
Control Delay						50.2				9.5	8.2	
Queue Delay						0.0				0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay						50.2				9.5	8.2	
LOS						D				A	A	
Approach Delay					50.2						9.3	
Approach LOS					D						A	
Queue Length 50th (m)						~57.0				14.9	3.3	
Queue Length 95th (m)						#130.5				27.0	8.2	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1107				626	730	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.06				0.40	0.08	

Intersection Summary	
Area Type:	Other
Cycle Length: 66.5	
Actuated Cycle Length: 66.5	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 41.7	Intersection LOS: D
Intersection Capacity Utilization 98.9%	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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	680	28	13	17	34	1432
Future Volume (vph)	680	28	13	17	34	1432
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				0.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.924			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1429	1629	1283	0	1429	1126
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1429	1629	1283	0	1429	1126
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	731	30	14	18	37	1540
Shared Lane Traffic (%)						
Lane Group Flow (vph)	731	30	32	0	37	1540
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 134.7%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	680	28	13	17	34	1432
Future Volume (Veh/h)	680	28	13	17	34	1432
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	731	30	14	18	37	1540
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	32				1515	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				1515	23
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	54				49	0
cM capacity (veh/h)	1593				72	1054

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	731	30	32	37	1540
Volume Left	731	0	0	37	0
Volume Right	0	0	18	0	1540
cSH	1593	1700	1700	72	1054
Volume to Capacity	0.46	0.02	0.02	0.51	1.46
Queue Length 95th (m)	19.9	0.0	0.0	17.1	553.0
Control Delay (s)	9.2	0.0	0.0	99.1	226.3
Lane LOS	A			F	F
Approach Delay (s)	8.8		0.0	223.4	
Approach LOS				F	

Intersection Summary			
Average Delay	151.4		
Intersection Capacity Utilization	134.7%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	NB	NB	SB
Directions Served	L	T	R	LTR
Maximum Queue (m)	15.1	278.4	222.9	7.5
Average Queue (m)	9.4	156.6	155.2	4.0
95th Queue (m)	15.6	402.3	319.0	10.0
Link Distance (m)		373.7		131.4
Upstream Blk Time (%)		2		
Queuing Penalty (veh)		22		
Storage Bay Dist (m)	160.0		240.0	
Storage Blk Time (%)		27	28	
Queuing Penalty (veh)		261	26	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.7
Average Queue (m)	4.1
95th Queue (m)	10.0
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	134.1	197.7	159.5	196.7	57.4	140.4
Average Queue (m)	133.7	191.9	158.7	187.8	56.4	129.7
95th Queue (m)	136.3	228.4	166.2	193.8	64.8	146.9
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)		63		96		58
Queuing Penalty (veh)		310		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			87	31	4	50
Queuing Penalty (veh)			406	392	25	142

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	245.6	52.5	33.4	9.2
Average Queue (m)	232.1	52.5	10.0	1.5
95th Queue (m)	261.9	52.7	23.7	6.4
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	57			
Queuing Penalty (veh)	825			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)		89		
Queuing Penalty (veh)		0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	58.6	5.0	144.6	147.2
Average Queue (m)	7.8	0.4	136.3	137.9
95th Queue (m)	31.9	3.5	141.2	144.0
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)			87	88
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 2410

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Future Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1733	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1733	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	23	56	1433	178	63	33	76	674	22	116	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	79	0	1433	241	0	33	76	674	0	145	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 91.5% ICU Level of Service F
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Future Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	23	56	1433	178	63	33	76	674	22	116	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	79	1433	241	33	76	674	145
Volume Left (vph)	7	0	1433	0	33	0	0	22
Volume Right (vph)	0	56	0	63	0	0	674	7
Hadj (s)	0.84	-0.36	0.72	-0.10	0.65	0.05	-0.63	0.14
Departure Headway (s)	7.3	6.1	6.2	5.4	7.7	7.1	3.2	6.9
Degree Utilization, x	0.01	0.13	2.49	0.36	0.07	0.15	0.60	0.28
Capacity (veh/h)	470	564	586	653	452	490	1118	512
Control Delay (s)	9.2	8.8	686.8	10.3	10.1	10.2	9.7	12.5
Approach Delay (s)	8.9		589.4		9.7			12.5
Approach LOS	A		F		A			B

Intersection Summary			
Delay	370.9		
Level of Service	F		
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	0	58	13	9	81
Future Volume (vph)	32	0	58	13	9	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1736	0	1762	0	0	1645
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1736	0	1762	0	0	1645
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	42	0	75	17	12	105
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	92	0	0	117
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 21.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	0	58	13	9	81
Future Volume (Veh/h)	32	0	58	13	9	81
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	42	0	75	17	12	105
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	212	84			92	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212	84			92	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	95	100			99	
cM capacity (veh/h)	764	976			1215	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	42	92	117
Volume Left	42	0	12
Volume Right	0	17	0
cSH	764	1700	1215
Volume to Capacity	0.05	0.05	0.01
Queue Length 95th (m)	1.4	0.0	0.2
Control Delay (s)	10.0	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	13	28	0	10
Future Volume (vph)	77	0	13	28	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.909			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1162	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1162	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	21	44	0	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	65	0	0	16
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	13	28	0	10
Future Volume (Veh/h)	77	0	13	28	0	10
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	21	44	0	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	59	43			65	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59	43			65	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	808	1027			1537	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	65	16
Volume Left	122	0	0
Volume Right	0	44	0
cSH	808	1700	1537
Volume to Capacity	0.15	0.04	0.00
Queue Length 95th (m)	4.2	0.0	0.0
Control Delay (s)	10.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	9	6	6	0
Future Volume (vph)	0	4	9	6	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.972		
Satd. Flow (prot)	984	0	0	1698	1900	0
Flt Permitted				0.972		
Satd. Flow (perm)	984	0	0	1698	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Adj. Flow (vph)	0	6	14	10	10	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	24	10	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	9	6	6	0
Future Volume (Veh/h)	0	4	9	6	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	14	10	10	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	48	10	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	10	10			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	953	910	1529			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	24	10
Volume Left	0	14	0
Volume Right	6	0	0
cSH	910	1529	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.2	0.2	0.0
Control Delay (s)	9.0	4.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	17.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	333	265	396	930	435	616
Future Volume (vph)	333	265	396	930	435	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		323				402
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	406	323	483	1134	530	751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	406	323	483	1134	530	751
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.67	0.44	3.16	1.35	0.94	0.95
Control Delay	26.1	4.4	1003.7	187.8	50.0	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	4.4	1003.7	187.8	50.0	35.5
LOS	C	A	F	F	D	D
Approach Delay	16.5			431.5	41.5	
Approach LOS	B			F	D	
Queue Length 50th (m)	46.4	0.0	~117.4	~206.5	68.1	49.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	66.3	11.3	#154.1	#242.4	#108.8	#102.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	738	153	839	565	787
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.44	3.16	1.35	0.94	0.95

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 3.16	
Intersection Signal Delay: 210.3	Intersection LOS: F
Intersection Capacity Utilization 83.9%	ICU Level of Service E
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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

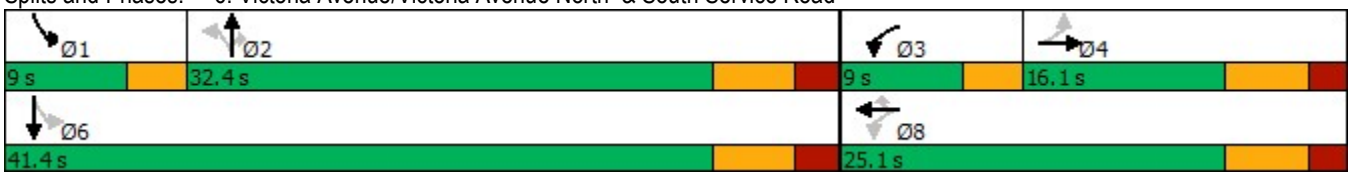
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	47	10	152	11	285	19	353	236	935	340	36
Future Volume (vph)	18	47	10	152	11	285	19	353	236	935	340	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1735	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.750			0.519			0.522			0.404		
Satd. Flow (perm)	1332	1735	0	822	1696	1553	927	1827	1468	704	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				310			257		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	20	51	11	165	12	310	21	384	257	1016	370	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	62	0	165	12	310	21	384	257	1016	409	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.09	0.22		0.52	0.03	0.51	0.05	0.51	0.34	1.94	0.44	
Control Delay	25.7	23.3		23.8	17.5	5.9	13.2	17.5	3.5	448.9	10.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.7	23.3		23.8	17.5	5.9	13.2	17.5	3.5	448.9	10.6	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		23.9			12.3			11.9			323.1	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.3	5.9		15.8	1.1	0.0	1.7	37.3	0.0	~214.0	29.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.9	15.8		30.4	4.7	16.6	5.6	61.8	12.7	#282.4	50.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	286		320	514	687	385	759	760	523	924	
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	0.09	0.22		0.52	0.02	0.45	0.05	0.51	0.34	1.94	0.44	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.94
Intersection Signal Delay: 179.3 Intersection LOS: F
Intersection Capacity Utilization 99.2% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1140	68	25	10	5	430
Future Volume (vph)	1140	68	25	10	5	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1763	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1763	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1295	77	28	11	6	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1295	77	39	0	6	489
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1140	68	25	10	5	430
Future Volume (Veh/h)	1140	68	25	10	5	430
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1295	77	28	11	6	489
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	39				2700	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				2700	34
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	15				0	51
cM capacity (veh/h)	1527				3	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1295	77	39	6	489
Volume Left	1295	0	0	6	0
Volume Right	0	0	11	0	489
cSH	1527	1700	1700	3	1006
Volume to Capacity	0.85	0.05	0.02	2.01	0.49
Queue Length 95th (m)	95.1	0.0	0.0	13.6	21.8
Control Delay (s)	18.7	0.0	0.0	2513.6	11.9
Lane LOS	C			F	B
Approach Delay (s)	17.6		0.0	42.2	
Approach LOS				E	

Intersection Summary			
Average Delay	23.6		
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Future Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1191	1151	0	2102	1268	0	1311	1582	1104	0	1353	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1191	1151	0	2102	1268	0	1311	1582	1104	0	1353	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	23	56	1433	178	63	33	76	674	22	116	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	79	0	1433	241	0	33	76	674	0	145	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 77.6%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Future Volume (vph)	6	19	46	1175	146	52	27	62	553	18	95	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	23	56	1433	178	63	33	76	674	22	116	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	79	1433	241	33	76	674	145
Volume Left (vph)	7	0	1433	0	33	0	0	22
Volume Right (vph)	0	56	0	63	0	0	674	7
Hadj (s)	0.84	-0.36	0.72	-0.10	0.65	0.05	-0.63	0.14
Departure Headway (s)	7.3	6.1	6.2	5.4	7.7	7.1	3.2	6.9
Degree Utilization, x	0.01	0.13	2.49	0.36	0.07	0.15	0.60	0.28
Capacity (veh/h)	470	564	586	653	452	490	1118	512
Control Delay (s)	9.2	8.8	686.8	10.3	10.1	10.2	9.7	12.5
Approach Delay (s)	8.9		589.4		9.7			12.5
Approach LOS	A		F		A			B

Intersection Summary			
Delay	370.9		
Level of Service	F		
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	0	58	13	9	81
Future Volume (vph)	32	0	58	13	9	81
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1374	0	1288	0	0	1063
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1374	0	1288	0	0	1063
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	42	0	75	17	12	105
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	92	0	0	117
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 24.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	0	58	13	9	81
Future Volume (Veh/h)	32	0	58	13	9	81
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	42	0	75	17	12	105
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	212	84			92	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212	84			92	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	95	100			99	
cM capacity (veh/h)	764	976			1215	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	42	92	117
Volume Left	42	0	12
Volume Right	0	17	0
cSH	764	1700	1215
Volume to Capacity	0.05	0.05	0.01
Queue Length 95th (m)	1.4	0.0	0.2
Control Delay (s)	10.0	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	13	28	0	10
Future Volume (vph)	77	0	13	28	0	10
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.909			
Flt Protected	0.950					
Satd. Flow (prot)	856	0	849	0	0	1087
Flt Permitted	0.950					
Satd. Flow (perm)	856	0	849	0	0	1087
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	21	44	0	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	65	0	0	16
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	13	28	0	10
Future Volume (Veh/h)	77	0	13	28	0	10
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	21	44	0	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	59	43			65	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59	43			65	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	808	1027			1537	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	65	16
Volume Left	122	0	0
Volume Right	0	44	0
cSH	808	1700	1537
Volume to Capacity	0.15	0.04	0.00
Queue Length 95th (m)	4.2	0.0	0.0
Control Delay (s)	10.2	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	9	6	6	0
Future Volume (vph)	0	4	9	6	6	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.972		
Satd. Flow (prot)	779	0	0	1098	1388	0
Flt Permitted				0.972		
Satd. Flow (perm)	779	0	0	1098	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Adj. Flow (vph)	0	6	14	10	10	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	24	10	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	9	6	6	0
Future Volume (Veh/h)	0	4	9	6	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	14	10	10	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	48	10	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	10	10			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	953	910	1529			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	24	10
Volume Left	0	14	0
Volume Right	6	0	0
cSH	910	1529	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.2	0.2	0.0
Control Delay (s)	9.0	4.3	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	333	265	396	930	435	616
Future Volume (vph)	333	265	396	930	435	616
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		323				398
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	406	323	483	1134	530	751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	406	323	483	1134	530	751
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.78	0.55	3.99	1.58	1.19	1.19
Control Delay	33.4	6.4	1379.1	287.8	129.4	114.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	6.4	1379.1	287.8	129.4	114.9
LOS	C	A	F	F	F	F
Approach Delay	21.4			613.7	120.9	
Approach LOS	C			F	F	
Queue Length 50th (m)	48.8	0.0	~122.0	~223.9	~88.5	~86.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#72.5	11.6	#158.8	#259.7	#125.8	#126.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	522	587	121	719	447	632
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.55	3.99	1.58	1.19	1.19

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 3.99	
Intersection Signal Delay: 320.6	Intersection LOS: F
Intersection Capacity Utilization 98.4%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

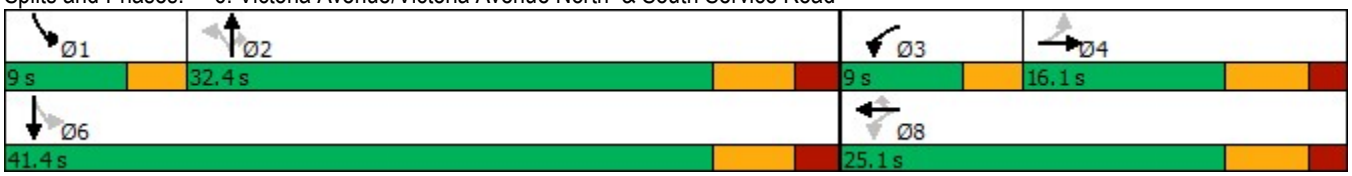
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	47	10	152	11	285	19	353	236	935	340	36
Future Volume (vph)	18	47	10	152	11	285	19	353	236	935	340	36
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1335	1267	0	1191	1454	1104	1335	1566	1044	1311	1200	0
Flt Permitted	0.750			0.519			0.522			0.404		
Satd. Flow (perm)	1054	1267	0	650	1454	1104	734	1566	1044	557	1200	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				310			257		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	20	51	11	165	12	310	21	384	257	1016	370	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	62	0	165	12	310	21	384	257	1016	409	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.12	0.29		0.65	0.03	0.62	0.07	0.59	0.44	2.46	0.61	
Control Delay	26.5	25.6		32.4	17.5	8.8	13.6	19.9	4.9	679.2	14.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.5	25.6		32.4	17.5	8.8	13.6	19.9	4.9	679.2	14.8	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		25.8			17.0			13.9			488.5	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.3	6.0		16.4	1.1	0.0	1.7	39.0	0.0	~228.3	33.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	8.0	16.3		#36.4	4.7	18.7	5.8	66.6	13.3	#296.7	64.0	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	168	211		253	441	550	304	650	583	413	676	
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	0.12	0.29		0.65	0.03	0.56	0.07	0.59	0.44	2.46	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.46
Intersection Signal Delay: 269.5 Intersection LOS: F
Intersection Capacity Utilization 118.2% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1140	68	25	10	5	430
Future Volume (vph)	1140	68	25	10	5	430
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1288	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1288	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1295	77	28	11	6	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1295	77	39	0	6	489
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1140	68	25	10	5	430
Future Volume (Veh/h)	1140	68	25	10	5	430
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1295	77	28	11	6	489
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	39				2700	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				2700	34
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	15				0	51
cM capacity (veh/h)	1527				3	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1295	77	39	6	489
Volume Left	1295	0	0	6	0
Volume Right	0	0	11	0	489
cSH	1527	1700	1700	3	1006
Volume to Capacity	0.85	0.05	0.02	2.01	0.49
Queue Length 95th (m)	95.1	0.0	0.0	13.6	21.8
Control Delay (s)	18.7	0.0	0.0	2513.6	11.9
Lane LOS	C			F	B
Approach Delay (s)	17.6		0.0	42.2	
Approach LOS				E	

Intersection Summary			
Average Delay	23.6		
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Future Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.895			0.964				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1805	1657	0	1736	1684	0	1583	1776	1553	0	1821	0
Flt Permitted	0.950			0.950			0.950				0.991	
Satd. Flow (perm)	1805	1657	0	1736	1684	0	1583	1776	1553	0	1821	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	85	200	736	91	29	29	120	1390	17	76	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	285	0	736	120	0	29	120	1390	0	98	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 109.5% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Future Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	85	200	736	91	29	29	120	1390	17	76	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	285	736	120	29	120	1390	98
Volume Left (vph)	4	0	736	0	29	0	0	17
Volume Right (vph)	0	200	0	29	0	0	1390	5
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.05
Departure Headway (s)	6.9	5.9	6.4	5.8	8.0	7.4	3.2	7.4
Degree Utilization, x	0.01	0.47	1.31	0.19	0.06	0.25	1.24	0.20
Capacity (veh/h)	503	593	572	606	431	467	1129	466
Control Delay (s)	8.7	12.8	169.6	9.0	10.4	11.6	125.7	12.2
Approach Delay (s)	12.7		147.1		114.7			12.2
Approach LOS	B		F		F			B

Intersection Summary			
Delay	110.4		
Level of Service	F		
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	2	121	25	6	58
Future Volume (vph)	19	2	121	25	6	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989		0.977			
Flt Protected	0.956					0.995
Satd. Flow (prot)	1688	0	1728	0	0	1824
Flt Permitted	0.956					0.995
Satd. Flow (perm)	1688	0	1728	0	0	1824
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	22	2	139	29	7	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	168	0	0	74
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 18.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	2	121	25	6	58
Future Volume (Veh/h)	19	2	121	25	6	58
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	22	2	139	29	7	67
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	234	154			168	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	154			168	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	739	898			1422	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	168	74
Volume Left	22	0	7
Volume Right	2	29	0
cSH	750	1700	1422
Volume to Capacity	0.03	0.10	0.00
Queue Length 95th (m)	0.8	0.0	0.1
Control Delay (s)	10.0	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	9	105	0	11
Future Volume (vph)	35	0	9	105	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.876			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1524	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1524	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	54	0	14	162	0	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	176	0	0	17
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	9	105	0	11
Future Volume (Veh/h)	35	0	9	105	0	11
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	54	0	14	162	0	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	112	95			176	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112	95			176	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	854	962			1400	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	54	176	17
Volume Left	54	0	0
Volume Right	0	162	0
cSH	854	1700	1400
Volume to Capacity	0.06	0.10	0.00
Queue Length 95th (m)	1.6	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	2	8	10	0
Future Volume (vph)	0	8	2	8	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.989		
Satd. Flow (prot)	1644	0	0	1879	1900	0
Flt Permitted				0.989		
Satd. Flow (perm)	1644	0	0	1879	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	11	3	11	13	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	14	13	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	8	2	8	10	0
Future Volume (Veh/h)	0	8	2	8	10	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	11	3	11	13	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	30	13	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	13	13			
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	99	100			
cM capacity (veh/h)	982	1073	1619			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	14	13
Volume Left	0	3	0
Volume Right	11	0	0
cSH	1073	1619	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1126	256	1242	429	317	633
Future Volume (vph)	1126	256	1242	429	317	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		196				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1224	278	1350	466	345	688
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1224	278	1350	466	345	688
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.09	0.44	9.57	0.57	0.63	1.04
Control Delay	516.0	8.3	3878.7	17.0	25.1	64.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	516.0	8.3	3878.7	17.0	25.1	64.4
LOS	F	A	F	B	C	E
Approach Delay	422.0			2887.7	51.2	
Approach LOS	F			F	D	
Queue Length 50th (m)	~269.1	7.7	~369.9	43.8	38.3	~80.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#342.0	25.1	#444.5	71.0	65.2	#143.6
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	638	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.09	0.44	9.57	0.57	0.63	1.04

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.57
Intersection Signal Delay: 1363.1 Intersection LOS: F
Intersection Capacity Utilization 159.8% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

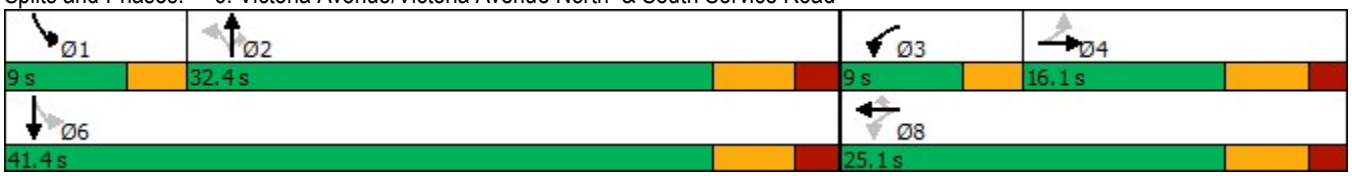
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	340	68	257	11	1179	19	278	373	383	401	31
Future Volume (vph)	64	340	68	257	11	1179	19	278	373	383	401	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1675	0
Flt Permitted	0.750			0.308			0.494			0.481		
Satd. Flow (perm)	1397	1767	0	527	1696	1524	877	1759	1482	854	1675	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				531			375		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	70	370	74	279	12	1282	21	302	405	416	436	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	444	0	279	12	1282	21	302	405	416	470	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.33	1.61		1.02	0.02	1.57	0.06	0.44	0.50	0.73	0.53	
Control Delay	30.2	314.9		84.3	17.4	281.9	13.4	17.4	4.8	18.5	12.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.2	314.9		84.3	17.4	281.9	13.4	17.4	4.8	18.5	12.9	
LOS	C	F		F	B	F	B	B	A	B	B	
Approach Delay		276.2			244.8			10.3			15.5	
Approach LOS		F			F			B			B	
Queue Length 50th (m)	8.3	~84.8		~29.5	1.1	~191.2	1.7	28.0	2.4	27.1	36.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	19.5	#137.9		#82.3	4.7	#266.4	5.7	47.9	18.7	#50.6	60.7	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	210	276		274	484	814	342	687	807	568	885	
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	0.33	1.61		1.02	0.02	1.57	0.06	0.44	0.50	0.73	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.61
Intersection Signal Delay: 148.1 Intersection LOS: F
Intersection Capacity Utilization 113.5% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	838	27	32	30	26	1484
Future Volume (vph)	838	27	32	30	26	1484
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1706	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1706	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	901	29	34	32	28	1596
Shared Lane Traffic (%)						
Lane Group Flow (vph)	901	29	66	0	28	1596
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 102.1%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	838	27	32	30	26	1484
Future Volume (Veh/h)	838	27	32	30	26	1484
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	901	29	34	32	28	1596
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	66				1881	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66				1881	50
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	41				13	0
cM capacity (veh/h)	1523				32	1013

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	901	29	66	28	1596
Volume Left	901	0	0	28	0
Volume Right	0	0	32	0	1596
cSH	1523	1700	1700	32	1013
Volume to Capacity	0.59	0.02	0.04	0.87	1.58
Queue Length 95th (m)	33.0	0.0	0.0	23.9	642.9
Control Delay (s)	10.7	0.0	0.0	297.1	277.2
Lane LOS	B			F	F
Approach Delay (s)	10.4		0.0	277.5	
Approach LOS				F	

Intersection Summary			
Average Delay	175.7		
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Future Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.895			0.964				0.850		0.993	
Flt Protected	0.950			0.950			0.950				0.991	
Satd. Flow (prot)	1429	1211	0	2284	1230	0	1253	1522	1104	0	1422	0
Flt Permitted	0.950			0.950			0.950				0.991	
Satd. Flow (perm)	1429	1211	0	2284	1230	0	1253	1522	1104	0	1422	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	85	200	736	91	29	29	120	1390	17	76	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	285	0	736	120	0	29	120	1390	0	98	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 148.7% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Future Volume (vph)	4	78	184	677	84	27	27	110	1279	16	70	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	85	200	736	91	29	29	120	1390	17	76	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	285	736	120	29	120	1390	98
Volume Left (vph)	4	0	736	0	29	0	0	17
Volume Right (vph)	0	200	0	29	0	0	1390	5
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.05
Departure Headway (s)	6.9	5.9	6.4	5.8	8.0	7.4	3.2	7.4
Degree Utilization, x	0.01	0.47	1.31	0.19	0.06	0.25	1.24	0.20
Capacity (veh/h)	503	593	572	606	431	467	1129	466
Control Delay (s)	8.7	12.8	169.6	9.0	10.4	11.6	125.7	12.2
Approach Delay (s)	12.7		147.1		114.7			12.2
Approach LOS	B		F		F			B

Intersection Summary			
Delay	110.4		
Level of Service	F		
Intersection Capacity Utilization	148.7%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	2	121	25	6	58
Future Volume (vph)	19	2	121	25	6	58
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989		0.977			
Flt Protected	0.956					0.995
Satd. Flow (prot)	1336	0	1262	0	0	1179
Flt Permitted	0.956					0.995
Satd. Flow (perm)	1336	0	1262	0	0	1179
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	22	2	139	29	7	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	168	0	0	74
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 22.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	2	121	25	6	58
Future Volume (Veh/h)	19	2	121	25	6	58
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	22	2	139	29	7	67
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	234	154			168	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	154			168	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	739	898			1422	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	168	74
Volume Left	22	0	7
Volume Right	2	29	0
cSH	750	1700	1422
Volume to Capacity	0.03	0.10	0.00
Queue Length 95th (m)	0.8	0.0	0.1
Control Delay (s)	10.0	0.0	0.7
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	0.7
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	9	105	0	11
Future Volume (vph)	35	0	9	105	0	11
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.876			
Flt Protected	0.950					
Satd. Flow (prot)	1242	0	1113	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1242	0	1113	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	54	0	14	162	0	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	176	0	0	17
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	9	105	0	11
Future Volume (Veh/h)	35	0	9	105	0	11
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	54	0	14	162	0	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	112	95			176	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112	95			176	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	854	962			1400	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	54	176	17
Volume Left	54	0	0
Volume Right	0	162	0
cSH	854	1700	1400
Volume to Capacity	0.06	0.10	0.00
Queue Length 95th (m)	1.6	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	2	8	10	0
Future Volume (vph)	0	8	2	8	10	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.989		
Satd. Flow (prot)	1301	0	0	1214	1388	0
Flt Permitted				0.989		
Satd. Flow (perm)	1301	0	0	1214	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	11	3	11	13	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	14	13	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	8	2	8	10	0
Future Volume (Veh/h)	0	8	2	8	10	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	11	3	11	13	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	30	13	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	13	13			
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	99	100			
cM capacity (veh/h)	982	1073	1619			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	14	13
Volume Left	0	3	0
Volume Right	11	0	0
cSH	1073	1619	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1126	256	1242	429	317	633
Future Volume (vph)	1126	256	1242	429	317	633
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1508	1083	1287	1508	1242	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1508	1083	1287	1508	1242	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		196				221
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1224	278	1350	466	345	688
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1224	278	1350	466	345	688
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.44	0.57	12.16	0.67	0.80	1.36
Control Delay	671.6	11.3	5045.3	20.2	36.9	192.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	671.6	11.3	5045.3	20.2	36.9	192.1
LOS	F	B	F	C	D	F
Approach Delay	549.4			3755.8	140.3	
Approach LOS	F			F	F	
Queue Length 50th (m)	~281.2	7.9	~374.1	46.6	41.5	~105.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#354.1	29.8	#448.7	78.8	#84.7	#168.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	502	491	111	699	432	507
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.44	0.57	12.16	0.67	0.80	1.36

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 12.16
Intersection Signal Delay: 1790.5 Intersection LOS: F
Intersection Capacity Utilization 192.4% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	340	68	257	11	1179	19	278	373	383	401	31
Future Volume (vph)	64	340	68	257	11	1179	19	278	373	383	401	31
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1401	1291	0	1287	1454	1083	1335	1508	1054	1335	1224	0
Flt Permitted	0.750			0.308			0.494			0.481		
Satd. Flow (perm)	1106	1291	0	417	1454	1083	694	1508	1054	676	1224	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				530			365		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	70	370	74	279	12	1282	21	302	405	416	436	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	444	0	279	12	1282	21	302	405	416	470	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.42	2.17		1.29	0.03	1.86	0.08	0.51	0.64	0.93	0.73	
Control Delay	34.3	561.0		182.9	17.5	410.6	13.8	19.3	8.1	42.8	20.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.3	561.0		182.9	17.5	410.6	13.8	19.3	8.1	42.8	20.1	
LOS	C	F		F	B	F	B	B	A	D	C	
Approach Delay		489.3			367.2			12.9			30.8	
Approach LOS		F			F			B			C	
Queue Length 50th (m)	8.4	~95.4		~40.5	1.1	~210.0	1.7	29.0	3.2	29.7	42.3	

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	20.1	#148.4		#90.2	4.7	#285.2	5.8	51.0	26.9	#84.1	#83.0	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	166	205		217	415	688	271	589	634	449	648	
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	0.42	2.17		1.29	0.03	1.86	0.08	0.51	0.64	0.93	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 66.5

Actuated Cycle Length: 66.5

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.17

Intersection Signal Delay: 233.9 Intersection LOS: F

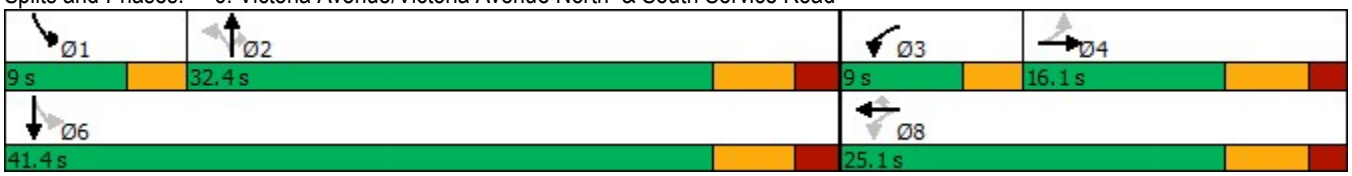
Intersection Capacity Utilization 143.6% ICU Level of Service H

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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	838	27	32	30	26	1484
Future Volume (vph)	838	27	32	30	26	1484
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	1551	1246	0	1429	1104
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1374	1551	1246	0	1429	1104
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	901	29	34	32	28	1596
Shared Lane Traffic (%)						
Lane Group Flow (vph)	901	29	66	0	28	1596
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 140.7%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	838	27	32	30	26	1484
Future Volume (Veh/h)	838	27	32	30	26	1484
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	901	29	34	32	28	1596
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	66				1881	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66				1881	50
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	41				13	0
cM capacity (veh/h)	1523				32	1013

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	901	29	66	28	1596
Volume Left	901	0	0	28	0
Volume Right	0	0	32	0	1596
cSH	1523	1700	1700	32	1013
Volume to Capacity	0.59	0.02	0.04	0.87	1.58
Queue Length 95th (m)	33.0	0.0	0.0	23.9	642.9
Control Delay (s)	10.7	0.0	0.0	297.1	277.2
Lane LOS	B			F	F
Approach Delay (s)	10.4		0.0	277.5	
Approach LOS				F	

Intersection Summary			
Average Delay	175.7		
Intersection Capacity Utilization	140.7%	ICU Level of Service	H
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Future Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt									0.850			
Flt Protected				0.950								
Satd. Flow (prot)	1504	1388	0	2375	1388	0	1504	1629	1148	0	1483	0
Flt Permitted				0.950								
Satd. Flow (perm)	1504	1388	0	2375	1388	0	1504	1629	1148	0	1483	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	313	0	0	0	113	1200	0	29	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	313	0	0	0	113	1200	0	29	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 95.7% ICU Level of Service F
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Future Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	0	0	313	0	0	0	113	1200	0	29	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	313	0	0	113	1200	29
Volume Left (vph)	0	0	313	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	0	1200	0
Hadj (s)	0.00	0.00	0.50	0.00	0.00	0.00	-0.70	0.00
Departure Headway (s)	5.2	5.2	5.4	4.9	5.5	5.5	3.2	5.6
Degree Utilization, x	0.00	0.00	0.47	0.00	0.00	0.17	1.07	0.05
Capacity (veh/h)	665	665	648	731	629	621	1130	600
Control Delay (s)	7.0	7.0	11.9	6.7	7.3	8.4	62.0	8.9
Approach Delay (s)	0.0		11.9		57.4			8.9
Approach LOS	A		B		F			A

Intersection Summary			
Delay	47.9		
Level of Service	E		
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	93	0	0	24
Future Volume (vph)	0	0	93	0	0	24
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	121	0	0	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	121	0	0	31
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	93	0	0	24
Future Volume (Veh/h)	0	0	93	0	0	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	0	0	121	0	0	31
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152	121			121	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	121			121	
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	100			100	
cM capacity (veh/h)	844	936			1479	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	121	31
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1479
Volume to Capacity	0.00	0.07	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	0	93	0	0
Future Volume (vph)	24	0	0	93	0	0
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1201	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1201	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	38	0	0	148	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	148	0	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 17.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	0	93	0	0
Future Volume (Veh/h)	24	0	0	93	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	38	0	0	148	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	74	74			148	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	74	74			148	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	935	993			1446	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	148	0
Volume Left	38	0	0
Volume Right	0	148	0
cSH	935	1700	1700
Volume to Capacity	0.04	0.09	0.00
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	0	1228	1388	0
Flt Permitted						
Satd. Flow (perm)	1504	0	0	1228	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
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	100	100			
cM capacity (veh/h)	1029	1091	1636			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1246	326	1274	489	316	692
Future Volume (vph)	1246	326	1274	489	316	692
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		225				223
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	1520	398	1554	596	385	844
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1520	398	1554	596	385	844
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.91	0.76	12.84	0.83	0.86	1.63
Control Delay	881.8	20.6	5349.9	28.6	42.8	311.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	881.8	20.6	5349.9	28.6	42.8	311.0
LOS	F	C	F	C	D	F
Approach Delay	703.1			3874.8	227.0	
Approach LOS	F			F	F	
Queue Length 50th (m)	~364.0	19.2	~431.7	66.7	47.7	~149.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#394.6	43.9	#461.8	#96.3	#81.9	#188.6
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	522	521	121	719	447	518
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.91	0.76	12.84	0.83	0.86	1.63

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 12.84	
Intersection Signal Delay: 1880.0	Intersection LOS: F
Intersection Capacity Utilization 201.9%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1077	0	0	0	230	51	0
Future Volume (vph)	0	0	0	0	0	1077	0	0	0	230	51	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	1629	1148	1504	1629	1351	1429	1388	0
Flt Permitted										0.679		
Satd. Flow (perm)	1504	1388	0	1504	1629	1148	1504	1629	1351	1021	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	1171	0	0	0	250	55	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1171	0	0	0	250	55	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						19.0				38.4	35.0	
Actuated g/C Ratio						0.29				0.58	0.53	
v/c Ratio						1.06				0.40	0.08	
Control Delay						50.2				9.5	8.2	
Queue Delay						0.0				0.0	0.0	
Total Delay						50.2				9.5	8.2	
LOS						D				A	A	
Approach Delay					50.2						9.3	
Approach LOS					D						A	
Queue Length 50th (m)						~57.0				14.9	3.3	

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)						#130.5				27.0	8.2	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1107				626	730	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.06				0.40	0.08	

Intersection Summary

Area Type: Other

Cycle Length: 66.5

Actuated Cycle Length: 66.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 41.7 Intersection LOS: D

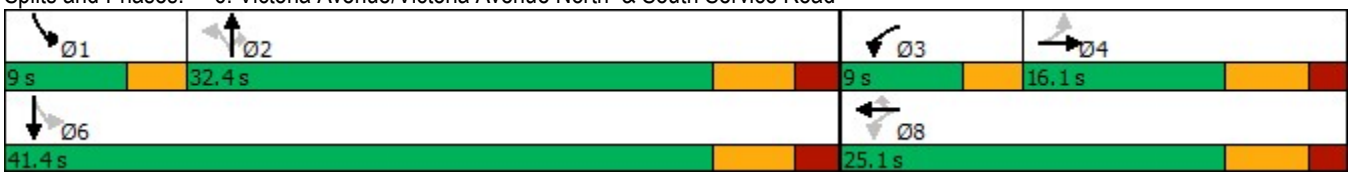
Intersection Capacity Utilization 98.9% ICU Level of Service F

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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	727	31	15	19	38	1469
Future Volume (vph)	727	31	15	19	38	1469
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.924			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1195	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1195	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	826	35	17	22	43	1669
Shared Lane Traffic (%)						
Lane Group Flow (vph)	826	35	39	0	43	1669
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 137.9%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	727	31	15	19	38	1469
Future Volume (Veh/h)	727	31	15	19	38	1469
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	826	35	17	22	43	1669
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	39				1715	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				1715	28
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	46				0	0
cM capacity (veh/h)	1527				40	1014

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	826	35	39	43	1669
Volume Left	826	0	0	43	0
Volume Right	0	0	22	0	1669
cSH	1527	1700	1700	40	1014
Volume to Capacity	0.54	0.02	0.02	1.08	1.65
Queue Length 95th (m)	27.2	0.0	0.0	33.7	711.7
Control Delay (s)	10.1	0.0	0.0	322.6	308.3
Lane LOS	B			F	F
Approach Delay (s)	9.7		0.0	308.7	
Approach LOS				F	

Intersection Summary			
Average Delay	205.5		
Intersection Capacity Utilization	137.9%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	NB	NB	SB
Directions Served	L	T	R	LTR
Maximum Queue (m)	18.6	158.2	190.6	7.5
Average Queue (m)	9.9	59.6	100.9	3.8
95th Queue (m)	16.2	195.1	244.3	9.7
Link Distance (m)		373.7		131.4
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		1		
Storage Bay Dist (m)	160.0		240.0	
Storage Blk Time (%)		7	1	
Queuing Penalty (veh)		70	1	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	7.2
Average Queue (m)	3.4
95th Queue (m)	9.1
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	134.1	197.7	159.5	197.7	57.4	142.4
Average Queue (m)	133.4	184.4	158.9	187.0	56.4	133.1
95th Queue (m)	136.6	239.8	164.5	192.5	65.7	140.2
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)		51		97		57
Queuing Penalty (veh)		250		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			88	32	4	47
Queuing Penalty (veh)			429	405	25	149

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	246.8	52.5	27.0	10.5
Average Queue (m)	163.5	52.2	9.9	1.6
95th Queue (m)	288.3	55.1	22.5	7.0
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	15			
Queuing Penalty (veh)	228			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)	0	80		
Queuing Penalty (veh)	0	0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (m)	94.4	8.2	8.2	150.0	150.0
Average Queue (m)	11.6	0.4	0.3	140.0	143.5
95th Queue (m)	44.9	4.9	2.8	159.2	149.6
Link Distance (m)		216.0	221.2	130.7	130.7
Upstream Blk Time (%)				82	73
Queuing Penalty (veh)				0	0
Storage Bay Dist (m)	109.0				
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 1559

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Future Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.992	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1734	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1504	1576	0	1597	1736	0	1656	1845	1553	0	1734	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	88	0	1482	266	0	37	80	718	0	153	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 94.0% ICU Level of Service F

Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Future Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	9	26	62	1482	196	70	37	80	718	24	120	9

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	9	88	1482	266	37	80	718	153
Volume Left (vph)	9	0	1482	0	37	0	0	24
Volume Right (vph)	0	62	0	70	0	0	718	9
Hadj (s)	0.84	-0.36	0.72	-0.10	0.65	0.05	-0.63	0.13
Departure Headway (s)	7.4	6.2	6.3	5.5	7.8	7.2	3.2	6.9
Degree Utilization, x	0.02	0.15	2.60	0.41	0.08	0.16	0.64	0.29
Capacity (veh/h)	463	554	579	644	448	485	1119	508
Control Delay (s)	9.3	9.1	740.0	11.0	10.2	10.3	10.5	12.8
Approach Delay (s)	9.1		629.1		10.4			12.8
Approach LOS	A		F		B			B

Intersection Summary			
Delay	392.2		
Level of Service	F		
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	62	15	10	82
Future Volume (vph)	35	0	62	15	10	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.974			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1736	0	1760	0	0	1640
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1736	0	1760	0	0	1640
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	100	0	0	119
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 21.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	62	15	10	82
Future Volume (Veh/h)	35	0	62	15	10	82
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	0	81	19	13	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	222	90			100	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	90			100	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	94	100			99	
cM capacity (veh/h)	753	967			1206	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	45	100	119
Volume Left	45	0	13
Volume Right	0	19	0
cSH	753	1700	1206
Volume to Capacity	0.06	0.06	0.01
Queue Length 95th (m)	1.5	0.0	0.3
Control Delay (s)	10.1	0.0	1.0
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	1.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	15	28	0	11
Future Volume (vph)	77	0	15	28	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.913			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1181	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1181	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	68	0	0	17
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	15	28	0	11
Future Volume (Veh/h)	77	0	15	28	0	11
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	24	44	0	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	63	46			68	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	63	46			68	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	803	1023			1533	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	68	17
Volume Left	122	0	0
Volume Right	0	44	0
cSH	803	1700	1533
Volume to Capacity	0.15	0.04	0.00
Queue Length 95th (m)	4.3	0.0	0.0
Control Delay (s)	10.3	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	10	7	7	0
Future Volume (vph)	0	4	10	7	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.971		
Satd. Flow (prot)	984	0	0	1694	1900	0
Flt Permitted				0.971		
Satd. Flow (perm)	984	0	0	1694	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	27	11	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	10	7	7	0
Future Volume (Veh/h)	0	4	10	7	7	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	16	11	11	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	11	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	11	11			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	944	909	1527			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	27	11
Volume Left	0	16	0
Volume Right	6	0	0
cSH	909	1527	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.2	0.3	0.0
Control Delay (s)	9.0	4.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	293	402	945	480	621
Future Volume (vph)	346	293	402	945	480	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		357				391
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	357	490	1152	585	757
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	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
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.69	0.47	3.20	1.37	1.04	0.97
Control Delay	27.1	4.5	1023.9	197.1	73.0	39.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	4.5	1023.9	197.1	73.0	39.6
LOS	C	A	F	F	E	D
Approach Delay	16.7			443.9	54.1	
Approach LOS	B			F	D	
Queue Length 50th (m)	48.8	0.0	~119.4	~211.7	~87.4	53.4
Queue Length 95th (m)	69.3	11.6	#156.1	#247.3	#125.0	#106.1
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	760	153	839	565	779
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.47	3.20	1.37	1.04	0.97

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 120	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 3.20	
Intersection Signal Delay: 216.4	Intersection LOS: F
Intersection Capacity Utilization 87.2%	ICU Level of Service E
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: 5: QEW Toronto Bound Ramps & North Service Road

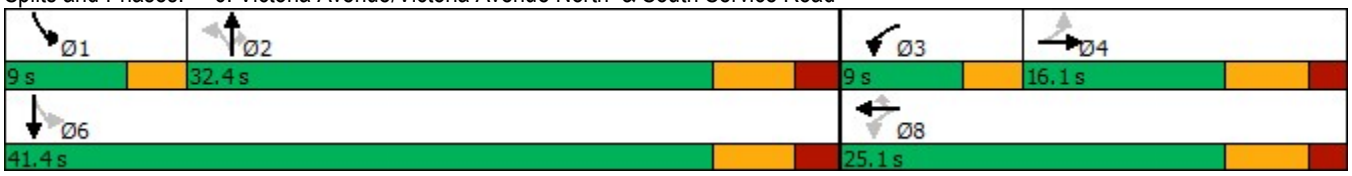
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	11	167	12	291	21	390	261	945	374	39
Future Volume (vph)	20	52	11	167	12	291	21	390	261	945	374	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1736	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.749			0.516			0.503			0.365		
Satd. Flow (perm)	1330	1736	0	817	1696	1553	893	1827	1468	636	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				316			284		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	69	0	182	13	316	23	424	284	1027	449	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	

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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.10	0.24		0.57	0.03	0.51	0.06	0.56	0.37	2.10	0.49	
Control Delay	25.8	23.7		25.6	17.4	6.0	13.3	18.5	3.6	521.2	11.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.8	23.7		25.6	17.4	6.0	13.3	18.5	3.6	521.2	11.3	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		24.2			13.3			12.5			366.1	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.5	6.6		17.7	1.2	0.0	1.8	42.4	0.0	~221.7	34.0	
Queue Length 95th (m)	8.4	17.2		33.5	4.9	16.7	6.1	69.6	13.3	#290.3	57.4	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	287		320	514	691	371	759	775	488	924	
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	0.10	0.24		0.57	0.03	0.46	0.06	0.56	0.37	2.10	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.10
Intersection Signal Delay: 198.8 Intersection LOS: F
Intersection Capacity Utilization 102.5% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1175	71	28	11	6	452
Future Volume (vph)	1175	71	28	11	6	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1760	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1760	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1335	81	45	0	7	514
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 81.8%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1175	71	28	11	6	452
Future Volume (Veh/h)	1175	71	28	11	6	452
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1335	81	32	12	7	514
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	44				2789	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				2789	38
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	12				0	49
cM capacity (veh/h)	1520				2	1001

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1335	81	44	7	514
Volume Left	1335	0	0	7	0
Volume Right	0	0	12	0	514
cSH	1520	1700	1700	2	1001
Volume to Capacity	0.88	0.05	0.03	3.36	0.51
Queue Length 95th (m)	108.9	0.0	0.0	Err	24.2
Control Delay (s)	21.0	0.0	0.0	Err	12.3
Lane LOS	C			F	B
Approach Delay (s)	19.8		0.0	146.5	
Approach LOS				F	

Intersection Summary			
Average Delay	52.7		
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Future Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.961				0.850		0.992	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1191	1152	0	2102	1268	0	1311	1582	1104	0	1353	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1191	1152	0	2102	1268	0	1311	1582	1104	0	1353	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	88	0	1482	266	0	37	80	718	0	153	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Future Volume (vph)	7	21	51	1215	161	57	30	66	589	20	98	7
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	9	26	62	1482	196	70	37	80	718	24	120	9

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	9	88	1482	266	37	80	718	153
Volume Left (vph)	9	0	1482	0	37	0	0	24
Volume Right (vph)	0	62	0	70	0	0	718	9
Hadj (s)	0.84	-0.36	0.72	-0.10	0.65	0.05	-0.63	0.13
Departure Headway (s)	7.4	6.2	6.3	5.5	7.8	7.2	3.2	6.9
Degree Utilization, x	0.02	0.15	2.60	0.41	0.08	0.16	0.64	0.29
Capacity (veh/h)	463	554	579	644	448	485	1119	508
Control Delay (s)	9.3	9.1	740.0	11.0	10.2	10.3	10.5	12.8
Approach Delay (s)	9.1		629.1		10.4			12.8
Approach LOS	A		F		B			B

Intersection Summary			
Delay	392.2		
Level of Service	F		
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	62	15	10	82
Future Volume (vph)	35	0	62	15	10	82
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.974			
Flt Protected	0.950					0.995
Satd. Flow (prot)	1374	0	1286	0	0	1060
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1374	0	1286	0	0	1060
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	100	0	0	119
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 24.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	62	15	10	82
Future Volume (Veh/h)	35	0	62	15	10	82
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	0	81	19	13	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	222	90			100	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	90			100	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	94	100			99	
cM capacity (veh/h)	753	967			1206	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	45	100	119
Volume Left	45	0	13
Volume Right	0	19	0
cSH	753	1700	1206
Volume to Capacity	0.06	0.06	0.01
Queue Length 95th (m)	1.5	0.0	0.3
Control Delay (s)	10.1	0.0	1.0
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	1.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	15	28	0	11
Future Volume (vph)	77	0	15	28	0	11
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.913			
Flt Protected	0.950					
Satd. Flow (prot)	856	0	863	0	0	1087
Flt Permitted	0.950					
Satd. Flow (perm)	856	0	863	0	0	1087
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	68	0	0	17
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	15	28	0	11
Future Volume (Veh/h)	77	0	15	28	0	11
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	24	44	0	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	63	46			68	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	63	46			68	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	85	100			100	
cM capacity (veh/h)	803	1023			1533	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	68	17
Volume Left	122	0	0
Volume Right	0	44	0
cSH	803	1700	1533
Volume to Capacity	0.15	0.04	0.00
Queue Length 95th (m)	4.3	0.0	0.0
Control Delay (s)	10.3	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	4	10	7	7	0
Future Volume (vph)	0	4	10	7	7	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.971		
Satd. Flow (prot)	779	0	0	1095	1388	0
Flt Permitted				0.971		
Satd. Flow (perm)	779	0	0	1095	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	67%	15%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	27	11	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	4	10	7	7	0
Future Volume (Veh/h)	0	4	10	7	7	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	6	16	11	11	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	54	11	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	11	11			
tC, single (s)	6.4	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.9	2.3			
p0 queue free %	100	99	99			
cM capacity (veh/h)	944	909	1527			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	27	11
Volume Left	0	16	0
Volume Right	6	0	0
cSH	909	1527	1700
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (m)	0.2	0.3	0.0
Control Delay (s)	9.0	4.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	4.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	293	402	945	480	621
Future Volume (vph)	346	293	402	945	480	621
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		357				387
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	357	490	1152	585	757
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	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
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.81	0.59	4.05	1.60	1.31	1.21
Control Delay	35.6	6.7	1404.9	298.8	178.9	124.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	6.7	1404.9	298.8	178.9	124.7
LOS	D	A	F	F	F	F
Approach Delay	22.4			628.9	148.3	
Approach LOS	C			F	F	
Queue Length 50th (m)	51.4	0.0	~124.1	~229.1	~104.4	~90.9
Queue Length 95th (m)	#82.4	12.0	#160.8	#264.6	#142.0	#130.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	522	609	121	719	447	625
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.59	4.05	1.60	1.31	1.21

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 4.05	
Intersection Signal Delay: 331.9	Intersection LOS: F
Intersection Capacity Utilization 102.4%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	11	167	12	291	21	390	261	945	374	39
Future Volume (vph)	20	52	11	167	12	291	21	390	261	945	374	39
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1335	1268	0	1191	1454	1104	1335	1566	1044	1311	1200	0
Flt Permitted	0.749			0.467			0.503			0.361		
Satd. Flow (perm)	1053	1268	0	585	1454	1104	707	1566	1044	498	1200	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				316			284		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	69	0	182	13	316	23	424	284	1027	449	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	

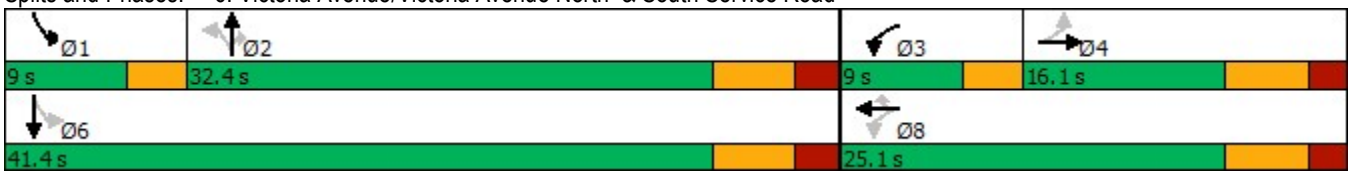
6: Victoria Avenue/Victoria Avenue North & South Service Road

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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.13	0.33		0.71	0.04	0.62	0.08	0.65	0.47	2.68	0.66	
Control Delay	26.6	26.3		37.1	17.6	8.9	13.7	21.7	5.1	779.9	16.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.6	26.3		37.1	17.6	8.9	13.7	21.7	5.1	779.9	16.8	
LOS	C	C		D	B	A	B	C	A	F	B	
Approach Delay		26.4			19.1			15.0			547.8	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.5	6.7		18.3	1.2	0.0	1.8	44.6	0.0	~235.4	39.4	
Queue Length 95th (m)	8.5	17.8		#46.7	4.9	19.0	6.2	75.9	14.0	#304.0	74.7	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	168	212		258	441	555	293	650	599	383	676	
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	0.13	0.33		0.71	0.03	0.57	0.08	0.65	0.47	2.68	0.66	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.68
Intersection Signal Delay: 296.1 Intersection LOS: F
Intersection Capacity Utilization 122.2% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1175	71	28	11	6	452
Future Volume (vph)	1175	71	28	11	6	452
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1286	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1286	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1335	81	45	0	7	514
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1175	71	28	11	6	452
Future Volume (Veh/h)	1175	71	28	11	6	452
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1335	81	32	12	7	514
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	44				2789	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				2789	38
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	12				0	49
cM capacity (veh/h)	1520				2	1001

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1335	81	44	7	514
Volume Left	1335	0	0	7	0
Volume Right	0	0	12	0	514
cSH	1520	1700	1700	2	1001
Volume to Capacity	0.88	0.05	0.03	3.36	0.51
Queue Length 95th (m)	108.9	0.0	0.0	Err	24.2
Control Delay (s)	21.0	0.0	0.0	Err	12.3
Lane LOS	C			F	B
Approach Delay (s)	19.8		0.0	146.5	
Approach LOS				F	

Intersection Summary			
Average Delay	52.7		
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Future Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.963				0.850		0.991	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1805	1656	0	1736	1682	0	1583	1776	1553	0	1813	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1805	1656	0	1736	1682	0	1583	1776	1553	0	1813	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	315	0	782	133	0	33	122	1422	0	105	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 113.3%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Future Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	93	222	782	100	33	33	122	1422	18	80	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	315	782	133	33	122	1422	105
Volume Left (vph)	4	0	782	0	33	0	0	18
Volume Right (vph)	0	222	0	33	0	0	1422	7
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.05
Departure Headway (s)	6.9	6.0	6.5	5.9	8.1	7.5	3.2	7.5
Degree Utilization, x	0.01	0.52	1.41	0.22	0.07	0.25	1.26	0.22
Capacity (veh/h)	497	586	560	594	425	459	1130	458
Control Delay (s)	8.8	14.2	214.8	9.4	10.6	11.8	137.5	12.5
Approach Delay (s)	14.2		184.9		125.2			12.5
Approach LOS	B		F		F			B

Intersection Summary			
Delay	127.7		
Level of Service	F		
Intersection Capacity Utilization	113.3%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	2	124	28	7	61
Future Volume (vph)	21	2	124	28	7	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990		0.975			
Flt Protected	0.956					0.995
Satd. Flow (prot)	1689	0	1726	0	0	1825
Flt Permitted	0.956					0.995
Satd. Flow (perm)	1689	0	1726	0	0	1825
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	175	0	0	78
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	2	124	28	7	61
Future Volume (Veh/h)	21	2	124	28	7	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	2	143	32	8	70
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	245	159			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	245	159			175	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	97	100			99	
cM capacity (veh/h)	728	892			1414	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	175	78
Volume Left	24	0	8
Volume Right	2	32	0
cSH	739	1700	1414
Volume to Capacity	0.04	0.10	0.01
Queue Length 95th (m)	0.9	0.0	0.1
Control Delay (s)	10.1	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	0	10	107	0	12
Future Volume (vph)	36	0	10	107	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.876			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1525	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1525	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	180	0	0	18
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	0	10	107	0	12
Future Volume (Veh/h)	36	0	10	107	0	12
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	55	0	15	165	0	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	116	98			180	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116	98			180	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	850	959			1396	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	55	180	18
Volume Left	55	0	0
Volume Right	0	165	0
cSH	850	1700	1396
Volume to Capacity	0.06	0.11	0.00
Queue Length 95th (m)	1.7	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	2	8	11	0
Future Volume (vph)	0	8	2	8	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.989		
Satd. Flow (prot)	1644	0	0	1879	1900	0
Flt Permitted				0.989		
Satd. Flow (perm)	1644	0	0	1879	1900	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	14	15	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	8	2	8	11	0
Future Volume (Veh/h)	0	8	2	8	11	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	11	3	11	15	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	32	15	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	15	15			
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	99	100			
cM capacity (veh/h)	980	1070	1616			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	14	15
Volume Left	0	3	0
Volume Right	11	0	0
cSH	1070	1616	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1139	283	1248	446	350	637
Future Volume (vph)	1139	283	1248	446	350	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		214				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1238	308	1357	485	380	692
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	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
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.11	0.47	9.62	0.60	0.70	1.05
Control Delay	526.6	8.8	3901.0	17.5	27.6	66.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	526.6	8.8	3901.0	17.5	27.6	66.3
LOS	F	A	F	B	C	E
Approach Delay	423.4			2878.4	52.6	
Approach LOS	F			F	D	
Queue Length 50th (m)	~273.2	8.9	~371.9	46.1	43.5	~81.7
Queue Length 95th (m)	#346.0	28.1	#446.8	74.9	#74.7	#145.1
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	650	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.11	0.47	9.62	0.60	0.70	1.05

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 9.62	
Intersection Signal Delay: 1348.2	Intersection LOS: F
Intersection Capacity Utilization 162.6%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

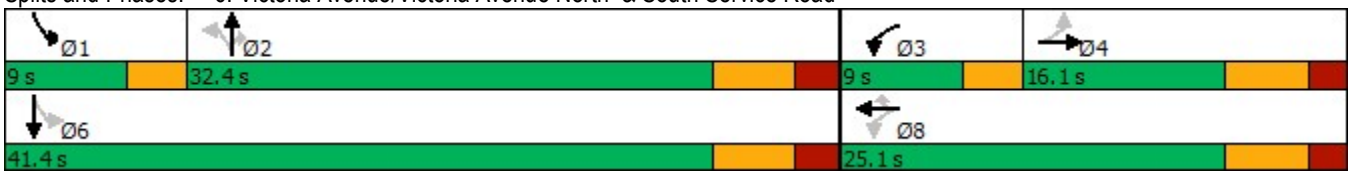
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	376	76	284	12	1188	21	307	412	398	437	34
Future Volume (vph)	70	376	76	284	12	1188	21	307	412	398	437	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1675	0
Flt Permitted	0.749			0.308			0.475			0.447		
Satd. Flow (perm)	1395	1767	0	527	1696	1524	843	1759	1482	794	1675	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				498			360		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	492	0	309	13	1291	23	334	448	433	512	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	

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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.36	1.78		1.13	0.03	1.63	0.07	0.49	0.56	0.80	0.58	
Control Delay	31.0	389.7		117.8	17.4	307.7	13.5	18.2	6.6	23.7	13.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	389.7		117.8	17.4	307.7	13.5	18.2	6.6	23.7	13.8	
LOS	C	F		F	B	F	B	B	A	C	B	
Approach Delay		341.7			269.0			11.6			18.3	
Approach LOS		F			F			B			B	
Queue Length 50th (m)	9.0	~98.6		~38.1	1.2	~200.8	1.8	31.6	7.2	28.7	41.0	
Queue Length 95th (m)	20.9	#153.6		#92.6	4.9	#275.9	6.1	53.5	28.4	#62.2	68.4	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	209	276		274	484	791	329	687	798	539	885	
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	0.36	1.78		1.13	0.03	1.63	0.07	0.49	0.56	0.80	0.58	

Intersection Summary	
Area Type:	Other
Cycle Length: 66.5	
Actuated Cycle Length: 66.5	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.78	
Intersection Signal Delay: 166.5	Intersection LOS: F
Intersection Capacity Utilization 114.1%	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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



7: South Service Road & QEW Niagara Bound Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	900	30	35	33	29	1524
Future Volume (vph)	900	30	35	33	29	1524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1705	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1705	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	968	32	73	0	31	1639
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 104.9%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	900	30	35	33	29	1524
Future Volume (Veh/h)	900	30	35	33	29	1524
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	968	32	38	35	31	1639
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	73				2024	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73				2024	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	36				0	0
cM capacity (veh/h)	1514				23	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	968	32	73	31	1639
Volume Left	968	0	0	31	0
Volume Right	0	0	35	0	1639
cSH	1514	1700	1700	23	1006
Volume to Capacity	0.64	0.02	0.04	1.33	1.63
Queue Length 95th (m)	39.7	0.0	0.0	31.4	690.4
Control Delay (s)	11.5	0.0	0.0	548.8	301.0
Lane LOS	B			F	F
Approach Delay (s)	11.1		0.0	305.6	
Approach LOS				F	

Intersection Summary			
Average Delay	190.1		
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Future Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.963				0.850		0.991	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1429	1210	0	2284	1229	0	1253	1522	1104	0	1415	0
Flt Permitted	0.950			0.950			0.950				0.992	
Satd. Flow (perm)	1429	1210	0	2284	1229	0	1253	1522	1104	0	1415	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	315	0	782	133	0	33	122	1422	0	105	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 153.9%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Future Volume (vph)	4	86	204	719	92	30	30	112	1308	17	74	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	93	222	782	100	33	33	122	1422	18	80	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	315	782	133	33	122	1422	105
Volume Left (vph)	4	0	782	0	33	0	0	18
Volume Right (vph)	0	222	0	33	0	0	1422	7
Hadj (s)	0.50	-0.45	0.57	-0.02	0.74	0.12	-0.63	0.05
Departure Headway (s)	6.9	6.0	6.5	5.9	8.1	7.5	3.2	7.5
Degree Utilization, x	0.01	0.52	1.41	0.22	0.07	0.25	1.26	0.22
Capacity (veh/h)	497	586	560	594	425	459	1130	458
Control Delay (s)	8.8	14.2	214.8	9.4	10.6	11.8	137.5	12.5
Approach Delay (s)	14.2		184.9		125.2			12.5
Approach LOS	B		F		F			B

Intersection Summary			
Delay	127.7		
Level of Service	F		
Intersection Capacity Utilization	153.9%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	2	124	28	7	61
Future Volume (vph)	21	2	124	28	7	61
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990		0.975			
Flt Protected	0.956					0.995
Satd. Flow (prot)	1337	0	1261	0	0	1180
Flt Permitted	0.956					0.995
Satd. Flow (perm)	1337	0	1261	0	0	1180
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	175	0	0	78
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	2	124	28	7	61
Future Volume (Veh/h)	21	2	124	28	7	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	2	143	32	8	70
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	245	159			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	245	159			175	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	97	100			99	
cM capacity (veh/h)	728	892			1414	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	175	78
Volume Left	24	0	8
Volume Right	2	32	0
cSH	739	1700	1414
Volume to Capacity	0.04	0.10	0.01
Queue Length 95th (m)	0.9	0.0	0.1
Control Delay (s)	10.1	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	24.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	0	10	107	0	12
Future Volume (vph)	36	0	10	107	0	12
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.876			
Flt Protected	0.950					
Satd. Flow (prot)	1242	0	1114	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1242	0	1114	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	180	0	0	18
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	0	10	107	0	12
Future Volume (Veh/h)	36	0	10	107	0	12
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	55	0	15	165	0	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	116	98			180	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116	98			180	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	850	959			1396	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	55	180	18
Volume Left	55	0	0
Volume Right	0	165	0
cSH	850	1700	1396
Volume to Capacity	0.06	0.11	0.00
Queue Length 95th (m)	1.7	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	2	8	11	0
Future Volume (vph)	0	8	2	8	11	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.989		
Satd. Flow (prot)	1301	0	0	1214	1388	0
Flt Permitted				0.989		
Satd. Flow (perm)	1301	0	0	1214	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	14	15	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	8	2	8	11	0
Future Volume (Veh/h)	0	8	2	8	11	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	11	3	11	15	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	32	15	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	15	15			
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	99	100			
cM capacity (veh/h)	980	1070	1616			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	14	15
Volume Left	0	3	0
Volume Right	11	0	0
cSH	1070	1616	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.6	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.6	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1139	283	1248	446	350	637
Future Volume (vph)	1139	283	1248	446	350	637
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1508	1083	1287	1508	1242	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1508	1083	1287	1508	1242	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		214				221
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1238	308	1357	485	380	692
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	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
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.47	0.61	12.23	0.69	0.88	1.36
Control Delay	684.0	12.4	5073.7	21.1	45.9	195.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	684.0	12.4	5073.7	21.1	45.9	195.5
LOS	F	B	F	C	D	F
Approach Delay	550.2			3743.3	142.5	
Approach LOS	F			F	F	
Queue Length 50th (m)	~285.3	9.2	~376.2	49.3	47.5	~106.3
Queue Length 95th (m)	#358.1	34.1	#451.0	83.6	#96.9	#169.7
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	502	503	111	699	432	507
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.47	0.61	12.23	0.69	0.88	1.36

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 12.23	
Intersection Signal Delay: 1771.0	Intersection LOS: F
Intersection Capacity Utilization 195.9%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

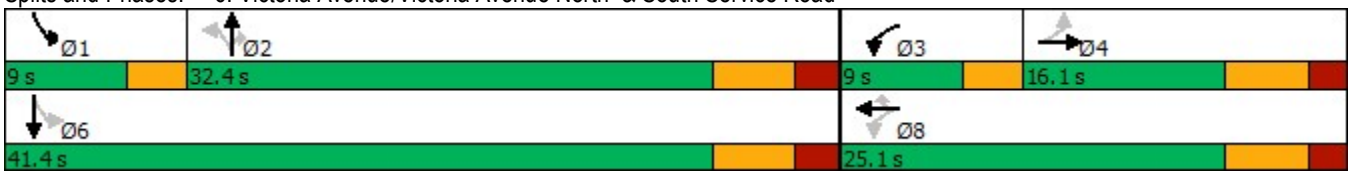
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	376	76	284	12	1188	21	307	412	398	437	34
Future Volume (vph)	70	376	76	284	12	1188	21	307	412	398	437	34
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1401	1291	0	1287	1454	1083	1335	1508	1054	1335	1224	0
Flt Permitted	0.749			0.308			0.475			0.447		
Satd. Flow (perm)	1104	1291	0	417	1454	1083	668	1508	1054	628	1224	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				496			350		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	492	0	309	13	1291	23	334	448	433	512	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	

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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.46	2.40		1.42	0.03	1.95	0.09	0.57	0.72	1.02	0.79	
Control Delay	35.7	663.9		238.7	17.5	448.3	14.0	20.5	12.1	64.9	24.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.7	663.9		238.7	17.5	448.3	14.0	20.5	12.1	64.9	24.0	
LOS	D	F		F	B	F	B	C	B	E	C	
Approach Delay		579.8			404.7			15.6			42.7	
Approach LOS		F			F			B			D	
Queue Length 50th (m)	9.2	~109.1		~50.2	1.2	~219.8	1.8	32.9	8.3	~32.7	48.9	
Queue Length 95th (m)	21.7	#164.2		#100.5	4.9	#294.9	6.3	57.4	#46.4	#100.6	#106.3	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	166	205		217	415	663	261	589	625	426	648	
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	0.46	2.40		1.42	0.03	1.95	0.09	0.57	0.72	1.02	0.79	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.40
Intersection Signal Delay: 263.3 Intersection LOS: F
Intersection Capacity Utilization 146.1% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



7: South Service Road & QEW Niagara Bound Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	900	30	35	33	29	1524
Future Volume (vph)	900	30	35	33	29	1524
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	1551	1246	0	1429	1104
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1374	1551	1246	0	1429	1104
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	968	32	73	0	31	1639
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 144.7%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	900	30	35	33	29	1524
Future Volume (Veh/h)	900	30	35	33	29	1524
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	968	32	38	35	31	1639
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	73				2024	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73				2024	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	36				0	0
cM capacity (veh/h)	1514				23	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	968	32	73	31	1639
Volume Left	968	0	0	31	0
Volume Right	0	0	35	0	1639
cSH	1514	1700	1700	23	1006
Volume to Capacity	0.64	0.02	0.04	1.33	1.63
Queue Length 95th (m)	39.7	0.0	0.0	31.4	690.4
Control Delay (s)	11.5	0.0	0.0	548.8	301.0
Lane LOS	B			F	F
Approach Delay (s)	11.1		0.0	305.6	
Approach LOS				F	

Intersection Summary			
Average Delay	190.1		
Intersection Capacity Utilization	144.7%	ICU Level of Service	H
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Future Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt									0.850			
Flt Protected				0.950								
Satd. Flow (prot)	1504	1388	0	2375	1388	0	1504	1629	1148	0	1483	0
Flt Permitted				0.950								
Satd. Flow (perm)	1504	1388	0	2375	1388	0	1504	1629	1148	0	1483	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	313	0	0	0	113	1200	0	29	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 95.7%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Future Volume (vph)	0	0	0	257	0	0	0	93	984	0	24	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	0	0	313	0	0	0	113	1200	0	29	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	313	0	0	113	1200	29
Volume Left (vph)	0	0	313	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	0	1200	0
Hadj (s)	0.00	0.00	0.50	0.00	0.00	0.00	-0.70	0.00
Departure Headway (s)	5.2	5.2	5.4	4.9	5.5	5.5	3.2	5.6
Degree Utilization, x	0.00	0.00	0.47	0.00	0.00	0.17	1.07	0.05
Capacity (veh/h)	665	665	648	731	629	621	1130	600
Control Delay (s)	7.0	7.0	11.9	6.7	7.3	8.4	62.0	8.9
Approach Delay (s)	0.0		11.9		57.4			8.9
Approach LOS	A		B		F			A

Intersection Summary			
Delay	47.9		
Level of Service	E		
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	93	0	0	24
Future Volume (vph)	0	0	93	0	0	24
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	121	0	0	31
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	93	0	0	24
Future Volume (Veh/h)	0	0	93	0	0	24
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	0	0	121	0	0	31
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152	121			121	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	121			121	
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	100			100	
cM capacity (veh/h)	844	936			1479	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	121	31
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1479
Volume to Capacity	0.00	0.07	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	0	93	0	0
Future Volume (vph)	24	0	0	93	0	0
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.865			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1201	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1201	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	148	0	0	0
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	0	93	0	0
Future Volume (Veh/h)	24	0	0	93	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	38	0	0	148	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	74	74			148	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	74	74			148	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			100	
cM capacity (veh/h)	935	993			1446	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	148	0
Volume Left	38	0	0
Volume Right	0	148	0
cSH	935	1700	1700
Volume to Capacity	0.04	0.09	0.00
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1504	1351	1504	1228	1388	1351
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	0	1228	1388	0
Flt Permitted						
Satd. Flow (perm)	1504	0	0	1228	1388	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	253.4			44.9	179.9	
Travel Time (s)	18.2			3.2	13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
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	100	100			
cM capacity (veh/h)	1029	1091	1636			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	0.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1246	326	1274	489	316	692
Future Volume (vph)	1246	326	1274	489	316	692
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		225				223
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1520	398	1554	596	385	844
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	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
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.91	0.76	12.84	0.83	0.86	1.63
Control Delay	881.8	20.6	5349.9	28.6	42.8	311.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	881.8	20.6	5349.9	28.6	42.8	311.0
LOS	F	C	F	C	D	F
Approach Delay	703.1			3874.8	227.0	
Approach LOS	F			F	F	
Queue Length 50th (m)	~364.0	19.2	~431.7	66.7	47.7	~149.6
Queue Length 95th (m)	#394.6	43.9	#461.8	#96.3	#81.9	#188.6
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	522	521	121	719	447	518
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.91	0.76	12.84	0.83	0.86	1.63

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 12.84
Intersection Signal Delay: 1880.0 Intersection LOS: F
Intersection Capacity Utilization 201.9% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

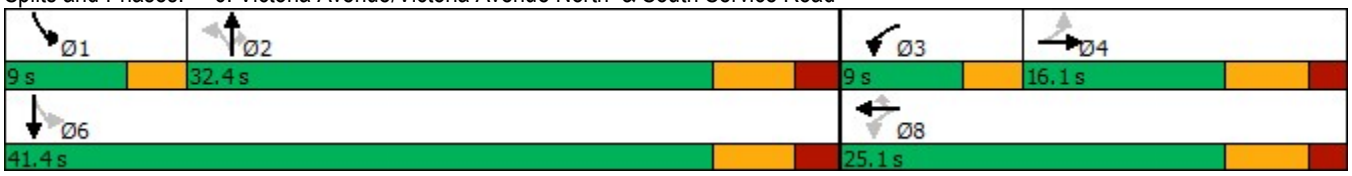
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1077	0	0	0	230	51	0
Future Volume (vph)	0	0	0	0	0	1077	0	0	0	230	51	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	1629	1148	1504	1629	1351	1429	1388	0
Flt Permitted										0.679		
Satd. Flow (perm)	1504	1388	0	1504	1629	1148	1504	1629	1351	1021	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1171	0	0	0	250	55	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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)	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	

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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						19.0				38.4	35.0	
Actuated g/C Ratio						0.29				0.58	0.53	
v/c Ratio						1.06				0.40	0.08	
Control Delay						50.2				9.5	8.2	
Queue Delay						0.0				0.0	0.0	
Total Delay						50.2				9.5	8.2	
LOS						D				A	A	
Approach Delay					50.2						9.3	
Approach LOS					D						A	
Queue Length 50th (m)						~57.0				14.9	3.3	
Queue Length 95th (m)						#130.5				27.0	8.2	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1107				626	730	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.06				0.40	0.08	

Intersection Summary	
Area Type: Other	
Cycle Length: 66.5	
Actuated Cycle Length: 66.5	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 41.7	Intersection LOS: D
Intersection Capacity Utilization 98.9%	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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	727	31	15	19	38	1469
Future Volume (vph)	727	31	15	19	38	1469
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.924			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1195	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1195	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	826	35	39	0	43	1669
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 137.9%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	727	31	15	19	38	1469
Future Volume (Veh/h)	727	31	15	19	38	1469
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	826	35	17	22	43	1669
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	39				1715	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				1715	28
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	46				0	0
cM capacity (veh/h)	1527				40	1014

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	826	35	39	43	1669
Volume Left	826	0	0	43	0
Volume Right	0	0	22	0	1669
cSH	1527	1700	1700	40	1014
Volume to Capacity	0.54	0.02	0.02	1.08	1.65
Queue Length 95th (m)	27.2	0.0	0.0	33.7	711.7
Control Delay (s)	10.1	0.0	0.0	322.6	308.3
Lane LOS	B			F	F
Approach Delay (s)	9.7		0.0	308.7	
Approach LOS				F	

Intersection Summary			
Average Delay	205.5		
Intersection Capacity Utilization	137.9%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	NB	NB	SB
Directions Served	L	T	R	LTR
Maximum Queue (m)	15.3	190.7	192.2	8.7
Average Queue (m)	9.6	85.7	121.3	4.0
95th Queue (m)	15.4	281.9	276.9	10.1
Link Distance (m)		373.7		131.4
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		6		
Storage Bay Dist (m)	160.0		240.0	
Storage Blk Time (%)		13	11	
Queuing Penalty (veh)		132	10	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	7.2
Average Queue (m)	4.1
95th Queue (m)	9.8
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	134.1	197.7	159.5	197.5	57.4	140.2
Average Queue (m)	133.7	188.5	158.1	187.8	56.6	131.4
95th Queue (m)	136.4	233.9	171.1	193.9	63.3	138.2
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)		56		96		57
Queuing Penalty (veh)		276		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			85	31	4	48
Queuing Penalty (veh)			416	397	28	150

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	242.6	52.5	30.7	9.3
Average Queue (m)	226.1	52.5	10.2	1.6
95th Queue (m)	269.6	52.5	23.7	6.4
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	46			
Queuing Penalty (veh)	690			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)		88		
Queuing Penalty (veh)		0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	41.7	3.7	142.0	147.9
Average Queue (m)	7.3	0.1	135.6	137.8
95th Queue (m)	26.1	2.0	141.0	144.0
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)			85	87
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 2107

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	17	41	1132	130	151	24	100	514	64	201	6
Future Volume (vph)	6	17	41	1132	130	151	24	100	514	64	201	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.920				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1504	1576	0	1597	1693	0	1656	1845	1553	0	1742	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1504	1576	0	1597	1693	0	1656	1845	1553	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	21	50	1380	159	184	29	122	627	78	245	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	71	0	1380	343	0	29	122	627	0	330	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 97.2%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	17	41	1132	130	151	24	100	514	64	201	6
Future Volume (vph)	6	17	41	1132	130	151	24	100	514	64	201	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	21	50	1380	159	184	29	122	627	78	245	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	71	1380	343	29	122	627	330
Volume Left (vph)	7	0	1380	0	29	0	0	78
Volume Right (vph)	0	50	0	184	0	0	627	7
Hadj (s)	0.84	-0.36	0.72	-0.32	0.65	0.05	-0.63	0.16
Departure Headway (s)	8.4	7.2	7.1	6.1	8.2	7.6	3.2	7.0
Degree Utilization, x	0.02	0.14	2.73	0.58	0.07	0.26	0.56	0.65
Capacity (veh/h)	405	471	516	589	425	459	1117	498
Control Delay (s)	10.3	10.2	796.5	15.8	10.6	12.0	9.0	22.0
Approach Delay (s)	10.2		641.1		9.5			22.0
Approach LOS	B		F		A			C

Intersection Summary			
Delay	385.0		
Level of Service	F		
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	0	201	12	8	237
Future Volume (vph)	29	0	201	12	8	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1736	0	1806	0	0	1700
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1736	0	1806	0	0	1700
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	38	0	261	16	10	308
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	277	0	0	318
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	201	12	8	237
Future Volume (Veh/h)	29	0	201	12	8	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	38	0	261	16	10	308
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	597	269			277	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597	269			277	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	92	100			99	
cM capacity (veh/h)	458	770			1023	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	277	318
Volume Left	38	0	10
Volume Right	0	16	0
cSH	458	1700	1023
Volume to Capacity	0.08	0.16	0.01
Queue Length 95th (m)	2.2	0.0	0.2
Control Delay (s)	13.6	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	13.6	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	0	159	27	0	166
Future Volume (vph)	76	0	159	27	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1574	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1574	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	121	0	252	43	0	263
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	295	0	0	263
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	0	159	27	0	166
Future Volume (Veh/h)	76	0	159	27	0	166
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	121	0	252	43	0	263
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	536	274			295	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	536	274			295	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	409	765			1266	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	295	263
Volume Left	121	0	0
Volume Right	0	43	0
cSH	409	1700	1266
Volume to Capacity	0.30	0.17	0.00
Queue Length 95th (m)	9.8	0.0	0.0
Control Delay (s)	17.5	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.5	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	20.9%	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)	0	0	4	157	0	0	8	6	147	0	6	0
Future Volume (vph)	0	0	4	157	0	0	8	6	147	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.877				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1619	0	0	1900	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1619	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	13	10	233	0	10	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	256	0	0	10	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	8	6	147	0	6	0
Future Volume (Veh/h)	0	0	4	157	0	0	8	6	147	0	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	13	10	233	0	10	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	162	279	10	168	162	126	10			243		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162	279	10	168	162	126	10			243		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	797	624	910	785	724	924	1529			1323		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	256	10
Volume Left	0	249	13	0
Volume Right	6	0	233	0
cSH	910	785	1529	1323
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	10.9	0.2	0.0
Control Delay (s)	9.0	11.7	0.4	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.7	0.4	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	325	279	389	914	491	610
Future Volume (vph)	325	279	389	914	491	610
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		340				409
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	396	340	474	1115	599	744
Shared Lane Traffic (%)						
Lane Group Flow (vph)	396	340	474	1115	599	744
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.65	0.45	3.10	1.33	1.06	0.94
Control Delay	25.6	4.4	977.6	178.0	80.4	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	4.4	977.6	178.0	80.4	32.7
LOS	C	A	F	F	F	C
Approach Delay	15.8			416.5	54.0	
Approach LOS	B			F	D	
Queue Length 50th (m)	45.0	0.0	~114.8	~201.0	~91.4	46.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	64.3	11.3	#151.5	#237.2	#129.3	#98.7
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	749	153	839	565	791
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.45	3.10	1.33	1.06	0.94

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 120	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 3.10	
Intersection Signal Delay: 203.4	Intersection LOS: F
Intersection Capacity Utilization 86.1%	ICU Level of Service E
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: 5: QEW Toronto Bound Ramps & North Service Road

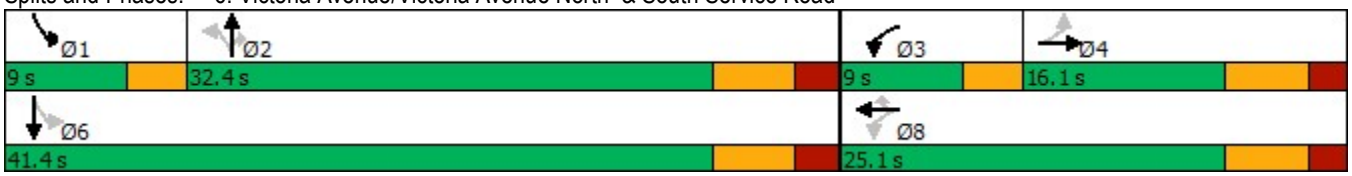
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	42	9	135	10	322	17	314	210	1032	307	32
Future Volume (vph)	16	42	9	135	10	322	17	314	210	1032	307	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1735	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.750			0.522			0.542			0.448		
Satd. Flow (perm)	1332	1735	0	827	1696	1553	962	1827	1468	781	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				350			228		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	17	46	10	147	11	350	18	341	228	1122	334	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	56	0	147	11	350	18	341	228	1122	369	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.08	0.20		0.46	0.03	0.55	0.05	0.45	0.31	2.00	0.40	
Control Delay	25.5	23.1		22.2	17.4	6.1	13.1	16.5	3.5	471.8	10.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.5	23.1		22.2	17.4	6.1	13.1	16.5	3.5	471.8	10.1	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		23.7			11.0			11.4			357.5	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	1.9	5.3		13.9	1.0	0.0	1.4	32.1	0.0	~238.3	25.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.1	14.8		27.5	4.4	17.4	5.1	54.1	12.1	#308.3	44.6	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	285		321	514	715	399	759	742	562	924	
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	0.08	0.20		0.46	0.02	0.49	0.05	0.45	0.31	2.00	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.00
Intersection Signal Delay: 205.7 Intersection LOS: F
Intersection Capacity Utilization 101.7% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1205	70	22	9	5	451
Future Volume (vph)	1205	70	22	9	5	451
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1761	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1761	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1369	80	25	10	6	513
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1369	80	35	0	6	513
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1205	70	22	9	5	451
Future Volume (Veh/h)	1205	70	22	9	5	451
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1369	80	25	10	6	512
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	35				2848	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				2848	30
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	11				0	49
cM capacity (veh/h)	1532				2	1011

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1369	80	35	6	512
Volume Left	1369	0	0	6	0
Volume Right	0	0	10	0	512
cSH	1532	1700	1700	2	1011
Volume to Capacity	0.89	0.05	0.02	3.61	0.51
Queue Length 95th (m)	117.2	0.0	0.0	Err	23.5
Control Delay (s)	22.4	0.0	0.0	Err	12.2
Lane LOS	C			F	B
Approach Delay (s)	21.1		0.0	127.8	
Approach LOS				F	

Intersection Summary			
Average Delay	48.4		
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	LTR
Maximum Queue (m)	9.9	44.7	163.7	182.8	18.4	24.5	126.0
Average Queue (m)	1.1	13.2	162.0	170.5	5.7	12.2	60.8
95th Queue (m)	5.7	30.7	170.1	195.7	14.3	19.7	125.5
Link Distance (m)		375.4		163.8		373.7	131.4
Upstream Blk Time (%)			24	49			6
Queuing Penalty (veh)			0	685			15
Storage Bay Dist (m)	62.0		160.0		112.0		
Storage Blk Time (%)		0	40	52			
Queuing Penalty (veh)		0	113	587			

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	27.4	52.5
Average Queue (m)	7.5	7.6
95th Queue (m)	24.4	45.9
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	31.6	9.5
Average Queue (m)	14.9	0.3
95th Queue (m)	24.6	4.0
Link Distance (m)	226.0	30.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	19.3	22.2
Average Queue (m)	2.0	12.1
95th Queue (m)	10.8	19.2
Link Distance (m)	244.7	57.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	62.4	35.0	159.4	196.7	57.4	138.6
Average Queue (m)	34.3	17.4	140.1	187.9	56.9	131.1
95th Queue (m)	55.3	28.2	216.5	194.2	58.9	138.3
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)				88		84
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			3	86	83	8
Queuing Penalty (veh)			31	336	507	42

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	14.6	21.8	50.7	14.7	43.1	11.6	68.3	47.1	276.5	378.4
Average Queue (m)	3.9	8.8	22.5	1.8	22.1	2.8	32.9	18.6	274.4	358.8
95th Queue (m)	11.9	18.6	41.7	9.0	36.9	10.2	55.1	33.7	287.7	423.2
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										23
Queuing Penalty (veh)										312
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)					0		0	0	32	61
Queuing Penalty (veh)					0		1	0	108	633

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	24.1	2.5	15.0	24.3
Average Queue (m)	6.8	0.1	1.4	2.5
95th Queue (m)	20.2	1.3	7.2	14.2
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3371

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	69	164	631	74	97	24	241	1248	134	95	5
Future Volume (vph)	4	69	164	631	74	97	24	241	1248	134	95	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.915				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.972	
Satd. Flow (prot)	1805	1656	0	1736	1622	0	1583	1776	1553	0	1752	0
Flt Permitted	0.950			0.950			0.950				0.972	
Satd. Flow (perm)	1805	1656	0	1736	1622	0	1583	1776	1553	0	1752	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	75	178	686	80	105	26	262	1357	146	103	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	253	0	686	185	0	26	262	1357	0	254	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 113.7% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	69	164	631	74	97	24	241	1248	134	95	5
Future Volume (vph)	4	69	164	631	74	97	24	241	1248	134	95	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	75	178	686	80	105	26	262	1357	146	103	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	253	686	185	26	262	1357	254
Volume Left (vph)	4	0	686	0	26	0	0	146
Volume Right (vph)	0	178	0	105	0	0	1357	5
Hadj (s)	0.50	-0.45	0.57	-0.28	0.74	0.12	-0.63	0.19
Departure Headway (s)	8.5	7.5	7.9	7.0	8.7	8.1	3.2	8.1
Degree Utilization, x	0.01	0.53	1.50	0.36	0.06	0.59	1.21	0.57
Capacity (veh/h)	405	453	462	504	399	426	1129	425
Control Delay (s)	10.3	17.4	256.9	12.7	11.1	20.8	113.8	21.4
Approach Delay (s)	17.3		205.0		97.3			21.4
Approach LOS	C		F		F			C

Intersection Summary			
Delay	115.2		
Level of Service	F		
Intersection Capacity Utilization	113.7%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	2	322	22	6	204
Future Volume (vph)	17	2	322	22	6	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988		0.991			
Flt Protected	0.957					0.999
Satd. Flow (prot)	1689	0	1737	0	0	1827
Flt Permitted	0.957					0.999
Satd. Flow (perm)	1689	0	1737	0	0	1827
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	20	2	370	25	7	234
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	395	0	0	241
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	2	322	22	6	204
Future Volume (Veh/h)	17	2	322	22	6	204
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	2	370	25	7	234
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	630	382			395	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	382			395	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	95	100			99	
cM capacity (veh/h)	435	669			1175	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	395	241
Volume Left	20	0	7
Volume Right	2	25	0
cSH	449	1700	1175
Volume to Capacity	0.05	0.23	0.01
Queue Length 95th (m)	1.2	0.0	0.1
Control Delay (s)	13.4	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.4	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	0	213	104	0	159
Future Volume (vph)	34	0	213	104	0	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.956			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1759	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1759	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	52	0	328	160	0	245
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	488	0	0	245
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	0	213	104	0	159
Future Volume (Veh/h)	34	0	213	104	0	159
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	52	0	328	160	0	245
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	653	408			488	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	653	408			488	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	412	643			1075	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	488	245
Volume Left	52	0	0
Volume Right	0	160	0
cSH	412	1700	1075
Volume to Capacity	0.13	0.29	0.00
Queue Length 95th (m)	3.4	0.0	0.0
Control Delay (s)	15.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	15.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	27.5%	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)	0	0	7	149	0	0	2	7	205	0	9	0
Future Volume (vph)	0	0	7	149	0	0	2	7	205	0	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.871				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	1644	0	0	1770	0	0	1622	0	0	1900	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	1644	0	0	1770	0	0	1622	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	0%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	9	199	0	0	3	9	273	0	12	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	199	0	0	285	0	0	12	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	149	0	0	2	7	205	0	9	0
Future Volume (Veh/h)	0	0	7	149	0	0	2	7	205	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	9	199	0	0	3	9	273	0	12	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	164	300	12	172	164	146	12			282		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	164	300	12	172	164	146	12			282		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	75	100	100	100			100		
cM capacity (veh/h)	800	611	1074	783	728	902	1620			1280		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	199	285	12
Volume Left	0	199	3	0
Volume Right	9	0	273	0
cSH	1074	783	1620	1280
Volume to Capacity	0.01	0.25	0.00	0.00
Queue Length 95th (m)	0.2	8.1	0.0	0.0
Control Delay (s)	8.4	11.2	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.4	11.2	0.1	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1112	347	1235	411	354	629
Future Volume (vph)	1112	347	1235	411	354	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		268				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1209	377	1342	447	385	684
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1209	377	1342	447	385	684
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.06	0.55	9.52	0.55	0.71	1.03
Control Delay	504.7	9.2	3853.2	16.5	28.0	62.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	504.7	9.2	3853.2	16.5	28.0	62.5
LOS	F	A	F	B	C	E
Approach Delay	386.9			2894.5	50.1	
Approach LOS	F			F	D	
Queue Length 50th (m)	~264.8	10.4	~367.6	41.4	44.3	~79.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#337.4	33.2	#441.9	67.4	#76.8	#142.4
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	686	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.06	0.55	9.52	0.55	0.71	1.03

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.52
Intersection Signal Delay: 1315.4 Intersection LOS: F
Intersection Capacity Utilization 160.7% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

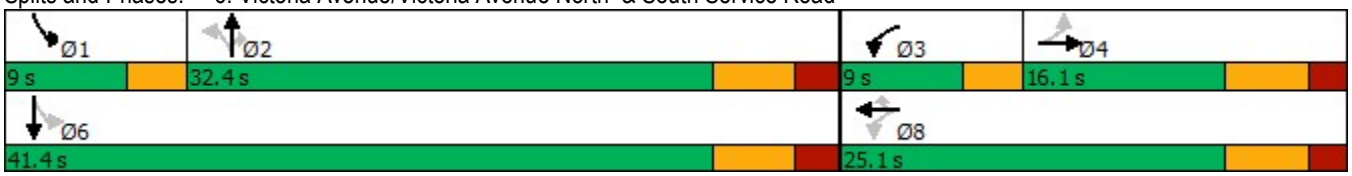
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	302	61	228	10	1302	17	247	331	392	368	28
Future Volume (vph)	57	302	61	228	10	1302	17	247	331	392	368	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1678	0
Flt Permitted	0.750			0.308			0.512			0.519		
Satd. Flow (perm)	1397	1767	0	527	1696	1524	909	1759	1482	922	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				571			360		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	62	328	66	248	11	1415	18	268	360	426	400	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	394	0	248	11	1415	18	268	360	426	430	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.30	1.43		0.91	0.02	1.68	0.05	0.39	0.45	0.71	0.48	
Control Delay	29.4	238.6		58.2	17.4	327.7	13.2	16.7	3.8	16.9	12.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.4	238.6		58.2	17.4	327.7	13.2	16.7	3.8	16.9	12.1	
LOS	C	F		E	B	F	B	B	A	B	B	
Approach Delay		210.2			285.7			9.4			14.5	
Approach LOS		F			F			A			B	
Queue Length 50th (m)	7.3	~70.5		25.0	1.0	~220.9	1.4	24.2	0.0	28.1	31.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	17.6	#121.2		#64.9	4.4	#297.8	5.1	42.2	14.8	#48.0	53.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	210	276		274	484	843	355	687	798	601	887	
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	0.30	1.43		0.91	0.02	1.68	0.05	0.39	0.45	0.71	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.68
Intersection Signal Delay: 163.2 Intersection LOS: F
Intersection Capacity Utilization 121.1% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	796	24	29	27	23	1573
Future Volume (vph)	796	24	29	27	23	1573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1706	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1706	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	856	26	31	29	25	1691
Shared Lane Traffic (%)						
Lane Group Flow (vph)	856	26	60	0	25	1691
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 107.4%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	796	24	29	27	23	1573
Future Volume (Veh/h)	796	24	29	27	23	1573
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	856	26	31	29	25	1691
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	60				1784	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				1784	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	44				38	0
cM capacity (veh/h)	1531				40	1018

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	856	26	60	25	1691
Volume Left	856	0	0	25	0
Volume Right	0	0	29	0	1691
cSH	1531	1700	1700	40	1018
Volume to Capacity	0.56	0.02	0.04	0.62	1.66
Queue Length 95th (m)	29.2	0.0	0.0	18.1	728.3
Control Delay (s)	10.3	0.0	0.0	190.1	314.3
Lane LOS	B			F	F
Approach Delay (s)	10.0		0.0	312.5	
Approach LOS				F	

Intersection Summary			
Average Delay	205.1		
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	7.5	40.6	60.5	24.0	119.3	380.2	247.5	39.8
Average Queue (m)	0.6	17.9	29.7	10.8	16.0	356.6	245.6	17.2
95th Queue (m)	3.9	31.3	50.8	19.5	81.1	439.6	257.9	30.6
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)						25		
Queuing Penalty (veh)						403		
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)					0	40	53	
Queuing Penalty (veh)					0	509	141	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	12.6	5.5
Average Queue (m)	4.2	0.2
95th Queue (m)	11.9	2.7
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	19.6
Average Queue (m)	6.5
95th Queue (m)	14.2
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	9.0	28.6
Average Queue (m)	1.9	11.9
95th Queue (m)	7.8	20.2
Link Distance (m)	244.7	57.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	164.0	210.9	159.5	198.8	57.4	142.4
Average Queue (m)	144.3	200.6	158.6	189.2	56.9	134.5
95th Queue (m)	157.7	207.1	167.4	196.1	59.9	142.6
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	0	78		97		50
Queuing Penalty (veh)	3	566		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			88	27	11	39
Queuing Penalty (veh)			360	331	67	137

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	79.4	372.7	127.4	246.4	52.5	111.5	209.9	75.5	94.5	54.5
Average Queue (m)	64.4	309.6	103.4	236.2	52.5	16.5	107.1	48.4	39.1	22.3
95th Queue (m)	107.0	466.1	184.2	243.1	52.8	90.6	237.2	90.9	75.1	42.9
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)		49		97			21			
Queuing Penalty (veh)		0		1548			0			
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)	18	78	0	3	96	0	27	3		
Queuing Penalty (veh)	67	45	2	48	228	0	93	7		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	52.5	82.6	145.1	148.6
Average Queue (m)	9.1	22.0	132.2	137.9
95th Queue (m)	29.6	80.6	158.3	144.6
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)			89	99
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 4555

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Future Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt					0.850				0.850			
Flt Protected				0.950							0.966	
Satd. Flow (prot)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Flt Permitted				0.950							0.966	
Satd. Flow (perm)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	279	0	89	0	263	1070	157	65	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	279	89	0	0	263	1070	0	222	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 106.6% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Future Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	279	0	89	0	263	1070	157	65	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	279	89	0	263	1070	222
Volume Left (vph)	0	0	279	0	0	0	0	157
Volume Right (vph)	0	0	0	89	0	0	1070	0
Hadj (s)	0.00	0.00	0.50	-0.70	0.00	0.00	-0.70	0.14
Departure Headway (s)	6.7	6.7	6.5	5.3	6.0	6.0	3.2	6.2
Degree Utilization, x	0.00	0.00	0.50	0.13	0.00	0.44	0.95	0.38
Capacity (veh/h)	484	484	531	645	581	575	1122	554
Control Delay (s)	8.5	8.5	14.6	7.8	7.8	12.4	32.6	13.0
Approach Delay (s)	0.0		13.0		28.6			13.0
Approach LOS	A		B		D			B

Intersection Summary			
Delay	23.8		
Level of Service	C		
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	324	0	0	203
Future Volume (vph)	0	0	324	0	0	203
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	372	0	0	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	372	0	0	233
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 26.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	324	0	0	203
Future Volume (Veh/h)	0	0	324	0	0	203
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	372	0	0	233
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	605	372			372	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	605	372			372	
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	100			100	
cM capacity (veh/h)	464	678			1198	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	372	233
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1198
Volume to Capacity	0.05	0.22	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	231	93	0	179
Future Volume (vph)	24	0	231	93	0	179
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1334	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1334	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	0	355	143	0	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	498	0	0	275
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	231	93	0	179
Future Volume (Veh/h)	24	0	231	93	0	179
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	37	0	355	143	0	275
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	702	426			498	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702	426			498	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	408	632			1076	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	498	275
Volume Left	37	0	0
Volume Right	0	143	0
cSH	408	1700	1076
Volume to Capacity	0.09	0.29	0.00
Queue Length 95th (m)	2.4	0.0	0.0
Control Delay (s)	14.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.7	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	34.4%	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)	0	0	0	179	0	0	0	0	231	0	0	0
Future Volume (vph)	0	0	0	179	0	0	0	0	231	0	0	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt								0.865				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	239	0	0	0	0	308	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	239	0	0	308	0	0	0	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	179	0	0	0	0	231	0	0	0
Future Volume (Veh/h)	0	0	0	179	0	0	0	0	231	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	239	0	0	0	0	308	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	154	308	0	154	154	154	0			308		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	308	0	154	154	154	0			308		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	71	100	100	100			100		
cM capacity (veh/h)	817	609	1091	817	741	897	1636			1264		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	239	308	0
Volume Left	0	239	0	0
Volume Right	0	0	308	0
cSH	1700	817	1636	1700
Volume to Capacity	0.01	0.29	0.00	0.00
Queue Length 95th (m)	0.0	9.8	0.0	0.0
Control Delay (s)	0.0	11.2	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.2	0.0	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1217	434	1259	463	362	680
Future Volume (vph)	1217	434	1259	463	362	680
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1597	1126	1348	1597	1387	1094
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1597	1126	1348	1597	1387	1094
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		307				229
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	6%	2%	3%	5%
Adj. Flow (vph)	1323	472	1368	503	393	739
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1323	472	1368	503	393	739
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.49	0.81	11.69	0.68	0.82	1.40
Control Delay	692.8	21.1	4833.2	20.3	36.8	208.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	692.8	21.1	4833.2	20.3	36.8	208.9
LOS	F	C	F	C	D	F
Approach Delay	516.2			3539.3	149.1	
Approach LOS	F			F	F	
Queue Length 50th (m)	~305.6	18.3	~378.6	50.6	47.6	~116.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#379.9	#75.4	#453.2	84.2	#93.9	#180.6
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	532	580	117	740	482	529
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.49	0.81	11.69	0.68	0.82	1.40

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 11.69	
Intersection Signal Delay: 1608.5	Intersection LOS: F
Intersection Capacity Utilization 202.3%	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: 5: QEW Toronto Bound Ramps & North Service Road

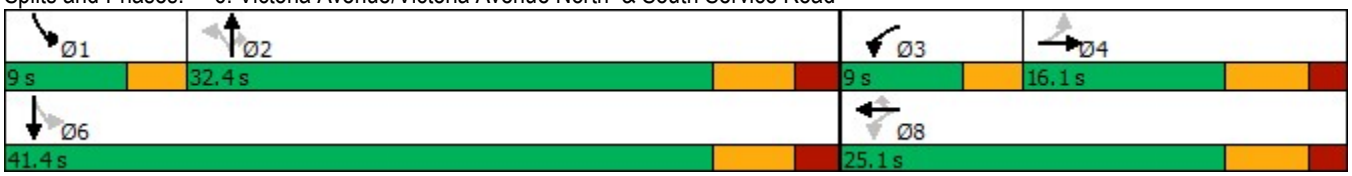
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1226	0	0	0	260	58	0
Future Volume (vph)	0	0	0	0	0	1226	0	0	0	260	58	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	1629	1148	1504	1629	1351	1429	1388	0
Flt Permitted										0.679		
Satd. Flow (perm)	1504	1388	0	1504	1629	1148	1504	1629	1351	1021	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	1333	0	0	0	283	63	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1333	0	0	0	283	63	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						19.0				38.4	35.0	
Actuated g/C Ratio						0.29				0.58	0.53	
v/c Ratio						1.20				0.45	0.09	
Control Delay						110.1				10.3	8.3	
Queue Delay						0.0				0.0	0.0	
Total Delay						110.1				10.3	8.3	
LOS						F				B	A	
Approach Delay					110.1						9.9	
Approach LOS					F						A	
Queue Length 50th (m)						~103.5				17.4	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)						#179.5				31.1	9.0	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1107				626	730	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.20				0.45	0.09	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 89.5 Intersection LOS: F
Intersection Capacity Utilization 111.8% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	702	28	13	17	34	1574
Future Volume (vph)	702	28	13	17	34	1574
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.924			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1429	1629	1283	0	1429	1126
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1429	1629	1283	0	1429	1126
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	755	30	14	18	37	1692
Shared Lane Traffic (%)						
Lane Group Flow (vph)	755	30	32	0	37	1692
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 147.1%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	702	28	13	17	34	1574
Future Volume (Veh/h)	702	28	13	17	34	1574
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	755	30	14	18	37	1692
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	32				1563	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				1563	23
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	53				43	0
cM capacity (veh/h)	1593				65	1054

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	755	30	32	37	1692
Volume Left	755	0	0	37	0
Volume Right	0	0	18	0	1692
cSH	1593	1700	1700	65	1054
Volume to Capacity	0.47	0.02	0.02	0.57	1.61
Queue Length 95th (m)	21.1	0.0	0.0	18.8	696.5
Control Delay (s)	9.3	0.0	0.0	115.9	289.7
Lane LOS	A			F	F
Approach Delay (s)	8.9		0.0	286.0	
Approach LOS				F	

Intersection Summary			
Average Delay	197.0		
Intersection Capacity Utilization	147.1%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	WB	NB	NB	SB
Directions Served	L	TR	T	R	LTR
Maximum Queue (m)	21.0	10.2	238.1	221.0	17.4
Average Queue (m)	10.7	5.5	69.5	126.5	9.2
95th Queue (m)	18.0	12.3	228.7	257.5	14.6
Link Distance (m)		163.8	373.7		131.4
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			1		
Storage Bay Dist (m)	160.0			240.0	
Storage Blk Time (%)			9	5	
Queuing Penalty (veh)			91	13	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.5
Average Queue (m)	3.8
95th Queue (m)	9.8
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	WB
Directions Served	LTR
Maximum Queue (m)	22.2
Average Queue (m)	11.8
95th Queue (m)	18.7
Link Distance (m)	57.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	155.1	197.7	159.5	196.6	57.4	139.6
Average Queue (m)	140.4	191.8	157.7	187.4	56.6	130.9
95th Queue (m)	149.9	225.1	172.0	193.4	64.1	137.4
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	0	64		97		55
Queuing Penalty (veh)	0	364		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			86	35	6	46
Queuing Penalty (veh)			400	437	42	166

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	242.0	52.5	30.4	11.6
Average Queue (m)	232.6	52.5	13.1	2.0
95th Queue (m)	252.4	52.6	26.8	7.6
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	61			
Queuing Penalty (veh)	971			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)		89		
Queuing Penalty (veh)		0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	38.6	5.4	144.0	146.5
Average Queue (m)	7.7	0.2	134.9	137.8
95th Queue (m)	26.8	2.3	153.5	143.9
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)			85	90
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 2485

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	17	42	1139	132	152	25	101	521	64	202	6
Future Volume (vph)	6	17	42	1139	132	152	25	101	521	64	202	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.920				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1504	1576	0	1597	1693	0	1656	1845	1553	0	1742	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1504	1576	0	1597	1693	0	1656	1845	1553	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	21	51	1389	161	185	30	123	635	78	246	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	72	0	1389	346	0	30	123	635	0	331	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 97.6% ICU Level of Service F
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	17	42	1139	132	152	25	101	521	64	202	6
Future Volume (vph)	6	17	42	1139	132	152	25	101	521	64	202	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	21	51	1389	161	185	30	123	635	78	246	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	72	1389	346	30	123	635	331
Volume Left (vph)	7	0	1389	0	30	0	0	78
Volume Right (vph)	0	51	0	185	0	0	635	7
Hadj (s)	0.84	-0.36	0.72	-0.32	0.65	0.05	-0.63	0.16
Departure Headway (s)	8.4	7.2	7.1	6.1	8.2	7.6	3.2	7.1
Degree Utilization, x	0.02	0.14	2.75	0.58	0.07	0.26	0.56	0.65
Capacity (veh/h)	404	470	515	588	424	458	1117	497
Control Delay (s)	10.3	10.2	807.0	16.0	10.6	12.1	9.1	22.1
Approach Delay (s)	10.2		649.3		9.6			22.1
Approach LOS	B		F		A			C

Intersection Summary			
Delay	389.4		
Level of Service	F		
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	0	201	12	8	237
Future Volume (vph)	29	0	201	12	8	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1736	0	1806	0	0	1700
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1736	0	1806	0	0	1700
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	38	0	261	16	10	308
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	277	0	0	318
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	201	12	8	237
Future Volume (Veh/h)	29	0	201	12	8	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	38	0	261	16	10	308
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	597	269			277	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597	269			277	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	92	100			99	
cM capacity (veh/h)	458	770			1023	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	277	318
Volume Left	38	0	10
Volume Right	0	16	0
cSH	458	1700	1023
Volume to Capacity	0.08	0.16	0.01
Queue Length 95th (m)	2.2	0.0	0.2
Control Delay (s)	13.6	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	13.6	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	0	159	27	0	166
Future Volume (vph)	76	0	159	27	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1574	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1574	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	121	0	252	43	0	263
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	295	0	0	263
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	76	0	159	27	0	166
Future Volume (Veh/h)	76	0	159	27	0	166
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	121	0	252	43	0	263
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	536	274			295	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	536	274			295	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	409	765			1266	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	295	263
Volume Left	121	0	0
Volume Right	0	43	0
cSH	409	1700	1266
Volume to Capacity	0.30	0.17	0.00
Queue Length 95th (m)	9.8	0.0	0.0
Control Delay (s)	17.5	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.5	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	20.9%	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)	0	0	4	157	0	0	8	6	147	0	6	0
Future Volume (vph)	0	0	4	157	0	0	8	6	147	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.877				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1619	0	0	1900	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1619	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	13	10	233	0	10	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	256	0	0	10	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	8	6	147	0	6	0
Future Volume (Veh/h)	0	0	4	157	0	0	8	6	147	0	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	13	10	233	0	10	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	162	279	10	168	162	126	10			243		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162	279	10	168	162	126	10			243		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	797	624	910	785	724	924	1529			1323		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	256	10
Volume Left	0	249	13	0
Volume Right	6	0	233	0
cSH	910	785	1529	1323
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	10.9	0.2	0.0
Control Delay (s)	9.0	11.7	0.4	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.7	0.4	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	327	283	390	917	499	611
Future Volume (vph)	327	283	390	917	499	611
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		345				407
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	399	345	476	1118	609	745
Shared Lane Traffic (%)						
Lane Group Flow (vph)	399	345	476	1118	609	745
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.66	0.46	3.11	1.33	1.08	0.94
Control Delay	25.7	4.4	983.4	179.5	86.1	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	4.4	983.4	179.5	86.1	33.2
LOS	C	A	F	F	F	C
Approach Delay	15.9			419.6	57.0	
Approach LOS	B			F	E	
Queue Length 50th (m)	45.4	0.0	~115.4	~201.9	~94.3	47.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	65.0	11.5	#152.1	#237.7	#132.2	#99.4
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	752	153	839	565	790
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.46	3.11	1.33	1.08	0.94

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 3.11
Intersection Signal Delay: 205.2 Intersection LOS: F
Intersection Capacity Utilization 86.7% ICU Level of Service E
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: 5: QEW Toronto Bound Ramps & North Service Road

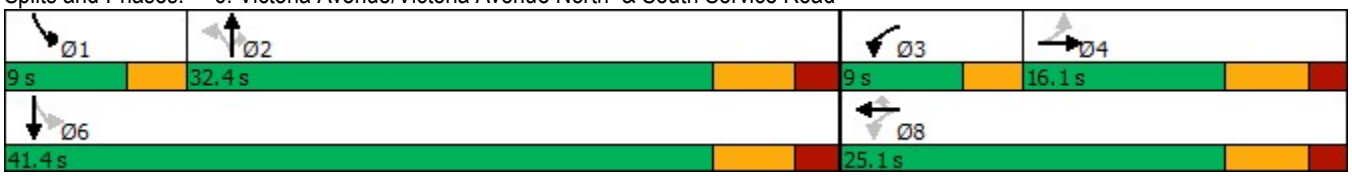
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	43	9	137	10	323	17	320	214	1033	312	32
Future Volume (vph)	16	43	9	137	10	323	17	320	214	1033	312	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1736	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.750			0.522			0.539			0.441		
Satd. Flow (perm)	1332	1736	0	827	1696	1553	957	1827	1468	769	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				351			233		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	17	47	10	149	11	351	18	348	233	1123	339	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	57	0	149	11	351	18	348	233	1123	374	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.08	0.20		0.46	0.03	0.55	0.05	0.46	0.31	2.02	0.40	
Control Delay	25.5	23.2		22.4	17.4	6.1	13.1	16.7	3.5	481.2	10.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.5	23.2		22.4	17.4	6.1	13.1	16.7	3.5	481.2	10.1	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		23.7			11.1			11.5			363.5	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	1.9	5.4		14.1	1.0	0.0	1.4	33.0	0.0	~239.3	26.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.1	14.9		27.8	4.4	17.5	5.1	55.3	12.2	#309.7	45.3	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	285		321	514	716	397	759	745	557	924	
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	0.08	0.20		0.46	0.02	0.49	0.05	0.46	0.31	2.02	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.02
Intersection Signal Delay: 208.3 Intersection LOS: F
Intersection Capacity Utilization 102.1% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1211	70	23	9	5	454
Future Volume (vph)	1211	70	23	9	5	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1764	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1764	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1376	80	26	10	6	516
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1376	80	36	0	6	516
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 83.8%	ICU Level of Service E
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1211	70	23	9	5	454
Future Volume (Veh/h)	1211	70	23	9	5	454
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1376	80	26	10	6	516
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	36				2863	31
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				2863	31
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	10				0	49
cM capacity (veh/h)	1531				2	1010

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1376	80	36	6	516
Volume Left	1376	0	0	6	0
Volume Right	0	0	10	0	516
cSH	1531	1700	1700	2	1010
Volume to Capacity	0.90	0.05	0.02	3.89	0.51
Queue Length 95th (m)	120.1	0.0	0.0	Err	23.9
Control Delay (s)	22.9	0.0	0.0	Err	12.2
Lane LOS	C			F	B
Approach Delay (s)	21.7		0.0	127.0	
Approach LOS				F	

Intersection Summary			
Average Delay	48.6		
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	8.8	35.4	163.7	185.5	17.4	23.9	11.9	131.8
Average Queue (m)	1.0	12.9	160.8	172.8	6.0	12.0	0.4	82.2
95th Queue (m)	5.3	27.7	176.4	182.4	14.4	19.2	8.4	155.2
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)			19	52				14
Queuing Penalty (veh)			0	734				37
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)			39	56				
Queuing Penalty (veh)			111	634				

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	32.5	108.9
Average Queue (m)	7.7	20.5
95th Queue (m)	24.6	90.7
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	26.9	6.3
Average Queue (m)	14.9	0.4
95th Queue (m)	24.5	4.6
Link Distance (m)	226.0	30.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	17.4	22.1	2.4
Average Queue (m)	1.6	11.9	0.1
95th Queue (m)	9.5	18.9	1.7
Link Distance (m)	244.7	57.6	30.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	66.4	33.1	159.5	196.6	57.4	139.8
Average Queue (m)	34.6	17.3	126.2	187.4	56.9	131.1
95th Queue (m)	55.7	27.5	222.8	194.0	59.0	138.6
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)				90		83
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			1	90	82	9
Queuing Penalty (veh)			6	349	501	43

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	15.8	27.2	54.6	10.8	45.7	15.8	63.9	53.1	276.5	378.6
Average Queue (m)	3.8	9.2	22.1	1.5	22.4	3.7	34.5	18.1	273.4	358.1
95th Queue (m)	11.7	19.6	42.9	7.4	37.9	12.2	55.6	34.0	293.2	437.0
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										24
Queuing Penalty (veh)										337
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)					0		0	0	33	61
Queuing Penalty (veh)					0		0	0	115	627

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	29.2	1.2	13.7	26.8
Average Queue (m)	6.7	0.0	1.2	2.6
95th Queue (m)	20.8	0.8	6.6	16.5
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3495

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	71	167	638	76	98	25	241	1253	134	96	5
Future Volume (vph)	4	71	167	638	76	98	25	241	1253	134	96	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.895			0.916				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.972	
Satd. Flow (prot)	1805	1657	0	1736	1624	0	1583	1776	1553	0	1752	0
Flt Permitted	0.950			0.950			0.950				0.972	
Satd. Flow (perm)	1805	1657	0	1736	1624	0	1583	1776	1553	0	1752	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	77	182	693	83	107	27	262	1362	146	104	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	259	0	693	190	0	27	262	1362	0	255	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 114.4% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	71	167	638	76	98	25	241	1253	134	96	5
Future Volume (vph)	4	71	167	638	76	98	25	241	1253	134	96	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	77	182	693	83	107	27	262	1362	146	104	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	259	693	190	27	262	1362	255
Volume Left (vph)	4	0	693	0	27	0	0	146
Volume Right (vph)	0	182	0	107	0	0	1362	5
Hadj (s)	0.50	-0.45	0.57	-0.27	0.74	0.12	-0.63	0.19
Departure Headway (s)	8.5	7.5	7.9	7.1	8.7	8.1	3.2	8.1
Degree Utilization, x	0.01	0.54	1.52	0.37	0.07	0.59	1.21	0.58
Capacity (veh/h)	404	452	461	502	397	424	1129	424
Control Delay (s)	10.4	17.9	266.4	13.0	11.1	21.0	115.6	21.7
Approach Delay (s)	17.8		211.9		98.9			21.7
Approach LOS	C		F		F			C

Intersection Summary			
Delay	118.1		
Level of Service	F		
Intersection Capacity Utilization	114.4%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	2	323	23	6	204
Future Volume (vph)	17	2	323	23	6	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988		0.991			
Flt Protected	0.957					0.999
Satd. Flow (prot)	1689	0	1737	0	0	1827
Flt Permitted	0.957					0.999
Satd. Flow (perm)	1689	0	1737	0	0	1827
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	20	2	371	26	7	234
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	397	0	0	241
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	2	323	23	6	204
Future Volume (Veh/h)	17	2	323	23	6	204
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	2	371	26	7	234
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	632	384			397	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	632	384			397	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	95	100			99	
cM capacity (veh/h)	434	668			1173	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	397	241
Volume Left	20	0	7
Volume Right	2	26	0
cSH	448	1700	1173
Volume to Capacity	0.05	0.23	0.01
Queue Length 95th (m)	1.2	0.0	0.1
Control Delay (s)	13.4	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.4	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	0	213	104	0	159
Future Volume (vph)	34	0	213	104	0	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.956			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1759	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1759	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	52	0	328	160	0	245
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	488	0	0	245
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	0	213	104	0	159
Future Volume (Veh/h)	34	0	213	104	0	159
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	52	0	328	160	0	245
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	653	408			488	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	653	408			488	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	412	643			1075	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	52	488	245
Volume Left	52	0	0
Volume Right	0	160	0
cSH	412	1700	1075
Volume to Capacity	0.13	0.29	0.00
Queue Length 95th (m)	3.4	0.0	0.0
Control Delay (s)	15.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	15.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	27.5%	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)	0	0	7	149	0	0	2	7	205	0	9	0
Future Volume (vph)	0	0	7	149	0	0	2	7	205	0	9	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.871				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	1644	0	0	1770	0	0	1622	0	0	1900	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	1644	0	0	1770	0	0	1622	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	0%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	9	199	0	0	3	9	273	0	12	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	0	0	199	0	0	285	0	0	12	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	149	0	0	2	7	205	0	9	0
Future Volume (Veh/h)	0	0	7	149	0	0	2	7	205	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	9	199	0	0	3	9	273	0	12	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	164	300	12	172	164	146	12			282		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	164	300	12	172	164	146	12			282		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	75	100	100	100			100		
cM capacity (veh/h)	800	611	1074	783	728	902	1620			1280		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	199	285	12
Volume Left	0	199	3	0
Volume Right	9	0	273	0
cSH	1074	783	1620	1280
Volume to Capacity	0.01	0.25	0.00	0.00
Queue Length 95th (m)	0.2	8.1	0.0	0.0
Control Delay (s)	8.4	11.2	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.4	11.2	0.1	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1114	352	1236	414	360	629
Future Volume (vph)	1114	352	1236	414	360	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		272				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1211	383	1343	450	391	684
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1211	383	1343	450	391	684
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.07	0.56	9.52	0.55	0.72	1.03
Control Delay	506.2	9.3	3856.4	16.6	28.6	62.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	506.2	9.3	3856.4	16.6	28.6	62.5
LOS	F	A	F	B	C	E
Approach Delay	386.8			2892.7	50.2	
Approach LOS	F			F	D	
Queue Length 50th (m)	~265.4	10.6	~367.8	41.8	45.2	~79.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#337.9	33.7	#442.1	68.1	#79.9	#142.4
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	689	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.07	0.56	9.52	0.55	0.72	1.03

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.52
Intersection Signal Delay: 1312.7 Intersection LOS: F
Intersection Capacity Utilization 161.2% 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: 5: QEW Toronto Bound Ramps & North Service Road

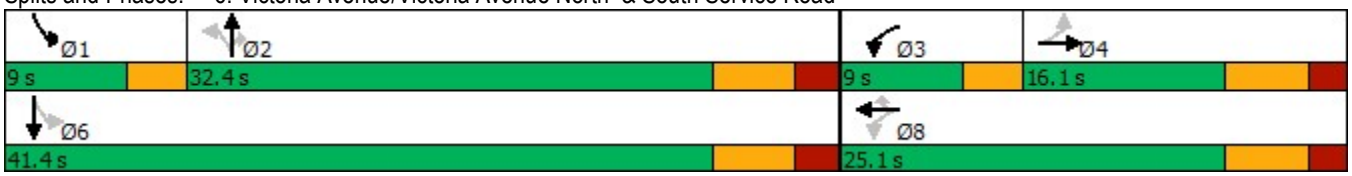
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	308	62	233	10	1304	17	252	338	395	375	28
Future Volume (vph)	58	308	62	233	10	1304	17	252	338	395	375	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1678	0
Flt Permitted	0.750			0.308			0.508			0.512		
Satd. Flow (perm)	1397	1767	0	527	1696	1524	902	1759	1482	909	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				563			367		8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	63	335	67	253	11	1417	18	274	367	429	408	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	402	0	253	11	1417	18	274	367	429	438	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.30	1.46		0.92	0.02	1.69	0.05	0.40	0.46	0.72	0.49	
Control Delay	29.5	250.7		61.6	17.4	334.2	13.2	16.8	3.9	17.5	12.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.5	250.7		61.6	17.4	334.2	13.2	16.8	3.9	17.5	12.3	
LOS	C	F		E	B	F	B	B	A	B	B	
Approach Delay		220.7			291.1			9.5			14.9	
Approach LOS		F			F			A			B	
Queue Length 50th (m)	7.4	~72.8		25.6	1.0	~223.2	1.4	24.9	0.0	28.3	32.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	17.9	#124.1		#67.0	4.4	#300.3	5.1	43.2	14.9	#50.3	55.2	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	210	276		274	484	837	352	687	802	595	886	
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	0.30	1.46		0.92	0.02	1.69	0.05	0.40	0.46	0.72	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.69
Intersection Signal Delay: 166.4 Intersection LOS: F
Intersection Capacity Utilization 121.2% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	807	25	29	27	24	1580
Future Volume (vph)	807	25	29	27	24	1580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1706	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1706	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	868	27	31	29	26	1699
Shared Lane Traffic (%)						
Lane Group Flow (vph)	868	27	60	0	26	1699
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 107.8%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	807	25	29	27	24	1580
Future Volume (Veh/h)	807	25	29	27	24	1580
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	868	27	31	29	26	1699
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	60				1808	46
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	60				1808	46
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	43				32	0
cM capacity (veh/h)	1531				38	1018

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	868	27	60	26	1699
Volume Left	868	0	0	26	0
Volume Right	0	0	29	0	1699
cSH	1531	1700	1700	38	1018
Volume to Capacity	0.57	0.02	0.04	0.68	1.67
Queue Length 95th (m)	30.1	0.0	0.0	19.7	735.9
Control Delay (s)	10.4	0.0	0.0	213.8	317.8
Lane LOS	B			F	F
Approach Delay (s)	10.1		0.0	316.2	
Approach LOS				F	

Intersection Summary			
Average Delay	206.9		
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	8.6	40.6	64.4	26.4	119.4	380.8	247.5	50.2
Average Queue (m)	0.8	18.5	29.6	11.5	19.4	365.2	246.1	18.3
95th Queue (m)	4.6	31.6	52.7	21.1	89.8	428.3	255.8	35.3
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)						28		
Queuing Penalty (veh)						449		
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)					0	42	53	
Queuing Penalty (veh)					0	541	140	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.6	5.4
Average Queue (m)	4.0	0.2
95th Queue (m)	11.9	2.7
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	20.4
Average Queue (m)	6.1
95th Queue (m)	14.2
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	9.0	29.3
Average Queue (m)	1.9	12.1
95th Queue (m)	7.7	20.4
Link Distance (m)	244.7	57.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	164.1	210.3	159.5	199.5	57.4	142.4
Average Queue (m)	143.4	200.4	159.2	189.7	56.4	134.2
95th Queue (m)	156.9	206.9	162.2	196.5	63.0	140.8
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	1	79		97		51
Queuing Penalty (veh)	4	575		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			90	29	10	38
Queuing Penalty (veh)			371	357	65	137

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	79.5	385.5	127.5	244.9	52.5	144.6	215.2	75.5	106.2	55.4
Average Queue (m)	66.9	332.2	93.6	236.2	52.5	13.3	109.6	53.9	37.9	20.1
95th Queue (m)	106.3	451.2	183.3	242.9	52.6	77.3	230.4	93.6	76.8	40.5
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)		57		96			14			
Queuing Penalty (veh)		0		1543			0			
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)	13	84	0	4	97		29	3		
Queuing Penalty (veh)	49	49	2	55	235		103	8		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	38.8	86.1	145.0	147.2
Average Queue (m)	8.4	22.2	131.9	138.1
95th Queue (m)	26.2	82.4	151.6	145.0
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)			93	99
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 4682

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Future Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt					0.850				0.850			
Flt Protected				0.950							0.966	
Satd. Flow (prot)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Flt Permitted				0.950							0.966	
Satd. Flow (perm)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	279	0	89	0	263	1070	157	65	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	279	89	0	0	263	1070	0	222	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 106.6% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Future Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	279	0	89	0	263	1070	157	65	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	279	89	0	263	1070	222
Volume Left (vph)	0	0	279	0	0	0	0	157
Volume Right (vph)	0	0	0	89	0	0	1070	0
Hadj (s)	0.00	0.00	0.50	-0.70	0.00	0.00	-0.70	0.14
Departure Headway (s)	6.7	6.7	6.5	5.3	6.0	6.0	3.2	6.2
Degree Utilization, x	0.00	0.00	0.50	0.13	0.00	0.44	0.95	0.38
Capacity (veh/h)	484	484	531	645	581	575	1122	554
Control Delay (s)	8.5	8.5	14.6	7.8	7.8	12.4	32.6	13.0
Approach Delay (s)	0.0		13.0		28.6			13.0
Approach LOS	A		B		D			B

Intersection Summary			
Delay	23.8		
Level of Service	C		
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	324	0	0	203
Future Volume (vph)	0	0	324	0	0	203
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	372	0	0	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	372	0	0	233
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	324	0	0	203
Future Volume (Veh/h)	0	0	324	0	0	203
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	372	0	0	233
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	605	372			372	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	605	372			372	
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	100			100	
cM capacity (veh/h)	464	678			1198	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	372	233
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1198
Volume to Capacity	0.00	0.22	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	231	93	0	179
Future Volume (vph)	24	0	231	93	0	179
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1334	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1334	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	0	355	143	0	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	498	0	0	275
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	231	93	0	179
Future Volume (Veh/h)	24	0	231	93	0	179
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	37	0	355	143	0	275
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	702	426			498	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702	426			498	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	408	632			1076	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	498	275
Volume Left	37	0	0
Volume Right	0	143	0
cSH	408	1700	1076
Volume to Capacity	0.09	0.29	0.00
Queue Length 95th (m)	2.4	0.0	0.0
Control Delay (s)	14.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.7	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	34.4%	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)	0	0	0	179	0	0	0	0	231	0	0	0
Future Volume (vph)	0	0	0	179	0	0	0	0	231	0	0	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt								0.865				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	239	0	0	0	0	308	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	239	0	0	308	0	0	0	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	179	0	0	0	0	231	0	0	0
Future Volume (Veh/h)	0	0	0	179	0	0	0	0	231	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	239	0	0	0	0	308	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	154	308	0	154	154	154	0			308		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	308	0	154	154	154	0			308		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	71	100	100	100			100		
cM capacity (veh/h)	817	609	1091	817	741	897	1636			1264		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	239	308	0
Volume Left	0	239	0	0
Volume Right	0	0	308	0
cSH	1700	817	1636	1700
Volume to Capacity	0.00	0.29	0.00	0.00
Queue Length 95th (m)	0.0	9.8	0.0	0.0
Control Delay (s)	0.0	11.2	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.2	0.0	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1221	440	1261	468	368	682
Future Volume (vph)	1221	440	1261	468	368	682
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1597	1126	1348	1597	1387	1094
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1597	1126	1348	1597	1387	1094
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		310				229
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	6%	2%	3%	5%
Adj. Flow (vph)	1327	478	1371	509	400	741
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1327	478	1371	509	400	741
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.49	0.82	11.72	0.69	0.83	1.40
Control Delay	696.2	21.7	4844.8	20.5	38.1	210.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	696.2	21.7	4844.8	20.5	38.1	210.5
LOS	F	C	F	C	D	F
Approach Delay	517.6			3538.6	150.1	
Approach LOS	F			F	F	
Queue Length 50th (m)	~306.7	18.9	~379.4	51.5	48.8	~116.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#381.0	#76.9	#454.3	85.8	#96.2	#181.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	532	582	117	740	482	529
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.49	0.82	11.72	0.69	0.83	1.40

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 11.72	
Intersection Signal Delay: 1607.5	Intersection LOS: F
Intersection Capacity Utilization 203.1%	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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

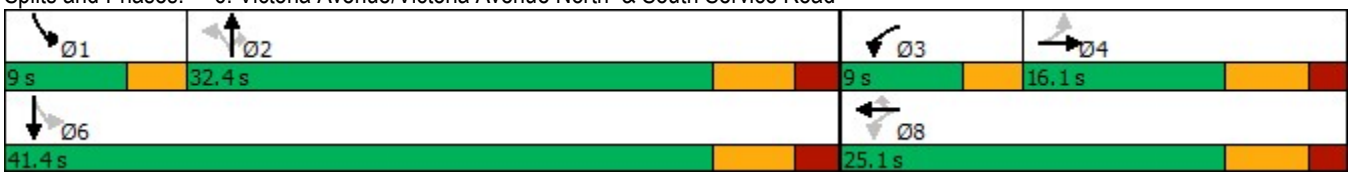
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1226	0	0	0	260	58	0
Future Volume (vph)	0	0	0	0	0	1226	0	0	0	260	58	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	1629	1148	1504	1629	1351	1429	1388	0
Flt Permitted										0.679		
Satd. Flow (perm)	1504	1388	0	1504	1629	1148	1504	1629	1351	1021	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	1333	0	0	0	283	63	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1333	0	0	0	283	63	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						19.0				38.4	35.0	
Actuated g/C Ratio						0.29				0.58	0.53	
v/c Ratio						1.20				0.45	0.09	
Control Delay						110.1				10.3	8.3	
Queue Delay						0.0				0.0	0.0	
Total Delay						110.1				10.3	8.3	
LOS						F				B	A	
Approach Delay					110.1						9.9	
Approach LOS					F						A	
Queue Length 50th (m)						~103.5				17.4	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)						#179.5				31.1	9.0	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1107				626	730	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.20				0.45	0.09	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 89.5 Intersection LOS: F
Intersection Capacity Utilization 111.8% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	710	28	13	17	34	1581
Future Volume (vph)	710	28	13	17	34	1581
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.924			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1429	1629	1283	0	1429	1126
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1429	1629	1283	0	1429	1126
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	763	30	14	18	37	1700
Shared Lane Traffic (%)						
Lane Group Flow (vph)	763	30	32	0	37	1700
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 147.7%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	710	28	13	17	34	1581
Future Volume (Veh/h)	710	28	13	17	34	1581
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	763	30	14	18	37	1700
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	32				1579	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				1579	23
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	52				42	0
cM capacity (veh/h)	1593				63	1054

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	763	30	32	37	1700
Volume Left	763	0	0	37	0
Volume Right	0	0	18	0	1700
cSH	1593	1700	1700	63	1054
Volume to Capacity	0.48	0.02	0.02	0.58	1.61
Queue Length 95th (m)	21.5	0.0	0.0	19.4	704.1
Control Delay (s)	9.3	0.0	0.0	122.3	293.1
Lane LOS	A			F	F
Approach Delay (s)	9.0		0.0	289.4	
Approach LOS				F	

Intersection Summary			
Average Delay	199.0		
Intersection Capacity Utilization	147.7%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	WB	NB	NB	SB
Directions Served	L	TR	T	R	LTR
Maximum Queue (m)	21.1	10.2	281.6	235.2	19.4
Average Queue (m)	10.4	5.8	81.3	128.1	9.2
95th Queue (m)	18.2	12.4	257.4	275.2	15.1
Link Distance (m)		163.8	373.7		131.4
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			4		
Storage Bay Dist (m)	160.0			240.0	
Storage Blk Time (%)			13	7	
Queuing Penalty (veh)			123	16	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.5
Average Queue (m)	3.8
95th Queue (m)	9.7
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	WB
Directions Served	LTR
Maximum Queue (m)	21.9
Average Queue (m)	11.7
95th Queue (m)	18.5
Link Distance (m)	57.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	158.2	197.7	159.5	196.7	57.4	141.8
Average Queue (m)	140.5	192.3	158.2	187.6	56.4	131.7
95th Queue (m)	152.9	220.3	168.6	193.7	65.1	139.1
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	0	63		97		54
Queuing Penalty (veh)	0	357		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			85	35	7	44
Queuing Penalty (veh)			396	437	51	162

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	244.2	52.5	33.1	12.9
Average Queue (m)	233.5	52.5	12.6	2.1
95th Queue (m)	250.5	52.7	27.3	8.1
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	58			
Queuing Penalty (veh)	925			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)		89		
Queuing Penalty (veh)		0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (m)	44.4	9.6	4.9	142.1	148.0
Average Queue (m)	7.9	0.3	0.2	134.1	137.8
95th Queue (m)	27.2	4.9	2.1	155.7	144.2
Link Distance (m)		216.0	221.2	130.7	130.7
Upstream Blk Time (%)				84	90
Queuing Penalty (veh)				0	0
Storage Bay Dist (m)	109.0				
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 2470

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Future Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.922				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1504	1576	0	1597	1695	0	1656	1845	1553	0	1742	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1504	1576	0	1597	1695	0	1656	1845	1553	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	23	56	1433	178	191	33	128	674	80	249	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	79	0	1433	369	0	33	128	674	0	336	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 99.8%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Future Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	23	56	1433	178	191	33	128	674	80	249	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	79	1433	369	33	128	674	336
Volume Left (vph)	7	0	1433	0	33	0	0	80
Volume Right (vph)	0	56	0	191	0	0	674	7
Hadj (s)	0.84	-0.36	0.72	-0.30	0.65	0.05	-0.63	0.16
Departure Headway (s)	8.5	7.3	7.2	6.2	8.3	7.7	3.2	7.1
Degree Utilization, x	0.02	0.16	2.87	0.63	0.08	0.27	0.60	0.66
Capacity (veh/h)	400	465	511	570	422	455	1118	495
Control Delay (s)	10.4	10.5	859.2	17.9	10.7	12.3	9.7	22.9
Approach Delay (s)	10.5		687.0		10.1			22.9
Approach LOS	B		F		B			C

Intersection Summary			
Delay	410.2		
Level of Service	F		
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	0	205	13	9	238
Future Volume (vph)	32	0	205	13	9	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1736	0	1806	0	0	1696
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1736	0	1806	0	0	1696
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	42	0	266	17	12	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	283	0	0	321
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	0	205	13	9	238
Future Volume (Veh/h)	32	0	205	13	9	238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	42	0	266	17	12	309
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	608	274			283	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	608	274			283	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	91	100			99	
cM capacity (veh/h)	451	764			1017	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	42	283	321
Volume Left	42	0	12
Volume Right	0	17	0
cSH	451	1700	1017
Volume to Capacity	0.09	0.17	0.01
Queue Length 95th (m)	2.5	0.0	0.3
Control Delay (s)	13.8	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	13.8	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	160	28	0	167
Future Volume (vph)	77	0	160	28	0	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1572	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1572	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	254	44	0	265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	298	0	0	265
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 21.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	160	28	0	167
Future Volume (Veh/h)	77	0	160	28	0	167
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	254	44	0	265
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	541	276			298	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541	276			298	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	406	763			1263	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	298	265
Volume Left	122	0	0
Volume Right	0	44	0
cSH	406	1700	1263
Volume to Capacity	0.30	0.18	0.00
Queue Length 95th (m)	10.0	0.0	0.0
Control Delay (s)	17.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	21.1%	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)	0	0	4	157	0	0	9	6	147	0	6	0
Future Volume (vph)	0	0	4	157	0	0	9	6	147	0	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.878				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1621	0	0	1900	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1621	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	14	10	233	0	10	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	257	0	0	10	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	9	6	147	0	6	0
Future Volume (Veh/h)	0	0	4	157	0	0	9	6	147	0	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	14	10	233	0	10	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	164	281	10	170	164	126	10			243		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	164	281	10	170	164	126	10			243		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	795	622	910	782	721	924	1529			1323		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	257	10
Volume Left	0	249	14	0
Volume Right	6	0	233	0
cSH	910	782	1529	1323
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	11.0	0.2	0.0
Control Delay (s)	9.0	11.7	0.5	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.7	0.5	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	339	308	396	930	540	616
Future Volume (vph)	339	308	396	930	540	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		376				397
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	413	376	483	1134	659	751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	413	376	483	1134	659	751
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.68	0.49	3.16	1.35	1.17	0.96
Control Delay	26.5	4.6	1003.7	187.8	117.9	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	4.6	1003.7	187.8	117.9	36.7
LOS	C	A	F	F	F	D
Approach Delay	16.0			431.5	74.6	
Approach LOS	B			F	E	
Queue Length 50th (m)	47.5	0.0	~117.4	~206.5	~108.8	50.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	67.4	11.7	#154.1	#242.4	#146.7	#103.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	773	153	839	565	783
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.49	3.16	1.35	1.17	0.96

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 120	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 3.16	
Intersection Signal Delay: 213.7	Intersection LOS: F
Intersection Capacity Utilization 89.7%	ICU Level of Service E
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: 5: QEW Toronto Bound Ramps & North Service Road

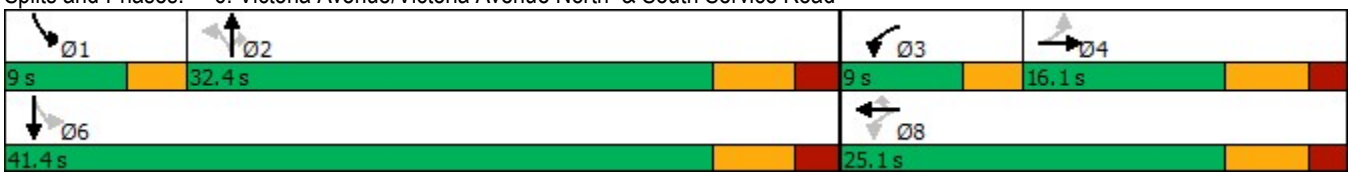
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	47	10	152	11	328	19	353	236	1042	343	36
Future Volume (vph)	18	47	10	152	11	328	19	353	236	1042	343	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1735	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.750			0.519			0.521			0.404		
Satd. Flow (perm)	1332	1735	0	822	1696	1553	925	1827	1468	704	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				357			257		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	20	51	11	165	12	357	21	384	257	1133	373	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	62	0	165	12	357	21	384	257	1133	412	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.09	0.22		0.52	0.03	0.55	0.05	0.51	0.34	2.17	0.45	
Control Delay	25.7	23.3		23.8	17.5	6.2	13.2	17.5	3.5	548.4	10.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.7	23.3		23.8	17.5	6.2	13.2	17.5	3.5	548.4	10.7	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		23.9			11.9			11.9			405.0	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.3	5.9		15.8	1.1	0.0	1.7	37.3	0.0	~246.5	30.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	7.9	15.8		30.4	4.7	17.6	5.6	61.8	12.7	#316.9	51.2	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	286		320	514	720	384	759	760	523	924	
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	0.09	0.22		0.52	0.02	0.50	0.05	0.51	0.34	2.17	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.17
Intersection Signal Delay: 227.4 Intersection LOS: F
Intersection Capacity Utilization 105.1% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1243	73	25	10	5	473
Future Volume (vph)	1243	73	25	10	5	473
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1763	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1763	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1413	83	28	11	6	538
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1413	83	39	0	6	538
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1243	73	25	10	5	473
Future Volume (Veh/h)	1243	73	25	10	5	473
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1412	83	28	11	6	538
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	39				2940	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				2940	34
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	8				0	47
cM capacity (veh/h)	1527				1	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1412	83	39	6	538
Volume Left	1412	0	0	6	0
Volume Right	0	0	11	0	538
cSH	1527	1700	1700	1	1006
Volume to Capacity	0.92	0.05	0.02	5.90	0.53
Queue Length 95th (m)	135.4	0.0	0.0	Err	26.1
Control Delay (s)	26.0	0.0	0.0	Err	12.6
Lane LOS	D			F	B
Approach Delay (s)	24.6		0.0	122.8	
Approach LOS				F	

Intersection Summary			
Average Delay	49.8		
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	TR	L	T	R	LTR
Maximum Queue (m)	16.6	32.6	163.7	190.0	18.1	24.8	13.0	106.1
Average Queue (m)	1.8	12.9	163.0	178.3	6.3	11.7	0.4	48.3
95th Queue (m)	8.8	25.2	165.2	187.1	15.1	19.8	9.2	96.7
Link Distance (m)		375.4		163.8		373.7		131.4
Upstream Blk Time (%)			39	57				0
Queuing Penalty (veh)			0	845				1
Storage Bay Dist (m)	62.0		160.0		112.0		240.0	
Storage Blk Time (%)			66	58				
Queuing Penalty (veh)			201	679				

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.0	13.2
Average Queue (m)	6.5	0.4
95th Queue (m)	13.7	4.9
Link Distance (m)	257.3	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	34.7	7.7
Average Queue (m)	15.5	0.4
95th Queue (m)	26.8	4.5
Link Distance (m)	226.0	30.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	14.5	21.9	1.8
Average Queue (m)	1.8	11.8	0.1
95th Queue (m)	10.0	18.6	1.3
Link Distance (m)	244.7	57.6	30.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	93.3	38.0	159.5	196.7	57.4	141.1
Average Queue (m)	44.1	20.8	141.4	188.0	57.0	131.9
95th Queue (m)	78.0	34.1	217.4	194.5	58.7	139.2
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)				90		83
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			8	87	79	8
Queuing Penalty (veh)			72	346	486	45

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	TR
Maximum Queue (m)	15.4	30.1	57.6	10.2	45.7	14.6	76.7	60.0	276.5	378.3
Average Queue (m)	4.0	10.0	24.8	1.9	24.2	3.3	37.9	20.8	276.1	365.7
95th Queue (m)	12.1	21.2	45.9	7.7	41.0	11.2	63.2	42.3	278.9	413.1
Link Distance (m)		368.7		216.0			202.3			373.7
Upstream Blk Time (%)										21
Queuing Penalty (veh)										301
Storage Bay Dist (m)	72.0		120.0		45.0	168.0		68.0	269.0	
Storage Blk Time (%)					0		1	0	81	26
Queuing Penalty (veh)					1		2	0	309	266

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	27.0	1.3	10.8	24.8
Average Queue (m)	7.8	0.0	1.2	2.2
95th Queue (m)	21.4	0.9	6.5	13.2
Link Distance (m)		221.2	130.7	130.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	109.0			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 3552

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	78	184	677	84	100	27	243	1279	136	100	5
Future Volume (vph)	4	78	184	677	84	100	27	243	1279	136	100	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.895			0.918				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.973	
Satd. Flow (prot)	1805	1657	0	1736	1626	0	1583	1776	1553	0	1755	0
Flt Permitted	0.950			0.950			0.950				0.973	
Satd. Flow (perm)	1805	1657	0	1736	1626	0	1583	1776	1553	0	1755	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	85	200	736	91	109	29	264	1390	148	109	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	285	0	736	200	0	29	264	1390	0	262	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 117.7%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	78	184	677	84	100	27	243	1279	136	100	5
Future Volume (vph)	4	78	184	677	84	100	27	243	1279	136	100	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	85	200	736	91	109	29	264	1390	148	109	5

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	285	736	200	29	264	1390	262
Volume Left (vph)	4	0	736	0	29	0	0	148
Volume Right (vph)	0	200	0	109	0	0	1390	5
Hadj (s)	0.50	-0.45	0.57	-0.26	0.74	0.12	-0.63	0.19
Departure Headway (s)	8.6	7.6	8.1	7.2	8.9	8.3	3.2	8.3
Degree Utilization, x	0.01	0.60	1.65	0.40	0.07	0.61	1.24	0.60
Capacity (veh/h)	401	450	456	489	391	417	1129	418
Control Delay (s)	10.5	20.4	323.1	13.8	11.4	22.0	125.7	23.0
Approach Delay (s)	20.2		257.0		107.5			23.0
Approach LOS	C		F		F			C

Intersection Summary			
Delay	136.7		
Level of Service	F		
Intersection Capacity Utilization	117.7%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	2	326	25	6	207
Future Volume (vph)	19	2	326	25	6	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989		0.990			
Flt Protected	0.956					0.999
Satd. Flow (prot)	1688	0	1736	0	0	1827
Flt Permitted	0.956					0.999
Satd. Flow (perm)	1688	0	1736	0	0	1827
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	22	2	375	29	7	238
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	404	0	0	245
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	2	326	25	6	207
Future Volume (Veh/h)	19	2	326	25	6	207
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	22	2	375	29	7	238
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	642	390			404	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	642	390			404	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	95	100			99	
cM capacity (veh/h)	428	663			1166	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	404	245
Volume Left	22	0	7
Volume Right	2	29	0
cSH	441	1700	1166
Volume to Capacity	0.05	0.24	0.01
Queue Length 95th (m)	1.4	0.0	0.1
Control Delay (s)	13.6	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.6	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	214	105	0	160
Future Volume (vph)	35	0	214	105	0	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.955			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1757	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1757	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	54	0	329	162	0	246
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	491	0	0	246
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	214	105	0	160
Future Volume (Veh/h)	35	0	214	105	0	160
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	54	0	329	162	0	246
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	656	410			491	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	410			491	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	411	642			1072	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	54	491	246
Volume Left	54	0	0
Volume Right	0	162	0
cSH	411	1700	1072
Volume to Capacity	0.13	0.29	0.00
Queue Length 95th (m)	3.6	0.0	0.0
Control Delay (s)	15.1	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.1	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	27.7%	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)	0	0	8	149	0	0	2	8	205	0	10	0
Future Volume (vph)	0	0	8	149	0	0	2	8	205	0	10	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.872				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	1644	0	0	1770	0	0	1624	0	0	1900	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	1644	0	0	1770	0	0	1624	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	0%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	11	199	0	0	3	11	273	0	13	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	199	0	0	287	0	0	13	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	149	0	0	2	8	205	0	10	0
Future Volume (Veh/h)	0	0	8	149	0	0	2	8	205	0	10	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	11	199	0	0	3	11	273	0	13	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	166	303	13	178	166	148	13			284		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166	303	13	178	166	148	13			284		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	74	100	100	100			100		
cM capacity (veh/h)	797	609	1073	775	725	899	1619			1278		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	199	287	13
Volume Left	0	199	3	0
Volume Right	11	0	273	0
cSH	1073	775	1619	1278
Volume to Capacity	0.01	0.26	0.00	0.00
Queue Length 95th (m)	0.2	8.2	0.0	0.0
Control Delay (s)	8.4	11.2	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.4	11.2	0.1	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1126	376	1242	429	390	633
Future Volume (vph)	1126	376	1242	429	390	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		288				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1224	409	1350	466	424	688
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1224	409	1350	466	424	688
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.09	0.58	9.57	0.57	0.78	1.04
Control Delay	516.0	9.7	3878.7	17.0	32.2	64.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	516.0	9.7	3878.7	17.0	32.2	64.4
LOS	F	A	F	B	C	E
Approach Delay	389.2			2887.7	52.1	
Approach LOS	F			F	D	
Queue Length 50th (m)	~269.1	11.7	~369.9	43.8	50.4	~80.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#342.0	36.4	#444.5	71.0	#95.1	#143.6
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	700	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.09	0.58	9.57	0.57	0.78	1.04

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.57
Intersection Signal Delay: 1301.8 Intersection LOS: F
Intersection Capacity Utilization 163.8% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

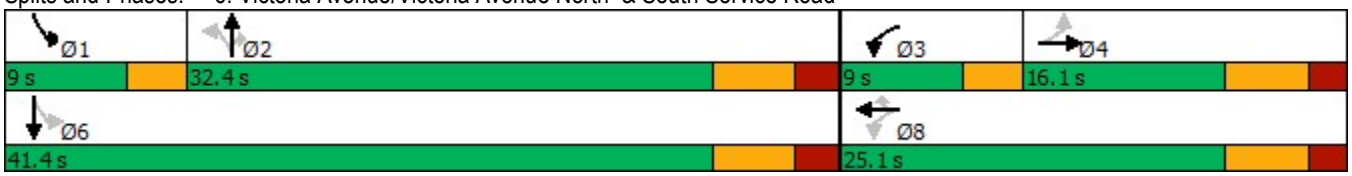
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	340	68	257	11	1312	19	278	373	408	407	31
Future Volume (vph)	64	340	68	257	11	1312	19	278	373	408	407	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1676	0
Flt Permitted	0.750			0.308			0.491			0.481		
Satd. Flow (perm)	1397	1767	0	527	1696	1524	872	1759	1482	854	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				531			369		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	70	370	74	279	12	1426	21	302	405	443	442	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	444	0	279	12	1426	21	302	405	443	476	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.33	1.61		1.02	0.02	1.75	0.06	0.44	0.50	0.78	0.54	
Control Delay	30.2	314.9		84.3	17.4	360.8	13.4	17.4	5.0	21.5	13.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.2	314.9		84.3	17.4	360.8	13.4	17.4	5.0	21.5	13.0	
LOS	C	F		F	B	F	B	B	A	C	B	
Approach Delay		276.2			313.5			10.4			17.1	
Approach LOS		F			F			B			B	
Queue Length 50th (m)	8.3	~84.8		~29.5	1.1	~232.5	1.7	28.0	2.8	29.6	36.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	19.5	#137.9		#82.3	4.7	#309.7	5.7	47.9	19.3	#60.4	61.6	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	210	276		274	484	814	340	687	804	568	886	
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	0.33	1.61		1.02	0.02	1.75	0.06	0.44	0.50	0.78	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.75
Intersection Signal Delay: 181.4 Intersection LOS: F
Intersection Capacity Utilization 121.7% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	863	27	32	30	26	1617
Future Volume (vph)	863	27	32	30	26	1617
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1706	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1706	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	928	29	34	32	28	1739
Shared Lane Traffic (%)						
Lane Group Flow (vph)	928	29	66	0	28	1739
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 110.3%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	863	27	32	30	26	1617
Future Volume (Veh/h)	863	27	32	30	26	1617
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	928	29	34	32	28	1739
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	66				1935	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66				1935	50
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	39				2	0
cM capacity (veh/h)	1523				29	1013

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	928	29	66	28	1739
Volume Left	928	0	0	28	0
Volume Right	0	0	32	0	1739
cSH	1523	1700	1700	29	1013
Volume to Capacity	0.61	0.02	0.04	0.98	1.72
Queue Length 95th (m)	35.3	0.0	0.0	25.6	779.9
Control Delay (s)	11.0	0.0	0.0	361.7	339.6
Lane LOS	B			F	F
Approach Delay (s)	10.6		0.0	340.0	
Approach LOS				F	

Intersection Summary			
Average Delay	219.0		
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Future Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.922				0.850		0.997	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1191	1151	0	2102	1238	0	1311	1582	1104	0	1360	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1191	1151	0	2102	1238	0	1311	1582	1104	0	1360	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	7	23	56	1433	178	191	33	128	674	80	249	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	79	0	1433	369	0	33	128	674	0	336	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 88.4% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Future Volume (vph)	6	19	46	1175	146	157	27	105	553	66	204	6
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	23	56	1433	178	191	33	128	674	80	249	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	7	79	1433	369	33	128	674	336
Volume Left (vph)	7	0	1433	0	33	0	0	80
Volume Right (vph)	0	56	0	191	0	0	674	7
Hadj (s)	0.84	-0.36	0.72	-0.30	0.65	0.05	-0.63	0.16
Departure Headway (s)	8.5	7.3	7.2	6.2	8.3	7.7	3.2	7.1
Degree Utilization, x	0.02	0.16	2.87	0.63	0.08	0.27	0.60	0.66
Capacity (veh/h)	400	465	511	570	422	455	1118	495
Control Delay (s)	10.4	10.5	859.2	17.9	10.7	12.3	9.7	22.9
Approach Delay (s)	10.5		687.0		10.1			22.9
Approach LOS	B		F		B			C

Intersection Summary			
Delay	410.2		
Level of Service	F		
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	0	205	13	9	238
Future Volume (vph)	32	0	205	13	9	238
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1374	0	1319	0	0	1096
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1374	0	1319	0	0	1096
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	42	0	266	17	12	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	283	0	0	321
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 40.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	0	205	13	9	238
Future Volume (Veh/h)	32	0	205	13	9	238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	42	0	266	17	12	309
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	608	274			283	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	608	274			283	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	91	100			99	
cM capacity (veh/h)	451	764			1017	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	42	283	321
Volume Left	42	0	12
Volume Right	0	17	0
cSH	451	1700	1017
Volume to Capacity	0.09	0.17	0.01
Queue Length 95th (m)	2.5	0.0	0.3
Control Delay (s)	13.8	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	13.8	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	160	28	0	167
Future Volume (vph)	77	0	160	28	0	167
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	856	0	1149	0	0	1087
Flt Permitted	0.950					
Satd. Flow (perm)	856	0	1149	0	0	1087
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	254	44	0	265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	298	0	0	265
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	160	28	0	167
Future Volume (Veh/h)	77	0	160	28	0	167
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	254	44	0	265
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	541	276			298	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541	276			298	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	406	763			1263	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	298	265
Volume Left	122	0	0
Volume Right	0	44	0
cSH	406	1700	1263
Volume to Capacity	0.30	0.18	0.00
Queue Length 95th (m)	10.0	0.0	0.0
Control Delay (s)	17.6	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.6	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	25.9%	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)	0	0	4	157	0	0	9	6	147	0	6	0
Future Volume (vph)	0	0	4	157	0	0	9	6	147	0	6	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt		0.865						0.878				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1047	0	0	1388	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1047	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	14	10	233	0	10	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	257	0	0	10	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	9	6	147	0	6	0
Future Volume (Veh/h)	0	0	4	157	0	0	9	6	147	0	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	14	10	233	0	10	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	164	281	10	170	164	126	10			243		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	164	281	10	170	164	126	10			243		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	795	622	910	782	721	924	1529			1323		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	257	10
Volume Left	0	249	14	0
Volume Right	6	0	233	0
cSH	910	782	1529	1323
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	11.0	0.2	0.0
Control Delay (s)	9.0	11.7	0.5	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.7	0.5	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	339	308	396	930	540	616
Future Volume (vph)	339	308	396	930	540	616
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		376				393
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	413	376	483	1134	659	751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	413	376	483	1134	659	751
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.79	0.60	3.99	1.58	1.47	1.19
Control Delay	34.3	6.9	1379.1	287.8	248.9	117.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	6.9	1379.1	287.8	248.9	117.4
LOS	C	A	F	F	F	F
Approach Delay	21.3			613.7	178.8	
Approach LOS	C			F	F	
Queue Length 50th (m)	49.9	0.0	~122.0	~223.9	~125.8	~87.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#75.5	12.1	#158.8	#259.7	#163.7	#127.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	522	622	121	719	447	629
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.60	3.99	1.58	1.47	1.19

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 130
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 3.99
Intersection Signal Delay: 330.5 Intersection LOS: F
Intersection Capacity Utilization 105.7% 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: 5: QEW Toronto Bound Ramps & North Service Road

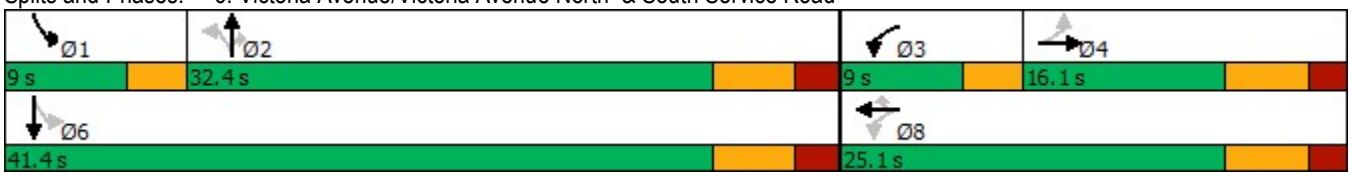
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	47	10	152	11	328	19	353	236	1042	343	36
Future Volume (vph)	18	47	10	152	11	328	19	353	236	1042	343	36
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.973				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1335	1267	0	1191	1454	1104	1335	1566	1044	1311	1200	0
Flt Permitted	0.750			0.519			0.521			0.404		
Satd. Flow (perm)	1054	1267	0	650	1454	1104	732	1566	1044	557	1200	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				357			257		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	20	51	11	165	12	357	21	384	257	1133	373	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	62	0	165	12	357	21	384	257	1133	412	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.12	0.29		0.65	0.03	0.67	0.07	0.59	0.44	2.74	0.61	
Control Delay	26.5	25.6		32.4	17.5	9.4	13.6	19.9	4.9	805.2	14.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.5	25.6		32.4	17.5	9.4	13.6	19.9	4.9	805.2	14.9	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		25.8			16.7			13.9			594.5	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.3	6.0		16.4	1.1	0.0	1.7	39.0	0.0	~260.8	34.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	8.0	16.3		#36.4	4.7	20.9	5.8	66.6	13.3	#331.1	64.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	168	211		253	441	583	304	650	583	413	676	
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	0.12	0.29		0.65	0.03	0.61	0.07	0.59	0.44	2.74	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.74
Intersection Signal Delay: 332.5 Intersection LOS: F
Intersection Capacity Utilization 125.7% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1243	73	25	10	5	473
Future Volume (vph)	1243	73	25	10	5	473
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1288	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1288	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1413	83	28	11	6	538
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1413	83	39	0	6	538
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 103.7%	ICU Level of Service G
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1243	73	25	10	5	473
Future Volume (Veh/h)	1243	73	25	10	5	473
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1412	83	28	11	6	538
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	39				2940	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				2940	34
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	8				0	47
cM capacity (veh/h)	1527				1	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1412	83	39	6	538
Volume Left	1412	0	0	6	0
Volume Right	0	0	11	0	538
cSH	1527	1700	1700	1	1006
Volume to Capacity	0.92	0.05	0.02	5.90	0.53
Queue Length 95th (m)	135.4	0.0	0.0	Err	26.1
Control Delay (s)	26.0	0.0	0.0	Err	12.6
Lane LOS	D			F	B
Approach Delay (s)	24.6		0.0	122.8	
Approach LOS				F	

Intersection Summary			
Average Delay	49.8		
Intersection Capacity Utilization	103.7%	ICU Level of Service	G
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Future Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt					0.850				0.850			
Flt Protected				0.950							0.966	
Satd. Flow (prot)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Flt Permitted				0.950							0.966	
Satd. Flow (perm)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	279	0	89	0	263	1070	157	65	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	279	89	0	0	263	1070	0	222	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 106.6% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Future Volume (vph)	0	0	0	257	0	82	0	242	984	144	60	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	279	0	89	0	263	1070	157	65	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	279	89	0	263	1070	222
Volume Left (vph)	0	0	279	0	0	0	0	157
Volume Right (vph)	0	0	0	89	0	0	1070	0
Hadj (s)	0.00	0.00	0.50	-0.70	0.00	0.00	-0.70	0.14
Departure Headway (s)	6.7	6.7	6.5	5.3	6.0	6.0	3.2	6.2
Degree Utilization, x	0.00	0.00	0.50	0.13	0.00	0.44	0.95	0.38
Capacity (veh/h)	484	484	531	645	581	575	1122	554
Control Delay (s)	8.5	8.5	14.6	7.8	7.8	12.4	32.6	13.0
Approach Delay (s)	0.0		13.0		28.6			13.0
Approach LOS	A		B		D			B

Intersection Summary			
Delay	23.8		
Level of Service	C		
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	324	0	0	203
Future Volume (vph)	0	0	324	0	0	203
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	372	0	0	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	372	0	0	233
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 26.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	324	0	0	203
Future Volume (Veh/h)	0	0	324	0	0	203
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	372	0	0	233
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	605	372			372	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	605	372			372	
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	100			100	
cM capacity (veh/h)	464	678			1198	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	372	233
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1198
Volume to Capacity	0.00	0.22	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	231	93	0	179
Future Volume (vph)	24	0	231	93	0	179
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1334	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1334	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	0	355	143	0	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	498	0	0	275
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.4%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	231	93	0	179
Future Volume (Veh/h)	24	0	231	93	0	179
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	37	0	355	143	0	275
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	702	426			498	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702	426			498	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	408	632			1076	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	498	275
Volume Left	37	0	0
Volume Right	0	143	0
cSH	408	1700	1076
Volume to Capacity	0.09	0.29	0.00
Queue Length 95th (m)	2.4	0.0	0.0
Control Delay (s)	14.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.7	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	34.4%	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)	0	0	0	179	0	0	0	0	231	0	0	0
Future Volume (vph)	0	0	0	179	0	0	0	0	231	0	0	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt								0.865				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	239	0	0	0	0	308	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	239	0	0	308	0	0	0	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	179	0	0	0	0	231	0	0	0
Future Volume (Veh/h)	0	0	0	179	0	0	0	0	231	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	239	0	0	0	0	308	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	154	308	0	154	154	154	0			308		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	308	0	154	154	154	0			308		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	71	100	100	100			100		
cM capacity (veh/h)	817	609	1091	817	741	897	1636			1264		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	239	308	0
Volume Left	0	239	0	0
Volume Right	0	0	308	0
cSH	1700	817	1636	1700
Volume to Capacity	0.00	0.29	0.00	0.00
Queue Length 95th (m)	0.0	9.8	0.0	0.0
Control Delay (s)	0.0	11.2	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.2	0.0	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1246	470	1274	489	398	692
Future Volume (vph)	1246	470	1274	489	398	692
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1508	1083	1287	1508	1242	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1508	1083	1287	1508	1242	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		325				219
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1354	511	1385	532	433	752
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1354	511	1385	532	433	752
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.70	0.89	12.48	0.76	1.00	1.49
Control Delay	786.6	28.4	5187.1	24.4	70.3	249.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	786.6	28.4	5187.1	24.4	70.3	249.5
LOS	F	C	F	C	E	F
Approach Delay	578.8			3754.3	184.0	
Approach LOS	F			F	F	
Queue Length 50th (m)	~318.8	23.2	~384.3	56.7	~57.9	~124.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#393.4	#87.3	#459.1	#108.5	#114.5	#189.5
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	502	577	111	699	432	505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.70	0.89	12.48	0.76	1.00	1.49

Intersection Summary	
Area Type: Other	
Cycle Length: 69	
Actuated Cycle Length: 69	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 12.48	
Intersection Signal Delay: 1710.2	Intersection LOS: F
Intersection Capacity Utilization 207.7%	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: 5: QEW Toronto Bound Ramps & North Service Road

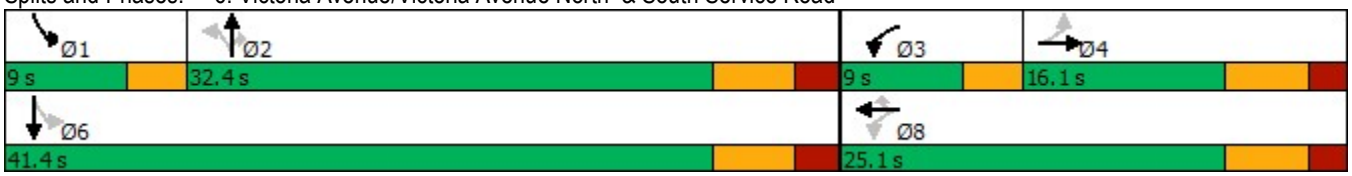
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1226	0	0	0	260	58	0
Future Volume (vph)	0	0	0	0	0	1226	0	0	0	260	58	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1475	1322	0	1355	1454	1083	1406	1508	1239	1335	1250	0
Flt Permitted										0.679		
Satd. Flow (perm)	1475	1322	0	1355	1454	1083	1406	1508	1239	954	1250	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1083						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	0	0	0	0	0	1333	0	0	0	283	63	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1333	0	0	0	283	63	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						0.0				38.4	35.0	
Actuated g/C Ratio						0.00				0.58	0.53	
v/c Ratio						1.23				0.48	0.10	
Control Delay						121.9				11.0	8.4	
Queue Delay						0.0				0.0	0.0	
Total Delay						121.9				11.0	8.4	
LOS						F				B	A	
Approach Delay					121.9						10.6	
Approach LOS					F						B	
Queue Length 50th (m)						~69.5				17.7	3.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)						#143.2				32.1	9.1	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1083				585	657	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.23				0.48	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 99.0 Intersection LOS: F
Intersection Capacity Utilization 111.8% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	757	31	15	19	38	1618
Future Volume (vph)	757	31	15	19	38	1618
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.925			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	1551	1240	0	1429	1104
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1374	1551	1240	0	1429	1104
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	814	33	16	20	41	1740
Shared Lane Traffic (%)						
Lane Group Flow (vph)	814	33	36	0	41	1740
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 150.9%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	757	31	15	19	38	1618
Future Volume (Veh/h)	757	31	15	19	38	1618
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	814	33	16	20	41	1740
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	36				1687	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	36				1687	26
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	48				18	0
cM capacity (veh/h)	1562				50	1044

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	814	33	36	41	1740
Volume Left	814	0	0	41	0
Volume Right	0	0	20	0	1740
cSH	1562	1700	1700	50	1044
Volume to Capacity	0.52	0.02	0.02	0.82	1.67
Queue Length 95th (m)	25.3	0.0	0.0	27.2	751.5
Control Delay (s)	9.8	0.0	0.0	204.9	316.8
Lane LOS	A			F	F
Approach Delay (s)	9.4		0.0	314.2	
Approach LOS				F	

Intersection Summary			
Average Delay	213.1		
Intersection Capacity Utilization	150.9%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	WB	NB	NB	SB
Directions Served	L	TR	T	R	LTR
Maximum Queue (m)	17.7	11.8	324.0	242.2	18.9
Average Queue (m)	9.9	5.2	187.1	177.0	9.3
95th Queue (m)	16.3	12.2	428.6	323.4	15.2
Link Distance (m)		163.8	373.7		131.4
Upstream Blk Time (%)			4		
Queuing Penalty (veh)			49		
Storage Bay Dist (m)	160.0			240.0	
Storage Blk Time (%)			23	20	
Queuing Penalty (veh)			222	49	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	11.0
Average Queue (m)	4.7
95th Queue (m)	10.6
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	WB
Directions Served	LTR
Maximum Queue (m)	18.4
Average Queue (m)	11.4
95th Queue (m)	17.7
Link Distance (m)	57.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	155.6	197.7	159.5	197.0	57.4	141.8
Average Queue (m)	140.4	190.8	157.1	189.4	57.0	134.8
95th Queue (m)	150.6	230.6	173.1	195.8	59.0	141.1
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)	0	69		96		52
Queuing Penalty (veh)	0	391		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			85	26	11	40
Queuing Penalty (veh)			418	335	73	158

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	246.6	52.5	40.4	14.3
Average Queue (m)	234.1	52.5	15.0	2.3
95th Queue (m)	259.5	52.7	30.8	8.7
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	64			
Queuing Penalty (veh)	1041			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)	3	86		
Queuing Penalty (veh)	36	0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (m)	29.8	14.2	5.9	144.7	149.3
Average Queue (m)	7.3	0.9	0.3	136.7	139.5
95th Queue (m)	21.6	14.3	3.0	142.3	146.7
Link Distance (m)		216.0	221.2	130.7	130.7
Upstream Blk Time (%)				89	89
Queuing Penalty (veh)				0	0
Storage Bay Dist (m)	109.0				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 2773

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Future Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.925				0.850		0.996	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1504	1576	0	1597	1698	0	1656	1845	1553	0	1742	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1504	1576	0	1597	1698	0	1656	1845	1553	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	9	26	62	1482	196	198	37	133	718	83	252	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	88	0	1482	394	0	37	133	718	0	344	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 102.4% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Future Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	9	26	62	1482	196	198	37	133	718	83	252	9

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	9	88	1482	394	37	133	718	344
Volume Left (vph)	9	0	1482	0	37	0	0	83
Volume Right (vph)	0	62	0	198	0	0	718	9
Hadj (s)	0.84	-0.36	0.72	-0.29	0.65	0.05	-0.63	0.16
Departure Headway (s)	8.6	7.4	7.3	6.3	8.3	7.7	3.2	7.2
Degree Utilization, x	0.02	0.18	3.01	0.69	0.09	0.29	0.64	0.68
Capacity (veh/h)	396	459	505	562	418	450	1119	492
Control Delay (s)	10.6	10.8	922.4	20.7	10.9	12.6	10.5	24.2
Approach Delay (s)	10.8		733.0		10.8			24.2
Approach LOS	B		F		B			C

Intersection Summary			
Delay	435.0		
Level of Service	F		
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	209	15	10	239
Future Volume (vph)	35	0	209	15	10	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1736	0	1804	0	0	1694
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1736	0	1804	0	0	1694
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	45	0	271	19	13	310
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	290	0	0	323
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	209	15	10	239
Future Volume (Veh/h)	35	0	209	15	10	239
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	0	271	19	13	310
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	616	280			290	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	616	280			290	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	90	100			99	
cM capacity (veh/h)	445	758			1010	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	45	290	323
Volume Left	45	0	13
Volume Right	0	19	0
cSH	445	1700	1010
Volume to Capacity	0.10	0.17	0.01
Queue Length 95th (m)	2.7	0.0	0.3
Control Delay (s)	14.0	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	14.0	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	162	28	0	168
Future Volume (vph)	77	0	162	28	0	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	1081	0	1574	0	0	1681
Flt Permitted	0.950					
Satd. Flow (perm)	1081	0	1574	0	0	1681
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	257	44	0	267
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	301	0	0	267
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	162	28	0	168
Future Volume (Veh/h)	77	0	162	28	0	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	257	44	0	267
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	546	279			301	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	546	279			301	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	403	760			1260	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	301	267
Volume Left	122	0	0
Volume Right	0	44	0
cSH	403	1700	1260
Volume to Capacity	0.30	0.18	0.00
Queue Length 95th (m)	10.0	0.0	0.0
Control Delay (s)	17.7	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.7	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	21.2%	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)	0	0	4	157	0	0	10	7	147	0	7	0
Future Volume (vph)	0	0	4	157	0	0	10	7	147	0	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.879				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1621	0	0	1900	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1621	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	16	11	233	0	11	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	260	0	0	11	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 38.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	10	7	147	0	7	0
Future Volume (Veh/h)	0	0	4	157	0	0	10	7	147	0	7	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	16	11	233	0	11	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	170	287	11	176	170	128	11			244		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	170	287	11	176	170	128	11			244		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	787	616	909	774	715	923	1527			1322		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	260	11
Volume Left	0	249	16	0
Volume Right	6	0	233	0
cSH	909	774	1527	1322
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	11.1	0.3	0.0
Control Delay (s)	9.0	11.8	0.5	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.8	0.5	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	352	336	402	945	585	621
Future Volume (vph)	352	336	402	945	585	621
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1827	1568	1770	1810	1626	1509
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	1568	1770	1810	1626	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		410				386
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	429	410	490	1152	713	757
Shared Lane Traffic (%)						
Lane Group Flow (vph)	429	410	490	1152	713	757
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.70	0.52	3.20	1.37	1.26	0.98
Control Delay	27.6	4.7	1023.9	197.1	156.2	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	4.7	1023.9	197.1	156.2	40.6
LOS	C	A	F	F	F	D
Approach Delay	16.4			443.9	96.7	
Approach LOS	B			F	F	
Queue Length 50th (m)	49.9	0.0	~119.4	~211.7	~124.4	54.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	70.7	12.0	#156.1	#247.3	#162.5	#107.1
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	609	796	153	839	565	776
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.52	3.20	1.37	1.26	0.98

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 130
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 3.20
Intersection Signal Delay: 223.9 Intersection LOS: F
Intersection Capacity Utilization 93.0% 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: 5: QEW Toronto Bound Ramps & North Service Road

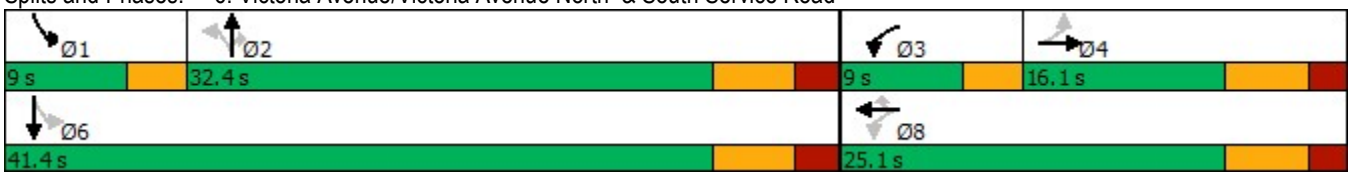
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	11	167	12	334	21	390	261	1052	377	39
Future Volume (vph)	20	52	11	167	12	334	21	390	261	1052	377	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1736	0	1504	1696	1553	1687	1827	1468	1656	1643	0
Flt Permitted	0.749			0.516			0.502			0.365		
Satd. Flow (perm)	1330	1736	0	817	1696	1553	891	1827	1468	636	1643	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				363			284		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	22	57	12	182	13	363	23	424	284	1143	410	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	69	0	182	13	363	23	424	284	1143	452	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.10	0.24		0.57	0.03	0.56	0.06	0.56	0.37	2.34	0.49	
Control Delay	25.8	23.7		25.6	17.4	6.2	13.3	18.5	3.6	627.0	11.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.8	23.7		25.6	17.4	6.2	13.3	18.5	3.6	627.0	11.3	
LOS	C	C		C	B	A	B	B	A	F	B	
Approach Delay		24.2			12.8			12.5			452.5	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.5	6.6		17.7	1.2	0.0	1.8	42.4	0.0	~253.9	34.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	8.4	17.2		33.5	4.9	17.9	6.1	69.6	13.3	#324.5	57.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	212	287		320	514	724	370	759	775	488	924	
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	0.10	0.24		0.57	0.03	0.50	0.06	0.56	0.37	2.34	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.34
Intersection Signal Delay: 248.8 Intersection LOS: F
Intersection Capacity Utilization 108.5% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1278	76	28	11	6	495
Future Volume (vph)	1278	76	28	11	6	495
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	1900	1760	0	1444	1417
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	1900	1760	0	1444	1417
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1452	86	32	13	7	563
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1452	86	45	0	7	563
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 87.5%	ICU Level of Service E
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1278	76	28	11	6	495
Future Volume (Veh/h)	1278	76	28	11	6	495
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1452	86	32	12	7	562
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	44				3028	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				3028	38
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	5				0	44
cM capacity (veh/h)	1520				1	1001

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1452	86	44	7	562
Volume Left	1452	0	0	7	0
Volume Right	0	0	12	0	562
cSH	1520	1700	1700	1	1001
Volume to Capacity	0.95	0.05	0.03	13.19	0.56
Queue Length 95th (m)	155.6	0.0	0.0	Err	28.9
Control Delay (s)	30.7	0.0	0.0	Err	13.1
Lane LOS	D			F	B
Approach Delay (s)	29.0		0.0	136.0	
Approach LOS				F	

Intersection Summary			
Average Delay	56.7		
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Future Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.925				0.850		0.996	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1191	1152	0	2102	1241	0	1311	1582	1104	0	1360	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1191	1152	0	2102	1241	0	1311	1582	1104	0	1360	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	9	26	62	1482	196	198	37	133	718	83	252	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	88	0	1482	394	0	37	133	718	0	344	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 90.5% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Future Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	9	26	62	1482	196	198	37	133	718	83	252	9

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	9	88	1482	394	37	133	718	344
Volume Left (vph)	9	0	1482	0	37	0	0	83
Volume Right (vph)	0	62	0	198	0	0	718	9
Hadj (s)	0.84	-0.36	0.72	-0.29	0.65	0.05	-0.63	0.16
Departure Headway (s)	8.6	7.4	7.3	6.3	8.3	7.7	3.2	7.2
Degree Utilization, x	0.02	0.18	3.01	0.69	0.09	0.29	0.64	0.68
Capacity (veh/h)	396	459	505	562	418	450	1119	492
Control Delay (s)	10.6	10.8	922.4	20.7	10.9	12.6	10.5	24.2
Approach Delay (s)	10.8		733.0		10.8			24.2
Approach LOS	B		F		B			C

Intersection Summary			
Delay	435.0		
Level of Service	F		
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	209	15	10	239
Future Volume (vph)	35	0	209	15	10	239
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1374	0	1318	0	0	1095
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1374	0	1318	0	0	1095
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	45	0	271	19	13	310
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	290	0	0	323
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	209	15	10	239
Future Volume (Veh/h)	35	0	209	15	10	239
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	0	271	19	13	310
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	616	280			290	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	616	280			290	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	90	100			99	
cM capacity (veh/h)	445	758			1010	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	45	290	323
Volume Left	45	0	13
Volume Right	0	19	0
cSH	445	1700	1010
Volume to Capacity	0.10	0.17	0.01
Queue Length 95th (m)	2.7	0.0	0.3
Control Delay (s)	14.0	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	14.0	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	162	28	0	168
Future Volume (vph)	77	0	162	28	0	168
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	856	0	1150	0	0	1087
Flt Permitted	0.950					
Satd. Flow (perm)	856	0	1150	0	0	1087
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	257	44	0	267
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	301	0	0	267
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	162	28	0	168
Future Volume (Veh/h)	77	0	162	28	0	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	257	44	0	267
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	546	279			301	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	546	279			301	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	403	760			1260	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	301	267
Volume Left	122	0	0
Volume Right	0	44	0
cSH	403	1700	1260
Volume to Capacity	0.30	0.18	0.00
Queue Length 95th (m)	10.0	0.0	0.0
Control Delay (s)	17.7	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.7	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	26.1%	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)	0	0	4	157	0	0	10	7	147	0	7	0
Future Volume (vph)	0	0	4	157	0	0	10	7	147	0	7	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt		0.865						0.879				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1048	0	0	1388	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1048	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	16	11	233	0	11	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	260	0	0	11	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	10	7	147	0	7	0
Future Volume (Veh/h)	0	0	4	157	0	0	10	7	147	0	7	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	16	11	233	0	11	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	170	287	11	176	170	128	11			244		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	170	287	11	176	170	128	11			244		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	787	616	909	774	715	923	1527			1322		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	260	11
Volume Left	0	249	16	0
Volume Right	6	0	233	0
cSH	909	774	1527	1322
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	11.1	0.3	0.0
Control Delay (s)	9.0	11.8	0.5	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.8	0.5	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay		6.0		
Intersection Capacity Utilization		44.2%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	352	336	402	945	585	621
Future Volume (vph)	352	336	402	945	585	621
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1566	1115	1401	1551	1287	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1566	1115	1401	1551	1287	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		410				383
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	429	410	490	1152	713	757
Shared Lane Traffic (%)						
Lane Group Flow (vph)	429	410	490	1152	713	757
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	0.82	0.64	4.05	1.60	1.60	1.22
Control Delay	36.8	7.3	1404.9	298.8	301.0	126.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	7.3	1404.9	298.8	301.0	126.5
LOS	D	A	F	F	F	F
Approach Delay	22.4			628.9	211.2	
Approach LOS	C			F	F	
Queue Length 50th (m)	52.6	0.0	~124.1	~229.1	~141.4	~91.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#84.7	12.4	#160.8	#264.6	#179.6	#131.0
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	522	645	121	719	447	623
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.64	4.05	1.60	1.60	1.22

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 130
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 4.05
Intersection Signal Delay: 344.7 Intersection LOS: F
Intersection Capacity Utilization 109.8% 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: 5: QEW Toronto Bound Ramps & North Service Road

6: Victoria Avenue/Victoria Avenue North & South Service Road

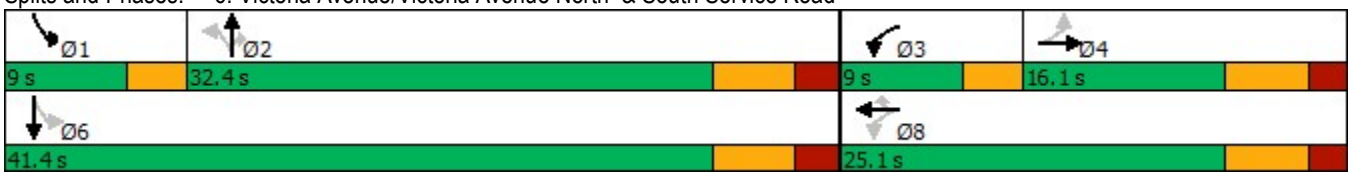
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	11	167	12	334	21	390	261	1052	377	39
Future Volume (vph)	20	52	11	167	12	334	21	390	261	1052	377	39
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1335	1268	0	1191	1454	1104	1335	1566	1044	1311	1200	0
Flt Permitted	0.749			0.467			0.502			0.361		
Satd. Flow (perm)	1053	1268	0	585	1454	1104	706	1566	1044	498	1200	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				363			284		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	22	57	12	182	13	363	23	424	284	1143	410	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	69	0	182	13	363	23	424	284	1143	452	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.1	10.1		18.3	15.2	15.2	26.1	26.1	26.1	38.6	35.2	
Actuated g/C Ratio	0.16	0.16		0.29	0.24	0.24	0.41	0.41	0.41	0.61	0.56	
v/c Ratio	0.13	0.33		0.71	0.04	0.67	0.08	0.65	0.47	2.98	0.67	
Control Delay	26.6	26.3		37.1	17.6	9.5	13.7	21.7	5.1	915.0	17.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.6	26.3		37.1	17.6	9.5	13.7	21.7	5.1	915.0	17.0	
LOS	C	C		D	B	A	B	C	A	F	B	
Approach Delay		26.4			18.7			15.0			660.5	
Approach LOS		C			B			B			F	
Queue Length 50th (m)	2.5	6.7		18.3	1.2	0.0	1.8	44.6	0.0	~267.6	39.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	8.5	17.8		#46.7	4.9	21.4	6.2	75.9	14.0	#338.2	#75.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	168	212		258	441	587	293	650	599	383	676	
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	0.13	0.33		0.71	0.03	0.62	0.08	0.65	0.47	2.98	0.67	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 62.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.98
Intersection Signal Delay: 362.1 Intersection LOS: F
Intersection Capacity Utilization 129.7% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1278	76	28	11	6	495
Future Volume (vph)	1278	76	28	11	6	495
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	1629	1286	0	1143	1007
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1311	1629	1286	0	1143	1007
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1452	86	32	13	7	563
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1452	86	45	0	7	563
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 106.1%		ICU Level of Service G	
Analysis Period (min) 15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1278	76	28	11	6	495
Future Volume (Veh/h)	1278	76	28	11	6	495
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1452	86	32	12	7	562
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	44				3028	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				3028	38
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	5				0	44
cM capacity (veh/h)	1520				1	1001

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	1452	86	44	7	562
Volume Left	1452	0	0	7	0
Volume Right	0	0	12	0	562
cSH	1520	1700	1700	1	1001
Volume to Capacity	0.95	0.05	0.03	13.19	0.56
Queue Length 95th (m)	155.6	0.0	0.0	Err	28.9
Control Delay (s)	30.7	0.0	0.0	Err	13.1
Lane LOS	D			F	B
Approach Delay (s)	29.0		0.0	136.0	
Approach LOS				F	

Intersection Summary			
Average Delay	56.7		
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Future Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.921				0.850		0.996	
Flt Protected	0.950			0.950			0.950				0.973	
Satd. Flow (prot)	1805	1656	0	1736	1630	0	1583	1776	1553	0	1752	0
Flt Permitted	0.950			0.950			0.950				0.973	
Satd. Flow (perm)	1805	1656	0	1736	1630	0	1583	1776	1553	0	1752	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	93	222	782	100	112	33	266	1422	149	113	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	315	0	782	212	0	33	266	1422	0	269	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 121.5% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Future Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	93	222	782	100	112	33	266	1422	149	113	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	315	782	212	33	266	1422	269
Volume Left (vph)	4	0	782	0	33	0	0	149
Volume Right (vph)	0	222	0	112	0	0	1422	7
Hadj (s)	0.50	-0.45	0.57	-0.24	0.74	0.12	-0.63	0.18
Departure Headway (s)	8.7	7.7	8.3	7.5	9.0	8.4	3.2	8.4
Degree Utilization, x	0.01	0.68	1.80	0.44	0.08	0.62	1.26	0.63
Capacity (veh/h)	397	448	437	476	383	409	1130	410
Control Delay (s)	10.6	24.2	388.5	15.0	11.6	23.1	137.5	24.7
Approach Delay (s)	24.0		308.8		117.4			24.7
Approach LOS	C		F		F			C

Intersection Summary			
Delay	158.5		
Level of Service	F		
Intersection Capacity Utilization	121.5%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	2	329	28	7	210
Future Volume (vph)	21	2	329	28	7	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990		0.989			
Flt Protected	0.956					0.998
Satd. Flow (prot)	1689	0	1735	0	0	1826
Flt Permitted	0.956					0.998
Satd. Flow (perm)	1689	0	1735	0	0	1826
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	24	2	378	32	8	241
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	410	0	0	249
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	2	329	28	7	210
Future Volume (Veh/h)	21	2	329	28	7	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	2	378	32	8	241
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	651	394			410	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	651	394			410	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			99	
cM capacity (veh/h)	422	659			1160	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	410	249
Volume Left	24	0	8
Volume Right	2	32	0
cSH	434	1700	1160
Volume to Capacity	0.06	0.24	0.01
Queue Length 95th (m)	1.5	0.0	0.2
Control Delay (s)	13.8	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.8	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	0	215	107	0	161
Future Volume (vph)	36	0	215	107	0	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.955			
Flt Protected	0.950					
Satd. Flow (prot)	1570	0	1756	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1570	0	1756	0	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	55	0	331	165	0	248
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	496	0	0	248
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 27.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	0	215	107	0	161
Future Volume (Veh/h)	36	0	215	107	0	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	55	0	331	165	0	248
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	662	414			496	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	662	414			496	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	407	639			1068	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	55	496	248
Volume Left	55	0	0
Volume Right	0	165	0
cSH	407	1700	1068
Volume to Capacity	0.13	0.29	0.00
Queue Length 95th (m)	3.7	0.0	0.0
Control Delay (s)	15.2	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.2	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	27.8%	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)	0	0	8	149	0	0	2	8	205	0	11	0
Future Volume (vph)	0	0	8	149	0	0	2	8	205	0	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Frt		0.865						0.872				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	1644	0	0	1770	0	0	1624	0	0	1900	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	1644	0	0	1770	0	0	1624	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	0%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	11	199	0	0	3	11	273	0	15	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	199	0	0	287	0	0	15	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 36.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	149	0	0	2	8	205	0	11	0
Future Volume (Veh/h)	0	0	8	149	0	0	2	8	205	0	11	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	11	199	0	0	3	11	273	0	15	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	168	305	15	180	168	148	15			284		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	168	305	15	180	168	148	15			284		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	74	100	100	100			100		
cM capacity (veh/h)	794	607	1070	773	723	899	1616			1278		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	199	287	15
Volume Left	0	199	3	0
Volume Right	11	0	273	0
cSH	1070	773	1616	1278
Volume to Capacity	0.01	0.26	0.00	0.00
Queue Length 95th (m)	0.2	8.2	0.0	0.0
Control Delay (s)	8.4	11.3	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.4	11.3	0.1	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1139	403	1248	446	423	637
Future Volume (vph)	1139	403	1248	446	423	637
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	1524	1626	1759	1570	1468
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1759	1524	1626	1759	1570	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		305				231
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1238	438	1357	485	460	692
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1238	438	1357	485	460	692
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.11	0.62	9.62	0.60	0.84	1.05
Control Delay	526.6	10.3	3901.0	17.5	37.5	66.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	526.6	10.3	3901.0	17.5	37.5	66.3
LOS	F	B	F	B	D	E
Approach Delay	391.6			2878.4	54.8	
Approach LOS	F			F	D	
Queue Length 50th (m)	~273.2	13.0	~371.9	46.1	56.5	~81.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#346.0	39.9	#446.8	74.9	#107.2	#145.1
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	586	711	141	815	546	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.11	0.62	9.62	0.60	0.84	1.05

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 9.62
Intersection Signal Delay: 1289.4 Intersection LOS: F
Intersection Capacity Utilization 166.7% 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: 5: QEW Toronto Bound Ramps & North Service Road

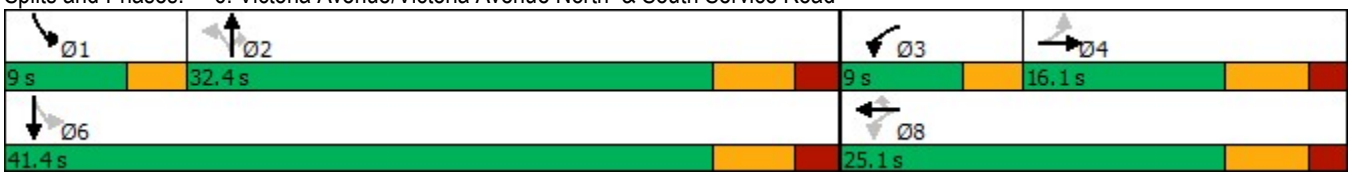
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	376	76	284	12	1321	21	307	412	423	443	34
Future Volume (vph)	70	376	76	284	12	1321	21	307	412	423	443	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1767	0	1626	1696	1524	1687	1759	1482	1687	1676	0
Flt Permitted	0.749			0.308			0.472			0.447		
Satd. Flow (perm)	1395	1767	0	527	1696	1524	838	1759	1482	794	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				498			355		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	76	409	83	309	13	1436	23	334	448	460	482	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	492	0	309	13	1436	23	334	448	460	519	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.36	1.78		1.13	0.03	1.82	0.07	0.49	0.56	0.85	0.59	
Control Delay	31.0	389.7		117.8	17.4	389.4	13.5	18.2	6.8	28.4	14.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.0	389.7		117.8	17.4	389.4	13.5	18.2	6.8	28.4	14.0	
LOS	C	F		F	B	F	B	B	A	C	B	
Approach Delay		341.7			339.0			11.7			20.7	
Approach LOS		F			F			B			C	
Queue Length 50th (m)	9.0	~98.6		~38.1	1.2	~242.3	1.8	31.6	7.6	31.1	41.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	20.9	#153.6		#92.6	4.9	#319.8	6.1	53.5	29.3	#72.4	69.8	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	209	276		274	484	791	327	687	795	539	886	
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	0.36	1.78		1.13	0.03	1.82	0.07	0.49	0.56	0.85	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.82
Intersection Signal Delay: 199.4 Intersection LOS: F
Intersection Capacity Utilization 122.3% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	925	30	35	33	29	1657
Future Volume (vph)	925	30	35	33	29	1657
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1810	1705	0	1805	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1736	1810	1705	0	1805	1553
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	995	32	38	35	31	1782
Shared Lane Traffic (%)						
Lane Group Flow (vph)	995	32	73	0	31	1782
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 113.1%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	925	30	35	33	29	1657
Future Volume (Veh/h)	925	30	35	33	29	1657
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	995	32	38	35	31	1782
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	73				2078	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73				2078	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	34				0	0
cM capacity (veh/h)	1514				20	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	995	32	73	31	1782
Volume Left	995	0	0	31	0
Volume Right	0	0	35	0	1782
cSH	1514	1700	1700	20	1006
Volume to Capacity	0.66	0.02	0.04	1.52	1.77
Queue Length 95th (m)	42.5	0.0	0.0	33.1	828.1
Control Delay (s)	11.8	0.0	0.0	663.0	364.1
Lane LOS	B			F	F
Approach Delay (s)	11.4		0.0	369.2	
Approach LOS				F	

Intersection Summary			
Average Delay	233.8		
Intersection Capacity Utilization	113.1%	ICU Level of Service	H
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Future Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.894			0.921				0.850		0.996	
Flt Protected	0.950			0.950			0.950				0.973	
Satd. Flow (prot)	1429	1210	0	2284	1191	0	1253	1522	1104	0	1368	0
Flt Permitted	0.950			0.950			0.950				0.973	
Satd. Flow (perm)	1429	1210	0	2284	1191	0	1253	1522	1104	0	1368	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	93	222	782	100	112	33	266	1422	149	113	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	315	0	782	212	0	33	266	1422	0	269	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 164.5% ICU Level of Service H
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Future Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	93	222	782	100	112	33	266	1422	149	113	7

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	4	315	782	212	33	266	1422	269
Volume Left (vph)	4	0	782	0	33	0	0	149
Volume Right (vph)	0	222	0	112	0	0	1422	7
Hadj (s)	0.50	-0.45	0.57	-0.24	0.74	0.12	-0.63	0.18
Departure Headway (s)	8.7	7.7	8.3	7.5	9.0	8.4	3.2	8.4
Degree Utilization, x	0.01	0.68	1.80	0.44	0.08	0.62	1.26	0.63
Capacity (veh/h)	397	448	437	476	383	409	1130	410
Control Delay (s)	10.6	24.2	388.5	15.0	11.6	23.1	137.5	24.7
Approach Delay (s)	24.0		308.8		117.4			24.7
Approach LOS	C		F		F			C

Intersection Summary			
Delay	158.5		
Level of Service	F		
Intersection Capacity Utilization	164.5%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	2	329	28	7	210
Future Volume (vph)	21	2	329	28	7	210
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990		0.989			
Flt Protected	0.956					0.998
Satd. Flow (prot)	1337	0	1268	0	0	1180
Flt Permitted	0.956					0.998
Satd. Flow (perm)	1337	0	1268	0	0	1180
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	24	2	378	32	8	241
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	410	0	0	249
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	2	329	28	7	210
Future Volume (Veh/h)	21	2	329	28	7	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	2	378	32	8	241
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	651	394			410	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	651	394			410	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			99	
cM capacity (veh/h)	422	659			1160	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	410	249
Volume Left	24	0	8
Volume Right	2	32	0
cSH	434	1700	1160
Volume to Capacity	0.06	0.24	0.01
Queue Length 95th (m)	1.5	0.0	0.2
Control Delay (s)	13.8	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.8	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	0	215	107	0	161
Future Volume (vph)	36	0	215	107	0	161
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.955			
Flt Protected	0.950					
Satd. Flow (prot)	1242	0	1283	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1242	0	1283	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	55	0	331	165	0	248
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	496	0	0	248
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	0	215	107	0	161
Future Volume (Veh/h)	36	0	215	107	0	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	55	0	331	165	0	248
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	662	414			496	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	662	414			496	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	407	639			1068	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	55	496	248
Volume Left	55	0	0
Volume Right	0	165	0
cSH	407	1700	1068
Volume to Capacity	0.13	0.29	0.00
Queue Length 95th (m)	3.7	0.0	0.0
Control Delay (s)	15.2	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.2	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	34.4%	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)	0	0	8	149	0	0	2	8	205	0	11	0
Future Volume (vph)	0	0	8	149	0	0	2	8	205	0	11	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt		0.865						0.872				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	1644	0	0	1770	0	0	1050	0	0	1388	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	1644	0	0	1770	0	0	1050	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	0%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	11	199	0	0	3	11	273	0	15	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	199	0	0	287	0	0	15	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	149	0	0	2	8	205	0	11	0
Future Volume (Veh/h)	0	0	8	149	0	0	2	8	205	0	11	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	11	199	0	0	3	11	273	0	15	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	168	305	15	180	168	148	15			284		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	168	305	15	180	168	148	15			284		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	74	100	100	100			100		
cM capacity (veh/h)	794	607	1070	773	723	899	1616			1278		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	199	287	15
Volume Left	0	199	3	0
Volume Right	11	0	273	0
cSH	1070	773	1616	1278
Volume to Capacity	0.01	0.26	0.00	0.00
Queue Length 95th (m)	0.2	8.2	0.0	0.0
Control Delay (s)	8.4	11.3	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.4	11.3	0.1	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1139	403	1248	446	423	637
Future Volume (vph)	1139	403	1248	446	423	637
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1508	1083	1287	1508	1242	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1508	1083	1287	1508	1242	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		305				221
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1238	438	1357	485	460	692
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1238	438	1357	485	460	692
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.47	0.78	12.23	0.69	1.06	1.36
Control Delay	684.0	18.2	5073.7	21.1	87.7	195.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	684.0	18.2	5073.7	21.1	87.7	195.5
LOS	F	B	F	C	F	F
Approach Delay	510.0			3743.3	152.4	
Approach LOS	F			F	F	
Queue Length 50th (m)	~285.3	13.5	~376.2	49.3	~70.6	~106.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#358.1	#66.4	#451.0	83.6	#123.7	#169.7
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	502	564	111	699	432	507
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.47	0.78	12.23	0.69	1.06	1.36

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 12.23
Intersection Signal Delay: 1697.1 Intersection LOS: F
Intersection Capacity Utilization 201.0% 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: 5: QEW Toronto Bound Ramps & North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	376	76	284	12	1321	21	307	412	423	443	34
Future Volume (vph)	70	376	76	284	12	1321	21	307	412	423	443	34
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1401	1291	0	1287	1454	1083	1335	1508	1054	1335	1224	0
Flt Permitted	0.749			0.308			0.472			0.447		
Satd. Flow (perm)	1104	1291	0	417	1454	1083	663	1508	1054	628	1224	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				496			345		9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	76	409	83	309	13	1436	23	334	448	460	482	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	492	0	309	13	1436	23	334	448	460	519	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		22.1	19.0	19.0	26.0	26.0	26.0	38.4	35.0	
Actuated g/C Ratio	0.15	0.15		0.33	0.29	0.29	0.39	0.39	0.39	0.58	0.53	
v/c Ratio	0.46	2.40		1.42	0.03	2.17	0.09	0.57	0.72	1.08	0.80	
Control Delay	35.7	663.9		238.7	17.5	545.8	14.0	20.5	12.4	84.2	24.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.7	663.9		238.7	17.5	545.8	14.0	20.5	12.4	84.2	24.8	
LOS	D	F		F	B	F	B	C	B	F	C	
Approach Delay		579.8			487.9			15.8			52.7	
Approach LOS		F			F			B			D	
Queue Length 50th (m)	9.2	~109.1		~50.2	1.2	~261.4	1.8	32.9	8.8	~40.5	49.9	

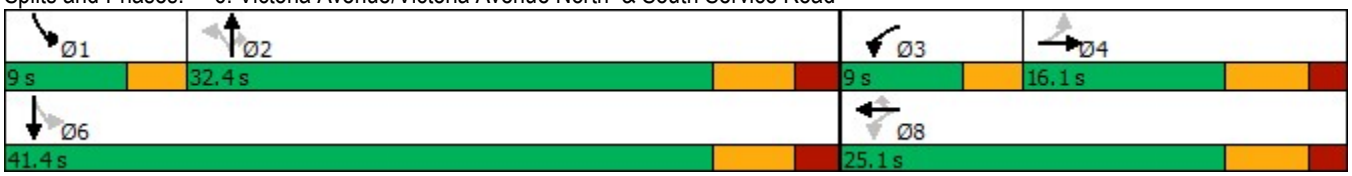
6: Victoria Avenue/Victoria Avenue North & South Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	21.7	#164.2		#100.5	4.9	#338.8	6.3	57.4	#48.7	#120.9	#108.9	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	166	205		217	415	663	259	589	622	426	648	
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	0.46	2.40		1.42	0.03	2.17	0.09	0.57	0.72	1.08	0.80	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.40
Intersection Signal Delay: 304.5 Intersection LOS: F
Intersection Capacity Utilization 157.7% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	925	30	35	33	29	1657
Future Volume (vph)	925	30	35	33	29	1657
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	1551	1246	0	1429	1104
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1374	1551	1246	0	1429	1104
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	995	32	38	35	31	1782
Shared Lane Traffic (%)						
Lane Group Flow (vph)	995	32	73	0	31	1782
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 156.2%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	925	30	35	33	29	1657
Future Volume (Veh/h)	925	30	35	33	29	1657
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	995	32	38	35	31	1782
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	73				2078	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73				2078	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	34				0	0
cM capacity (veh/h)	1514				20	1006

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	995	32	73	31	1782
Volume Left	995	0	0	31	0
Volume Right	0	0	35	0	1782
cSH	1514	1700	1700	20	1006
Volume to Capacity	0.66	0.02	0.04	1.52	1.77
Queue Length 95th (m)	42.5	0.0	0.0	33.1	828.1
Control Delay (s)	11.8	0.0	0.0	663.0	364.1
Lane LOS	B			F	F
Approach Delay (s)	11.4		0.0	369.2	
Approach LOS				F	

Intersection Summary			
Average Delay	233.8		
Intersection Capacity Utilization	156.2%	ICU Level of Service	H
Analysis Period (min)	15		

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	78	0	235	984	138	58	0
Future Volume (vph)	0	0	0	257	0	78	0	235	984	138	58	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt					0.850				0.850			
Flt Protected				0.950							0.966	
Satd. Flow (prot)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Flt Permitted				0.950							0.966	
Satd. Flow (perm)	1504	1388	0	2375	1180	0	1504	1629	1148	0	1433	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	313	0	95	0	287	1200	168	71	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	313	95	0	0	287	1200	0	239	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 106.1% ICU Level of Service G
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	257	0	78	0	235	984	138	58	0
Future Volume (vph)	0	0	0	257	0	78	0	235	984	138	58	0
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	0	0	313	0	95	0	287	1200	168	71	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1
Volume Total (vph)	0	0	313	95	0	287	1200	239
Volume Left (vph)	0	0	313	0	0	0	0	168
Volume Right (vph)	0	0	0	95	0	0	1200	0
Hadj (s)	0.00	0.00	0.50	-0.70	0.00	0.00	-0.70	0.14
Departure Headway (s)	7.0	7.0	6.6	5.4	6.2	6.2	3.2	6.4
Degree Utilization, x	0.00	0.00	0.58	0.14	0.00	0.49	1.07	0.43
Capacity (veh/h)	459	459	520	628	562	556	1130	527
Control Delay (s)	8.8	8.8	17.1	8.1	8.0	13.9	62.0	14.1
Approach Delay (s)	0.0		15.0		52.7			14.1
Approach LOS	A		C		F			B

Intersection Summary			
Delay	41.2		
Level of Service	E		
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	312	0	0	196
Future Volume (vph)	0	0	312	0	0	196
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	0	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	359	0	0	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	359	0	0	225
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	312	0	0	196
Future Volume (Veh/h)	0	0	312	0	0	196
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	359	0	0	225
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	584	359			359	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	584	359			359	
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	100			100	
cM capacity (veh/h)	477	690			1211	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	359	225
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1211
Volume to Capacity	0.00	0.21	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	219	93	0	172
Future Volume (vph)	24	0	219	93	0	172
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.960			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1332	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1332	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	0	337	143	0	265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	480	0	0	265
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	219	93	0	172
Future Volume (Veh/h)	24	0	219	93	0	172
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	37	0	337	143	0	265
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	674	408			480	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	674	408			480	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	423	647			1093	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	480	265
Volume Left	37	0	0
Volume Right	0	143	0
cSH	423	1700	1093
Volume to Capacity	0.09	0.28	0.00
Queue Length 95th (m)	2.3	0.0	0.0
Control Delay (s)	14.3	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	33.5%	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)	0	0	0	172	0	0	0	0	219	0	0	0
Future Volume (vph)	0	0	0	172	0	0	0	0	219	0	0	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt								0.865				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	229	0	0	0	0	292	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	229	0	0	292	0	0	0	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	172	0	0	0	0	219	0	0	0
Future Volume (Veh/h)	0	0	0	172	0	0	0	0	219	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	229	0	0	0	0	292	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	146	292	0	146	146	146	0			292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	292	0	146	146	146	0			292		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	72	100	100	100			100		
cM capacity (veh/h)	827	622	1091	827	749	906	1636			1281		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	229	292	0
Volume Left	0	229	0	0
Volume Right	0	0	292	0
cSH	1700	827	1636	1700
Volume to Capacity	0.00	0.28	0.00	0.00
Queue Length 95th (m)	0.0	9.0	0.0	0.0
Control Delay (s)	0.0	11.0	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.0	0.0	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1273	498	1288	514	426	703
Future Volume (vph)	1273	498	1288	514	426	703
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1597	1126	1348	1597	1387	1094
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1597	1126	1348	1597	1387	1094
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		337				228
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	6%	2%	3%	5%
Adj. Flow (vph)	1384	541	1400	559	463	764
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1384	541	1400	559	463	764
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	30.0	30.0	9.0	39.0	30.0	30.0
Total Split (%)	43.5%	43.5%	13.0%	56.5%	43.5%	43.5%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	23.0	23.0	6.0	32.0	24.0	24.0
Actuated g/C Ratio	0.33	0.33	0.09	0.46	0.35	0.35
v/c Ratio	2.60	0.90	11.97	0.76	0.96	1.44
Control Delay	743.7	30.1	4956.2	23.6	57.7	229.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	743.7	30.1	4956.2	23.6	57.7	229.4
LOS	F	C	F	C	E	F
Approach Delay	543.2			3548.7	164.6	
Approach LOS	F			F	F	
Queue Length 50th (m)	~323.2	26.3	~387.8	59.3	60.2	~123.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#398.1	#92.5	#463.3	#102.9	#117.3	#188.9
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	532	600	117	740	482	529
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.60	0.90	11.97	0.76	0.96	1.44

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 69
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 11.97
Intersection Signal Delay: 1604.3 Intersection LOS: F
Intersection Capacity Utilization 212.3% 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: 5: QEW Toronto Bound Ramps & North Service Road

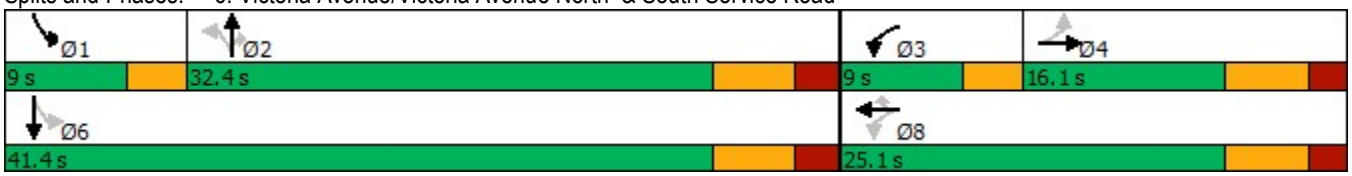
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1219	0	0	0	258	58	0
Future Volume (vph)	0	0	0	0	0	1219	0	0	0	258	58	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	1629	1148	1504	1629	1351	1429	1388	0
Flt Permitted										0.679		
Satd. Flow (perm)	1504	1388	0	1504	1629	1148	1504	1629	1351	1021	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	1325	0	0	0	280	63	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1325	0	0	0	280	63	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		9.0	25.1	25.1	32.4	32.4	32.4	9.0	41.4	
Total Split (%)	24.2%	24.2%		13.5%	37.7%	37.7%	48.7%	48.7%	48.7%	13.5%	62.3%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						19.0				38.4	35.0	
Actuated g/C Ratio						0.29				0.58	0.53	
v/c Ratio						1.20				0.45	0.09	
Control Delay						107.0				10.2	8.3	
Queue Delay						0.0				0.0	0.0	
Total Delay						107.0				10.2	8.3	
LOS						F				B	A	
Approach Delay					107.0						9.9	
Approach LOS					F						A	
Queue Length 50th (m)						~101.2				17.2	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)						#176.9				30.7	9.0	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1107				626	730	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.20				0.45	0.09	

Intersection Summary

Area Type: Other
Cycle Length: 66.5
Actuated Cycle Length: 66.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 87.0 Intersection LOS: F
Intersection Capacity Utilization 111.2% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	807	34	16	21	42	1652
Future Volume (vph)	807	34	16	21	42	1652
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.922			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1429	1629	1280	0	1429	1126
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1429	1629	1280	0	1429	1126
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	868	37	17	23	45	1776
Shared Lane Traffic (%)						
Lane Group Flow (vph)	868	37	40	0	45	1776
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 153.9%	ICU Level of Service H
Analysis Period (min) 15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	807	34	16	21	42	1652
Future Volume (Veh/h)	807	34	16	21	42	1652
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	868	37	17	23	45	1776
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		236				
pX, platoon unblocked						
vC, conflicting volume	40				1802	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40				1802	28
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	45				0	0
cM capacity (veh/h)	1583				40	1046

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	868	37	40	45	1776
Volume Left	868	0	0	45	0
Volume Right	0	0	23	0	1776
cSH	1583	1700	1700	40	1046
Volume to Capacity	0.55	0.02	0.02	1.12	1.70
Queue Length 95th (m)	28.0	0.0	0.0	35.5	783.9
Control Delay (s)	10.0	0.0	0.0	338.2	330.3
Lane LOS	B			F	F
Approach Delay (s)	9.6		0.0	330.5	
Approach LOS				F	

Intersection Summary			
Average Delay	220.7		
Intersection Capacity Utilization	153.9%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	WB	NB	NB	SB
Directions Served	L	TR	T	R	LTR
Maximum Queue (m)	21.7	10.2	256.2	225.5	17.6
Average Queue (m)	10.5	5.5	66.6	130.1	8.9
95th Queue (m)	17.2	12.2	232.5	258.3	14.2
Link Distance (m)		163.8	373.7		131.4
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			4		
Storage Bay Dist (m)	160.0			240.0	
Storage Blk Time (%)			10	6	
Queuing Penalty (veh)			100	15	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	9.8
Average Queue (m)	3.7
95th Queue (m)	9.8
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	WB
Directions Served	LTR
Maximum Queue (m)	18.6
Average Queue (m)	11.5
95th Queue (m)	17.3
Link Distance (m)	57.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (m)	152.3	197.7	159.5	196.7	57.4	139.8
Average Queue (m)	140.1	194.9	159.4	187.8	56.7	131.0
95th Queue (m)	148.5	215.5	159.7	193.7	62.3	137.8
Link Distance (m)	163.8	163.8		180.9		123.2
Upstream Blk Time (%)		67		97		52
Queuing Penalty (veh)		374		0		0
Storage Bay Dist (m)			152.0		50.0	
Storage Blk Time (%)			85	33	7	42
Queuing Penalty (veh)			439	420	52	179

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB
Directions Served	T	R	L	TR
Maximum Queue (m)	244.6	52.5	28.0	9.4
Average Queue (m)	220.1	52.5	12.9	2.4
95th Queue (m)	275.9	52.6	25.9	8.0
Link Distance (m)	216.0			373.7
Upstream Blk Time (%)	43			
Queuing Penalty (veh)	724			
Storage Bay Dist (m)		45.0	269.0	
Storage Blk Time (%)		88		
Queuing Penalty (veh)		0		

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (m)	98.4	14.5	5.0	146.4	148.2
Average Queue (m)	14.9	0.5	0.3	136.6	137.8
95th Queue (m)	53.5	7.4	2.7	142.3	144.1
Link Distance (m)		216.0	221.2	130.7	130.7
Upstream Blk Time (%)				85	87
Queuing Penalty (veh)				0	0
Storage Bay Dist (m)	109.0				
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 2307

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Future Volume (vph)	7	21	51	1215	161	162	30	109	589	68	207	7
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.894			0.925				0.850		0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1191	2188	0	4077	2357	0	1311	3005	1104	1429	1346	0
Flt Permitted	0.519			0.697			0.534			0.668		
Satd. Flow (perm)	650	2188	0	2992	2357	0	737	3005	1104	1005	1346	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			198				718		3	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	20%	0%	11%	13%	7%	0%	9%	3%	4%	0%	10%	0%
Adj. Flow (vph)	9	26	62	1482	196	198	37	133	718	83	252	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	88	0	1482	394	0	37	133	718	83	261	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Split (s)	35.0	35.0		35.0	35.0		25.0	25.0	25.0	25.0	25.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%	41.7%	41.7%	41.7%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
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)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)	30.5	30.5		30.5	30.5		20.5	20.5	20.5	20.5	20.5	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.34	0.34	0.34	0.34	0.34	
v/c Ratio	0.03	0.08		0.97	0.30		0.15	0.13	0.85	0.24	0.57	
Control Delay	7.7	3.7		34.5	4.8		15.6	14.1	13.7	16.6	21.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	7.7	3.7		34.5	4.8		15.6	14.1	13.7	16.6	21.7	
LOS	A	A		C	A		B	B	B	B	C	
Approach Delay		4.1			28.3			13.8			20.5	
Approach LOS		A			C			B			C	
Queue Length 50th (m)	0.5	0.7		79.1	5.8		2.9	5.4	0.0	6.8	23.8	

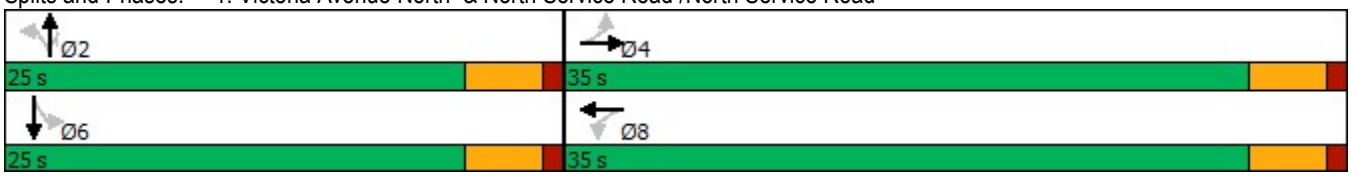
1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	2.2	3.1		#110.1	10.6		8.0	9.7	#19.2	14.5	39.5	
Internal Link Dist (m)		364.1			157.5			377.5			129.7	
Turn Bay Length (m)	62.0			160.0			112.0		240.0			
Base Capacity (vph)	330	1142		1520	1295		251	1026	849	343	461	
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	0.03	0.08		0.97	0.30		0.15	0.13	0.85	0.24	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 22.7 Intersection LOS: C
Intersection Capacity Utilization 71.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Victoria Avenue North & North Service Road /North Service Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	0	209	15	10	239
Future Volume (vph)	35	0	209	15	10	239
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		
Flt Protected	0.950					0.998
Satd. Flow (prot)	1374	0	1335	1044	0	1095
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1374	0	1335	1044	0	1095
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	4%	2%	4%	10%	58%	10%
Adj. Flow (vph)	45	0	271	19	13	310
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	271	19	0	323
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.0%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	0	209	15	10	239
Future Volume (Veh/h)	35	0	209	15	10	239
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	45	0	271	19	13	310
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			154			
pX, platoon unblocked						
vC, conflicting volume	607	271			290	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607	271			290	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	90	100			99	
cM capacity (veh/h)	450	768			1010	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	45	271	19	323
Volume Left	45	0	0	13
Volume Right	0	0	19	0
cSH	450	1700	1700	1010
Volume to Capacity	0.10	0.16	0.01	0.01
Queue Length 95th (m)	2.6	0.0	0.0	0.3
Control Delay (s)	13.9	0.0	0.0	0.5
Lane LOS	B			A
Approach Delay (s)	13.9	0.0		0.5
Approach LOS	B			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	77	0	162	28	0	168
Future Volume (vph)	77	0	162	28	0	168
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.980			
Flt Protected	0.950					
Satd. Flow (prot)	856	0	1150	0	0	1087
Flt Permitted	0.950					
Satd. Flow (perm)	856	0	1150	0	0	1087
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	67%	2%	10%	67%	2%	13%
Adj. Flow (vph)	122	0	257	44	0	267
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	301	0	0	267
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 26.1%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	0	162	28	0	168
Future Volume (Veh/h)	77	0	162	28	0	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	122	0	257	44	0	267
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	546	279			301	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	546	279			301	
tC, single (s)	7.1	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.1	3.3			2.2	
p0 queue free %	70	100			100	
cM capacity (veh/h)	403	760			1260	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	301	267
Volume Left	122	0	0
Volume Right	0	44	0
cSH	403	1700	1260
Volume to Capacity	0.30	0.18	0.00
Queue Length 95th (m)	10.0	0.0	0.0
Control Delay (s)	17.7	0.0	0.0
Lane LOS	C		
Approach Delay (s)	17.7	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

4: Victoria Avenue North & Viceroy Avenue /Site Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	4	157	0	0	10	7	147	0	7	0
Future Volume (vph)	0	0	4	157	0	0	10	7	147	0	7	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt		0.865						0.879				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	984	0	0	1770	0	0	1048	0	0	1388	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	984	0	0	1770	0	0	1048	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	2%	2%	67%	2%	2%	2%	15%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	6	249	0	0	16	11	233	0	11	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	249	0	0	260	0	0	11	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 44.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	157	0	0	10	7	147	0	7	0
Future Volume (Veh/h)	0	0	4	157	0	0	10	7	147	0	7	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	0	0	6	249	0	0	16	11	233	0	11	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	170	287	11	176	170	128	11			244		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	170	287	11	176	170	128	11			244		
tC, single (s)	7.1	6.5	6.9	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.9	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	68	100	100	99			100		
cM capacity (veh/h)	787	616	909	774	715	923	1527			1322		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	249	260	11
Volume Left	0	249	16	0
Volume Right	6	0	233	0
cSH	909	774	1527	1322
Volume to Capacity	0.01	0.32	0.01	0.00
Queue Length 95th (m)	0.2	11.1	0.3	0.0
Control Delay (s)	9.0	11.8	0.5	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.0	11.8	0.5	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay		6.0		
Intersection Capacity Utilization		44.2%	ICU Level of Service	A
Analysis Period (min)		15		

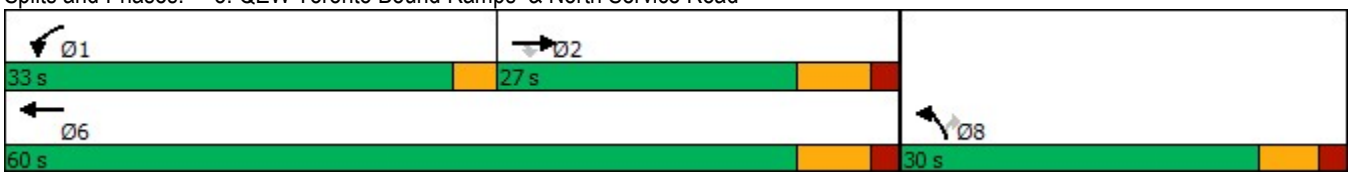
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	352	336	402	945	585	621
Future Volume (vph)	352	336	402	945	585	621
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2976	1115	1401	2948	2497	1073
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	2976	1115	1401	2948	2497	1073
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		410				677
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	4%	3%	2%	5%	11%	7%
Adj. Flow (vph)	429	410	490	1152	713	757
Shared Lane Traffic (%)						
Lane Group Flow (vph)	429	410	490	1152	713	757
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	27.0	27.0	33.0	60.0	30.0	30.0
Total Split (%)	30.0%	30.0%	36.7%	66.7%	33.3%	33.3%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	20.0	20.0	30.0	53.0	24.0	24.0
Actuated g/C Ratio	0.22	0.22	0.33	0.59	0.27	0.27
v/c Ratio	0.65	0.72	1.05	0.66	1.07	0.97
Control Delay	37.1	11.7	86.7	14.9	89.3	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	11.7	86.7	14.9	89.3	31.9
LOS	D	B	F	B	F	C
Approach Delay	24.7			36.3	59.8	
Approach LOS	C			D	E	
Queue Length 50th (m)	37.5	0.0	~98.1	68.6	~74.9	11.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	48.0	15.9	#136.4	77.0	#94.6	#78.7
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	661	566	467	1736	665	782
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.72	1.05	0.66	1.07	0.97

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 81.6% ICU Level of Service D
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: 5: QEW Toronto Bound Ramps & North Service Road



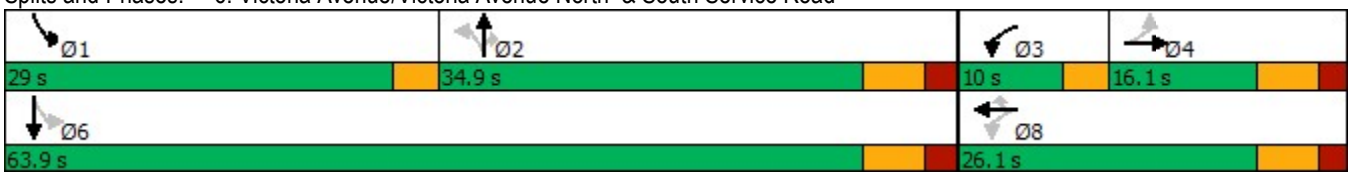
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	11	167	12	334	21	390	261	1052	377	39
Future Volume (vph)	20	52	11	167	12	334	21	390	261	1052	377	39
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.974				0.850			0.850		0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1335	1268	0	1191	2763	1104	1335	2976	1044	2543	2281	0
Flt Permitted	0.749			0.514			0.491			0.424		
Satd. Flow (perm)	1053	1268	0	644	2763	1104	690	2976	1044	1135	2281	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				363			284		24	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	8%	0%	20%	12%	4%	7%	4%	10%	9%	14%	14%
Adj. Flow (vph)	22	57	12	182	13	363	23	424	284	1143	410	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	69	0	182	13	363	23	424	284	1143	452	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	16.1	16.1		10.0	26.1	26.1	34.9	34.9	34.9	29.0	63.9	
Total Split (%)	17.9%	17.9%		11.1%	29.0%	29.0%	38.8%	38.8%	38.8%	32.2%	71.0%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	10.0	10.0		21.0	17.8	17.8	29.2	29.2	29.2	61.0	57.6	
Actuated g/C Ratio	0.11	0.11		0.24	0.20	0.20	0.33	0.33	0.33	0.69	0.65	
v/c Ratio	0.18	0.45		0.89	0.02	0.71	0.10	0.43	0.53	0.96	0.30	
Control Delay	40.5	43.9		73.5	27.6	12.0	23.4	25.4	7.1	28.7	7.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.5	43.9		73.5	27.6	12.0	23.4	25.4	7.1	28.7	7.2	
LOS	D	D		E	C	B	C	C	A	C	A	
Approach Delay		43.1			32.4			18.2			22.6	
Approach LOS		D			C			B			C	
Queue Length 50th (m)	3.7	10.4		29.1	1.0	0.0	2.9	32.1	0.0	55.5	16.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	11.2	24.1		#71.2	3.5	28.3	9.0	46.1	20.1	#105.5	24.3	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	120	152		205	629	531	228	986	535	1203	1501	
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	0.18	0.45		0.89	0.02	0.68	0.10	0.43	0.53	0.95	0.30	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 86.7% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1278	76	28	11	6	495
Future Volume (vph)	1278	76	28	11	6	495
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	2
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88
Frt			0.961			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1311	3095	1286	0	1143	1773
Flt Permitted	0.728				0.950	
Satd. Flow (perm)	1005	3095	1286	0	1143	1773
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			13			563
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	9%	0%	0%	13%	25%	14%
Adj. Flow (vph)	1452	86	32	13	7	563
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1452	86	45	0	7	563
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	126.0	126.0	126.0		24.0	24.0
Total Split (%)	84.0%	84.0%	84.0%		16.0%	16.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	121.5	121.5	121.5		19.5	19.5
Actuated g/C Ratio	0.81	0.81	0.81		0.13	0.13
v/c Ratio	1.78	0.03	0.04		0.05	0.78
Control Delay	376.9	2.8	2.2		58.3	13.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	376.9	2.8	2.2		58.3	13.0
LOS	F	A	A		E	B
Approach Delay		356.0	2.2		13.5	
Approach LOS		F	A		B	
Queue Length 50th (m)	~678.3	2.3	1.7		2.0	0.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (m)	#740.6	3.8	3.9		7.1	18.6
Internal Link Dist (m)		211.5	208.1		117.7	
Turn Bay Length (m)	109.0					
Base Capacity (vph)	814	2506	1044		148	720
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.78	0.03	0.04		0.05	0.78

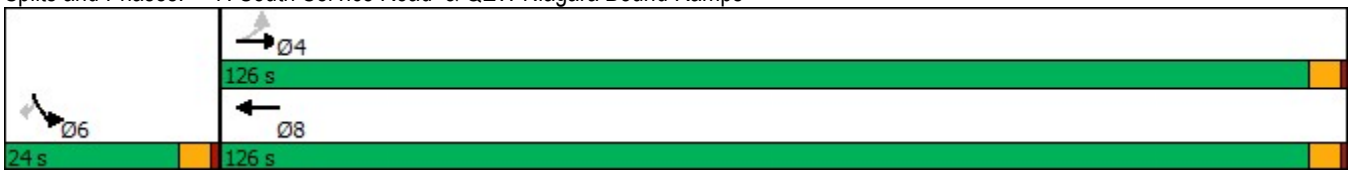
Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.78
Intersection Signal Delay: 257.9 Intersection LOS: F
Intersection Capacity Utilization 107.8% 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: 7: South Service Road & QEW Niagara Bound Ramps



Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	L	T	TR	L	T	T	R	L
Maximum Queue (m)	6.7	7.9	28.6	157.7	158.8	180.2	87.5	23.4	24.6	17.3	10.3	21.1
Average Queue (m)	0.5	1.2	9.1	150.0	155.2	164.5	14.3	7.8	10.0	3.6	0.3	8.6
95th Queue (m)	3.4	5.7	20.1	169.1	180.0	208.9	48.0	18.9	20.8	12.0	7.2	18.1
Link Distance (m)		368.8	368.8			158.8	158.8		363.7	363.7		125.1
Upstream Blk Time (%)				5	24	46	0					
Queuing Penalty (veh)				0	0	351	1					
Storage Bay Dist (m)	62.0			160.0	160.0			112.0			240.0	
Storage Blk Time (%)				5	24	46						
Queuing Penalty (veh)				4	19	556						

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	SB
Directions Served	TR
Maximum Queue (m)	98.4
Average Queue (m)	37.6
95th Queue (m)	79.4
Link Distance (m)	125.1
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	15.4	10.0
Average Queue (m)	4.9	0.3
95th Queue (m)	11.3	3.8
Link Distance (m)	252.8	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	30.5	16.4
Average Queue (m)	14.8	0.8
95th Queue (m)	26.0	7.0
Link Distance (m)	226.0	30.4
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	21.4	19.6
Average Queue (m)	2.5	12.0
95th Queue (m)	12.0	18.2
Link Distance (m)	244.7	57.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (m)	39.5	44.8	62.5	159.5	193.9	175.4	53.7	57.4	133.2
Average Queue (m)	20.6	24.6	25.8	140.6	178.3	84.4	51.3	54.5	123.8
95th Queue (m)	36.7	39.0	47.7	216.4	218.1	167.7	57.5	69.6	131.5
Link Distance (m)	158.8	158.8	158.8		176.7	176.7			116.6
Upstream Blk Time (%)					74	0			77
Queuing Penalty (veh)					0	0			0
Storage Bay Dist (m)				152.0			50.0	50.0	
Storage Blk Time (%)				0	75		64	54	6
Queuing Penalty (veh)				0	303		395	336	34

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	L	T	T	R	L	L
Maximum Queue (m)	16.2	34.0	73.6	12.2	38.7	51.6	13.6	75.0	103.5	69.6	272.7	276.5
Average Queue (m)	5.0	12.4	41.4	2.2	2.4	28.7	3.5	26.2	45.1	32.1	272.4	276.2
95th Queue (m)	13.7	26.1	76.4	8.7	19.7	49.5	10.5	60.9	83.0	61.0	275.6	277.9
Link Distance (m)		362.9		204.1	204.1			199.1	199.1			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	72.0		120.0			45.0	168.0			68.0	269.0	269.0
Storage Blk Time (%)						3			2	0	52	47
Queuing Penalty (veh)						0			6	1	97	88

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	369.6	362.7
Average Queue (m)	360.6	121.3
95th Queue (m)	382.0	361.5
Link Distance (m)	363.7	363.7
Upstream Blk Time (%)	17	1
Queuing Penalty (veh)	127	4
Storage Bay Dist (m)		
Storage Blk Time (%)	14	
Queuing Penalty (veh)	146	

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	EB	WB	SB	SB	SB
Directions Served	L	T	T	TR	L	R	R
Maximum Queue (m)	116.3	149.8	16.0	17.4	17.0	34.4	52.7
Average Queue (m)	80.6	7.1	4.4	4.1	2.3	17.2	23.3
95th Queue (m)	120.1	57.4	13.1	12.4	10.2	28.9	41.1
Link Distance (m)		204.1	204.1	221.2	128.7	128.7	128.7
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	109.0						
Storage Blk Time (%)	2	0					
Queuing Penalty (veh)	1	1					

Network Summary

Network wide Queuing Penalty: 2470

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Future Volume (vph)	4	86	204	719	92	103	30	245	1308	137	104	6
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.894			0.921				0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1429	2298	0	4430	2262	0	1253	2893	1104	1323	1449	0
Flt Permitted	0.619			0.561			0.680			0.588		
Satd. Flow (perm)	931	2298	0	2616	2262	0	897	2893	1104	819	1449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		222			112				811		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	2%	4%	10%	5%	14%	7%	4%	8%	0%	25%
Adj. Flow (vph)	4	93	222	782	100	112	33	266	1422	149	113	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	315	0	782	212	0	33	266	1422	149	120	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
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)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)	16.4	16.4		16.4	16.4		18.0	18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.41	0.41	0.41	0.41	0.41	
v/c Ratio	0.01	0.31		0.79	0.23		0.09	0.22	1.53	0.44	0.20	
Control Delay	8.2	4.2		19.3	5.4		9.3	9.4	256.1	15.1	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.2	4.2		19.3	5.4		9.3	9.4	256.1	15.1	9.5	
LOS	A	A		B	A		A	A	F	B	A	
Approach Delay		4.2			16.4			213.2			12.6	
Approach LOS		A			B			F			B	
Queue Length 50th (m)	0.2	2.3		26.9	2.5		1.6	7.2	~130.5	8.5	5.7	

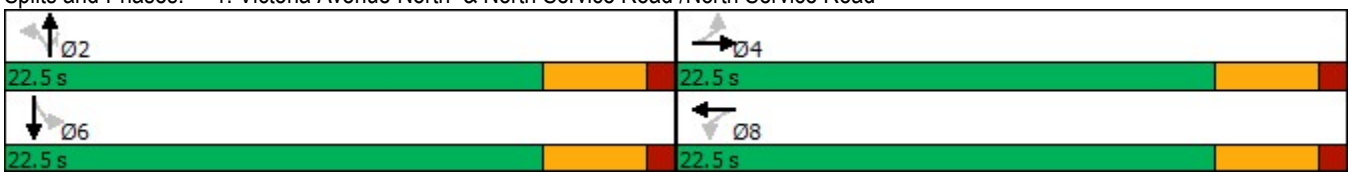
1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	1.5	8.3		#45.8	7.5		5.6	13.2	#198.7	21.7	13.9	
Internal Link Dist (m)		364.1			157.5			377.5			129.7	
Turn Bay Length (m)	62.0			160.0			112.0		240.0			
Base Capacity (vph)	386	1083		1085	1004		371	1200	932	339	604	
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	0.01	0.29		0.72	0.21		0.09	0.22	1.53	0.44	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 45
Actuated Cycle Length: 43.5
Natural Cycle: 45
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.53
Intersection Signal Delay: 117.4 Intersection LOS: F
Intersection Capacity Utilization 147.0% 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: Victoria Avenue North & North Service Road /North Service Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	2	329	28	7	210
Future Volume (vph)	21	2	329	28	7	210
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990			0.850		
Flt Protected	0.956					0.998
Satd. Flow (prot)	1337	0	1273	1148	0	1180
Flt Permitted	0.956					0.998
Satd. Flow (perm)	1337	0	1273	1148	0	1180
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	7%	0%	9%	0%	0%	4%
Adj. Flow (vph)	24	2	378	32	8	241
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	378	32	0	249
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	2	329	28	7	210
Future Volume (Veh/h)	21	2	329	28	7	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	2	378	32	8	241
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			154			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	635	378			410	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	588	317			351	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	100			99	
cM capacity (veh/h)	436	691			1156	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	26	378	32	249
Volume Left	24	0	0	8
Volume Right	2	0	32	0
cSH	449	1700	1700	1156
Volume to Capacity	0.06	0.22	0.02	0.01
Queue Length 95th (m)	1.5	0.0	0.0	0.2
Control Delay (s)	13.5	0.0	0.0	0.3
Lane LOS	B			A
Approach Delay (s)	13.5	0.0		0.3
Approach LOS	B			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

3: Victoria Avenue North & Laurie Avenue

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	36	0	215	107	0	161
Future Volume (vph)	36	0	215	107	0	161
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.955			
Flt Protected	0.950					
Satd. Flow (prot)	1242	0	1283	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1242	0	1283	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	15%	2%	0%	10%	2%	0%
Adj. Flow (vph)	55	0	331	165	0	248
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	496	0	0	248
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	0	215	107	0	161
Future Volume (Veh/h)	36	0	215	107	0	161
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	55	0	331	165	0	248
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	662	414			496	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	662	414			496	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	87	100			100	
cM capacity (veh/h)	407	639			1068	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	55	496	248
Volume Left	55	0	0
Volume Right	0	165	0
cSH	407	1700	1068
Volume to Capacity	0.13	0.29	0.00
Queue Length 95th (m)	3.7	0.0	0.0
Control Delay (s)	15.2	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.2	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

4: Victoria Avenue North & Viceroy Avenue /Site Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	8	149	0	0	2	8	205	0	11	0
Future Volume (vph)	0	0	8	149	0	0	2	8	205	0	11	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt		0.865						0.872				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	1644	0	0	1770	0	0	1050	0	0	1388	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	1644	0	0	1770	0	0	1050	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	0%	2%	2%	2%	0%	0%	2%	2%	0%	2%
Adj. Flow (vph)	0	0	11	199	0	0	3	11	273	0	15	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	199	0	0	287	0	0	15	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 44.7% ICU Level of Service A

Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	8	149	0	0	2	8	205	0	11	0
Future Volume (Veh/h)	0	0	8	149	0	0	2	8	205	0	11	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	11	199	0	0	3	11	273	0	15	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	168	305	15	180	168	148	15			284		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	168	305	15	180	168	148	15			284		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	74	100	100	100			100		
cM capacity (veh/h)	794	607	1070	773	723	899	1616			1278		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	199	287	15
Volume Left	0	199	3	0
Volume Right	11	0	273	0
cSH	1070	773	1616	1278
Volume to Capacity	0.01	0.26	0.00	0.00
Queue Length 95th (m)	0.2	8.2	0.0	0.0
Control Delay (s)	8.4	11.3	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.4	11.3	0.1	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

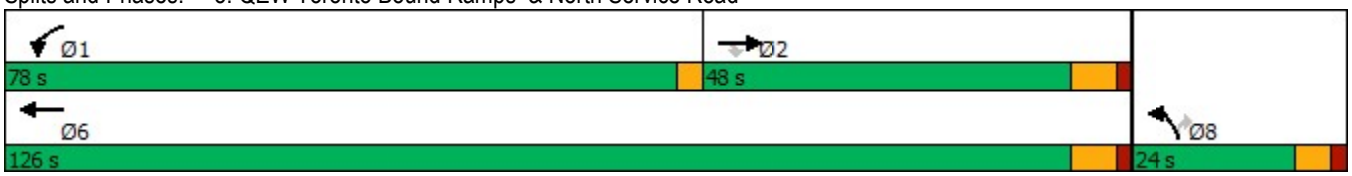
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1139	403	1248	446	423	637
Future Volume (vph)	1139	403	1248	446	423	637
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2866	1083	1287	2866	2410	1044
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	2866	1083	1287	2866	2410	1044
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		232				676
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	6%	11%	8%	15%	10%
Adj. Flow (vph)	1238	438	1357	485	460	692
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1238	438	1357	485	460	692
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	48.0	48.0	78.0	126.0	24.0	24.0
Total Split (%)	32.0%	32.0%	52.0%	84.0%	16.0%	16.0%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	41.0	41.0	75.0	119.0	18.0	18.0
Actuated g/C Ratio	0.27	0.27	0.50	0.79	0.12	0.12
v/c Ratio	1.58	0.94	2.11	0.21	1.59	0.96
Control Delay	303.3	54.8	528.3	4.1	322.1	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	303.3	54.8	528.3	4.1	322.1	30.3
LOS	F	D	F	A	F	C
Approach Delay	238.4			390.3	146.8	
Approach LOS	F			F	F	
Queue Length 50th (m)	~289.1	74.0	~672.0	17.1	~105.5	4.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#334.2	#148.2	#757.7	22.0	#142.3	#97.2
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	783	464	643	2273	289	720
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.58	0.94	2.11	0.21	1.59	0.96

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 2.11
Intersection Signal Delay: 275.7 Intersection LOS: F
Intersection Capacity Utilization 153.5% 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: 5: QEW Toronto Bound Ramps & North Service Road



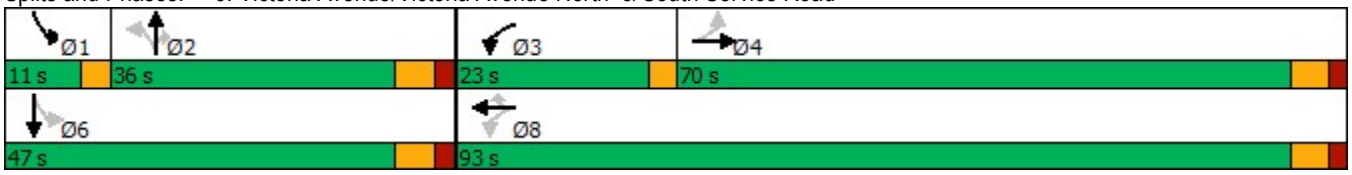
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	376	76	284	12	1321	21	307	412	423	443	34
Future Volume (vph)	70	376	76	284	12	1321	21	307	412	423	443	34
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt		0.975				0.850			0.850		0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1401	1291	0	1287	2763	1083	1335	2866	1054	2591	2326	0
Flt Permitted	0.749			0.307			0.454			0.406		
Satd. Flow (perm)	1104	1291	0	416	2763	1083	638	2866	1054	1107	2326	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				337			448		6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	5%	4%	11%	12%	6%	7%	8%	9%	7%	11%	27%
Adj. Flow (vph)	76	409	83	309	13	1436	23	334	448	460	482	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	492	0	309	13	1436	23	334	448	460	519	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	70.0	70.0		23.0	93.0	93.0	36.0	36.0	36.0	11.0	47.0	
Total Split (%)	50.0%	50.0%		16.4%	66.4%	66.4%	25.7%	25.7%	25.7%	7.9%	33.6%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)	65.3	65.3		90.0	86.9	86.9	29.6	29.6	29.6	44.0	40.6	
Actuated g/C Ratio	0.47	0.47		0.64	0.62	0.62	0.21	0.21	0.21	0.31	0.29	
v/c Ratio	0.15	0.81		0.81	0.01	1.79	0.17	0.55	0.78	1.06	0.77	
Control Delay	23.0	44.1		29.7	10.2	382.3	49.2	53.3	14.6	104.1	53.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.0	44.1		29.7	10.2	382.3	49.2	53.3	14.6	104.1	53.5	
LOS	C	D		C	B	F	D	D	B	F	D	
Approach Delay		41.3			317.6			31.6			77.3	
Approach LOS		D			F			C			E	
Queue Length 50th (m)	12.7	121.3		39.7	0.7	~592.2	5.5	46.1	0.0	~62.6	72.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	23.8	#186.9		#66.2	2.1	#678.7	14.5	62.9	44.6	#103.7	95.1	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)	72.0			120.0		45.0	168.0		68.0	269.0		
Base Capacity (vph)	514	607		391	1715	800	134	605	576	432	678	
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	0.15	0.81		0.79	0.01	1.79	0.17	0.55	0.78	1.06	0.77	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.79
Intersection Signal Delay: 166.1 Intersection LOS: F
Intersection Capacity Utilization 155.5% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



7: South Service Road & QEW Niagara Bound Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	925	30	35	33	29	1657
Future Volume (vph)	925	30	35	33	29	1657
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	2
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88
Frt			0.935			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1374	2948	1246	0	1429	1943
Flt Permitted	0.709				0.950	
Satd. Flow (perm)	1025	2948	1246	0	1429	1943
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			35			1782
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	5%	8%	0%	0%	4%
Adj. Flow (vph)	995	32	38	35	31	1782
Shared Lane Traffic (%)						
Lane Group Flow (vph)	995	32	73	0	31	1782
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	111.0	111.0	111.0		39.0	39.0
Total Split (%)	74.0%	74.0%	74.0%		26.0%	26.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	106.5	106.5	106.5		34.5	34.5
Actuated g/C Ratio	0.71	0.71	0.71		0.23	0.23
v/c Ratio	1.37	0.02	0.08		0.09	0.98
Control Delay	198.0	6.4	3.9		46.6	19.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	198.0	6.4	3.9		46.6	19.3
LOS	F	A	A		D	B
Approach Delay		192.1	3.9		19.8	
Approach LOS		F	A		B	
Queue Length 50th (m)	~409.7	1.4	3.3		7.7	0.0

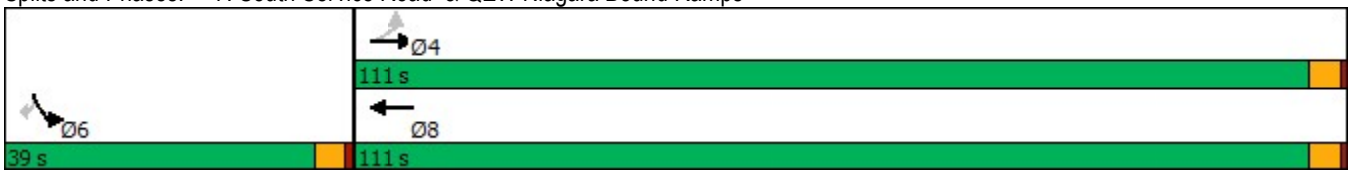
7: South Service Road & QEW Niagara Bound Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (m)	#493.4	3.1	8.4		17.4	#109.6
Internal Link Dist (m)		211.5	208.1		117.7	
Turn Bay Length (m)	109.0					
Base Capacity (vph)	727	2093	894		328	1819
Starvation Cap Reductn	2	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.37	0.02	0.08		0.09	0.98

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 80.1 Intersection LOS: F
Intersection Capacity Utilization 94.3% 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: 7: South Service Road & QEW Niagara Bound Ramps



Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	L	T	TR	L	T	T	R	L
Maximum Queue (m)	6.8	19.2	49.0	51.4	48.5	15.6	28.5	19.8	227.6	329.5	247.3	42.6
Average Queue (m)	0.7	6.8	17.9	28.0	25.6	2.6	11.5	4.5	22.7	95.7	133.5	15.9
95th Queue (m)	4.0	15.5	33.2	47.7	41.3	10.2	23.3	14.3	126.8	302.5	291.9	31.4
Link Distance (m)		368.8	368.8			158.8	158.8		363.7	363.7		125.1
Upstream Blk Time (%)									0	1		
Queuing Penalty (veh)									0	5		
Storage Bay Dist (m)	62.0			160.0	160.0			112.0			240.0	
Storage Blk Time (%)										3	10	
Queuing Penalty (veh)										36	12	

Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	SB
Directions Served	TR
Maximum Queue (m)	22.9
Average Queue (m)	8.2
95th Queue (m)	18.3
Link Distance (m)	125.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Victoria Avenue North & Dustan Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.3	10.4
Average Queue (m)	3.1	0.6
95th Queue (m)	9.1	4.7
Link Distance (m)	252.8	244.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	18.2
Average Queue (m)	6.1
95th Queue (m)	14.6
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	23.3	1.6
Average Queue (m)	1.9	12.2	0.1
95th Queue (m)	7.8	19.6	1.2
Link Distance (m)	244.7	57.6	30.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (m)	143.0	136.5	203.7	159.5	193.9	21.5	53.7	57.4	135.1
Average Queue (m)	120.9	123.3	159.2	159.2	184.0	3.2	49.2	55.2	126.3
95th Queue (m)	145.9	145.0	252.2	159.8	190.2	13.2	61.5	67.5	133.4
Link Distance (m)	158.8	158.8	158.8		176.7	176.7			116.6
Upstream Blk Time (%)			22		49				67
Queuing Penalty (veh)			110		0				0
Storage Bay Dist (m)				152.0			50.0	50.0	
Storage Blk Time (%)				50	1		40	26	31
Queuing Penalty (veh)				113	15		255	166	132

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	L	T	T	R	L	L
Maximum Queue (m)	79.3	128.8	84.4	8.3	208.3	52.5	19.0	114.1	154.4	75.5	242.2	191.4
Average Queue (m)	13.7	64.1	28.9	0.7	168.2	52.5	4.7	35.4	60.7	53.2	156.7	78.7
95th Queue (m)	42.4	104.4	58.1	5.2	229.8	52.8	13.1	90.8	126.7	85.4	266.4	195.3
Link Distance (m)		362.9		204.1	204.1			199.1	199.1			
Upstream Blk Time (%)					2				0			
Queuing Penalty (veh)					18				0			
Storage Bay Dist (m)	72.0		120.0			45.0	168.0			68.0	269.0	269.0
Storage Blk Time (%)		6			2	67		0	2	13	0	1
Queuing Penalty (veh)		4			32	4		0	10	20	0	2

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (m)	130.7	90.4
Average Queue (m)	34.8	31.7
95th Queue (m)	104.0	65.4
Link Distance (m)	363.7	363.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	EB	WB	SB	SB	SB
Directions Served	L	T	T	TR	L	R	R
Maximum Queue (m)	116.4	164.2	15.2	22.3	134.1	136.7	145.3
Average Queue (m)	97.7	34.1	2.3	7.5	31.1	89.0	136.0
95th Queue (m)	127.5	134.0	10.0	17.4	110.6	143.7	142.5
Link Distance (m)		204.1	204.1	221.2	128.7	128.7	128.7
Upstream Blk Time (%)		0			3	8	93
Queuing Penalty (veh)		0			0	0	0
Storage Bay Dist (m)	109.0						
Storage Blk Time (%)	9	0					
Queuing Penalty (veh)	1	0					

Network Summary

Network wide Queuing Penalty: 935

1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	257	0	78	0	235	984	138	58	0
Future Volume (vph)	0	0	0	257	0	78	0	235	984	138	58	0
Ideal Flow (vphpl)	1504	1388	1351	2500	1388	1351	1504	1629	1351	1504	1483	1351
Storage Length (m)	62.0		0.0	160.0		0.0	112.0		240.0	0.0		30.0
Storage Lanes	1		0	2		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1504	2637	0	4608	2242	0	1504	3095	1148	1429	1483	0
Flt Permitted				0.757						0.594		
Satd. Flow (perm)	1504	2637	0	3671	2242	0	1504	3095	1148	893	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					480				1070			
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		388.1			181.5			401.5			153.7	
Travel Time (s)		27.9			13.1			28.9			11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	279	0	85	0	255	1070	150	63	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	279	85	0	0	255	1070	150	63	0
Turn Type	Perm			Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
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)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	
Act Effct Green (s)				8.2	8.2			20.7	20.7	20.7	20.7	
Actuated g/C Ratio				0.22	0.22			0.54	0.54	0.54	0.54	
v/c Ratio				0.35	0.10			0.15	0.96	0.31	0.08	
Control Delay				13.1	0.2			5.0	24.8	7.6	5.1	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				13.1	0.2			5.0	24.8	7.6	5.1	
LOS				B	A			A	C	A	A	
Approach Delay					10.1			21.0			6.8	
Approach LOS					B			C			A	
Queue Length 50th (m)				7.2	0.0			3.5	0.0	4.4	1.6	

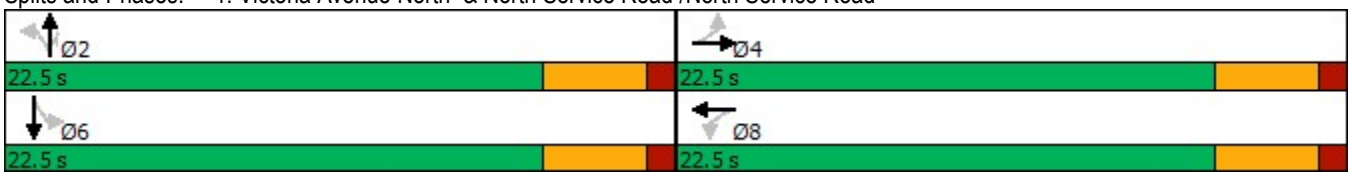
1: Victoria Avenue North & North Service Road /North Service Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)				13.5	0.0			8.0	#84.8	13.4	5.4	
Internal Link Dist (m)		364.1			157.5			377.5			129.7	
Turn Bay Length (m)				160.0					240.0			
Base Capacity (vph)				1769	1328			1683	1112	485	806	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	
Reduced v/c Ratio				0.16	0.06			0.15	0.96	0.31	0.08	

Intersection Summary

Area Type: Other
Cycle Length: 45
Actuated Cycle Length: 38
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 17.3 Intersection LOS: B
Intersection Capacity Utilization 102.8% 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: Victoria Avenue North & North Service Road /North Service Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	312	0	0	196
Future Volume (vph)	0	0	312	0	0	196
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1504	0	1388	1351	0	1228
Flt Permitted						
Satd. Flow (perm)	1504	0	1388	1351	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	266.1		153.7			263.1
Travel Time (s)	19.2		11.1			18.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	359	0	0	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	359	0	0	225
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	312	0	0	196
Future Volume (Veh/h)	0	0	312	0	0	196
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	0	359	0	0	225
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			154			
pX, platoon unblocked	0.99	0.99			0.99	
vC, conflicting volume	584	359			359	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	573	346			346	
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	100			100	
cM capacity (veh/h)	479	694			1210	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	0	359	0	225
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1210
Volume to Capacity	0.06	0.21	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	0.0	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	0	219	93	0	172
Future Volume (vph)	24	0	219	93	0	172
Ideal Flow (vphpl)	1504	1351	1388	1351	1504	1228
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.960			
Flt Protected	0.950					
Satd. Flow (prot)	1429	0	1332	0	0	1228
Flt Permitted	0.950					
Satd. Flow (perm)	1429	0	1332	0	0	1228
Link Speed (k/h)	50		50			50
Link Distance (m)	237.2		263.1			44.9
Travel Time (s)	17.1		18.9			3.2
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	0	337	143	0	265
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	480	0	0	265
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	0	219	93	0	172
Future Volume (Veh/h)	24	0	219	93	0	172
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	37	0	337	143	0	265
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	674	408			480	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	674	408			480	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	423	647			1093	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	480	265
Volume Left	37	0	0
Volume Right	0	143	0
cSH	423	1700	1093
Volume to Capacity	0.09	0.28	0.00
Queue Length 95th (m)	2.3	0.0	0.0
Control Delay (s)	14.3	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	33.5%	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)	0	0	0	172	0	0	0	0	219	0	0	0
Future Volume (vph)	0	0	0	172	0	0	0	0	219	0	0	0
Ideal Flow (vphpl)	1504	1900	1351	1900	1900	1900	1504	1228	1900	1900	1388	1351
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
Frt								0.865				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1062	0	0	1388	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		253.4			66.1			44.9			179.9	
Travel Time (s)		18.2			4.8			3.2			13.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	229	0	0	0	0	292	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	229	0	0	292	0	0	0	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	172	0	0	0	0	219	0	0	0
Future Volume (Veh/h)	0	0	0	172	0	0	0	0	219	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	0	0	229	0	0	0	0	292	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	146	292	0	146	146	146	0			292		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	292	0	146	146	146	0			292		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	72	100	100	100			100		
cM capacity (veh/h)	827	622	1091	827	749	906	1636			1281		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	229	292	0
Volume Left	0	229	0	0
Volume Right	0	0	292	0
cSH	1700	827	1636	1700
Volume to Capacity	0.01	0.28	0.00	0.00
Queue Length 95th (m)	0.0	9.0	0.0	0.0
Control Delay (s)	0.0	11.0	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.0	0.0	0.0
Approach LOS	A	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

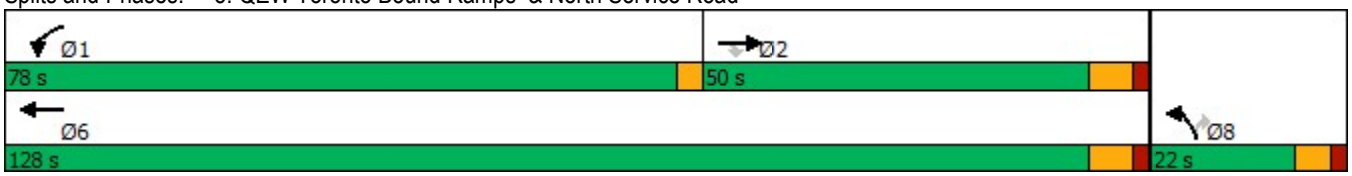
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1273	498	1288	514	426	703
Future Volume (vph)	1273	498	1288	514	426	703
Ideal Flow (vphpl)	1629	1351	1504	1629	1504	1351
Storage Length (m)		0.0	152.0		50.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3034	1126	1348	3034	2691	1094
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3034	1126	1348	3034	2691	1094
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		212				694
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.5			195.9	138.4	
Travel Time (s)	13.1			14.1	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	6%	2%	3%	5%
Adj. Flow (vph)	1384	541	1400	559	463	764
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1384	541	1400	559	463	764
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2			8	8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	5.0	20.0	10.0	10.0
Minimum Split (s)	27.0	27.0	9.0	27.0	16.0	16.0
Total Split (s)	50.0	50.0	78.0	128.0	22.0	22.0
Total Split (%)	33.3%	33.3%	52.0%	85.3%	14.7%	14.7%
Yellow Time (s)	5.0	5.0	3.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	3.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Max	Max	None	None	Max	Max
Act Effct Green (s)	43.0	43.0	75.0	121.0	16.0	16.0
Actuated g/C Ratio	0.29	0.29	0.50	0.81	0.11	0.11
v/c Ratio	1.59	1.14	2.08	0.23	1.61	1.04
Control Delay	307.2	115.2	513.5	3.7	331.4	50.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	307.2	115.2	513.5	3.7	331.4	50.5
LOS	F	F	F	A	F	D
Approach Delay	253.3			368.0	156.5	
Approach LOS	F			F	F	
Queue Length 50th (m)	~324.2	~147.5	~690.0	18.4	~106.9	~50.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Length 95th (m)	#369.3	#222.5	#775.7	23.3	#143.3	#132.0
Internal Link Dist (m)	157.5			171.9	114.4	
Turn Bay Length (m)			152.0		50.0	
Base Capacity (vph)	869	474	674	2447	287	736
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.59	1.14	2.08	0.23	1.61	1.04

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 2.08
Intersection Signal Delay: 274.0 Intersection LOS: F
Intersection Capacity Utilization 160.7% 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: 5: QEW Toronto Bound Ramps & North Service Road



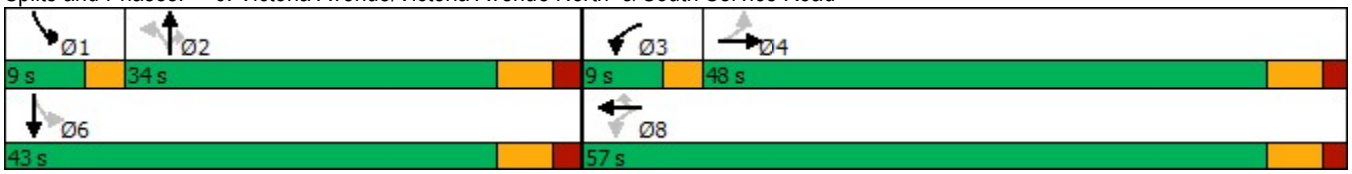
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	1219	0	0	0	258	58	0
Future Volume (vph)	0	0	0	0	0	1219	0	0	0	258	58	0
Ideal Flow (vphpl)	1504	1388	1351	1504	1629	1351	1504	1629	1351	1504	1388	1351
Storage Length (m)	72.0		0.0	120.0		45.0	168.0		68.0	269.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt						0.850						
Flt Protected										0.950		
Satd. Flow (prot)	1504	1388	0	1504	3095	1148	1504	3095	1351	2772	2637	0
Flt Permitted										0.683		
Satd. Flow (perm)	1504	1388	0	1504	3095	1148	1504	3095	1351	1993	2637	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						1091						
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		380.4			235.5			211.9			401.5	
Travel Time (s)		27.4			17.0			15.3			28.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	1325	0	0	0	280	63	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	1325	0	0	0	280	63	0
Turn Type	Perm			pm+pt		Perm	Perm		Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		6.0	10.0	10.0	20.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	16.1	16.1		9.0	16.1	16.1	32.4	32.4	32.4	9.0	32.4	
Total Split (s)	48.0	48.0		9.0	57.0	57.0	34.0	34.0	34.0	9.0	43.0	
Total Split (%)	48.0%	48.0%		9.0%	57.0%	57.0%	34.0%	34.0%	34.0%	9.0%	43.0%	
Yellow Time (s)	4.1	4.1		3.0	4.1	4.1	4.1	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.0	2.0		0.0	2.0	2.0	2.3	2.3	2.3	0.0	2.3	
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)	6.1	6.1		3.0	6.1	6.1	6.4	6.4	6.4	3.0	6.4	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Max	Max	Max	None	Max	
Act Effct Green (s)						50.9				40.0	36.6	
Actuated g/C Ratio						0.51				0.40	0.37	
v/c Ratio						1.18				0.33	0.07	
Control Delay						100.5				21.4	20.9	
Queue Delay						0.0				0.0	0.0	
Total Delay						100.5				21.4	20.9	
LOS						F				C	C	
Approach Delay					100.5						21.3	
Approach LOS					F						C	
Queue Length 50th (m)						~209.3				19.2	4.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)						#292.6				29.0	8.9	
Internal Link Dist (m)		356.4			211.5			187.9			377.5	
Turn Bay Length (m)						45.0				269.0		
Base Capacity (vph)						1120				843	965	
Starvation Cap Reductn						0				0	0	
Spillback Cap Reductn						0				0	0	
Storage Cap Reductn						0				0	0	
Reduced v/c Ratio						1.18				0.33	0.07	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 84.2 Intersection LOS: F
Intersection Capacity Utilization 111.2% 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: 6: Victoria Avenue/Victoria Avenue North & South Service Road



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	807	34	16	21	42	1652
Future Volume (vph)	807	34	16	21	42	1652
Ideal Flow (vphpl)	1504	1629	1388	1351	1504	1351
Storage Length (m)	109.0			0.0	0.0	0.0
Storage Lanes	1			0	1	2
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	0.88
Frt			0.922			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1429	3095	1280	0	1429	1981
Flt Permitted	0.731				0.950	
Satd. Flow (perm)	1099	3095	1280	0	1429	1981
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			23			1776
Link Speed (k/h)		50	50		50	
Link Distance (m)		235.5	232.1		141.7	
Travel Time (s)		17.0	16.7		10.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	868	37	17	23	45	1776
Shared Lane Traffic (%)						
Lane Group Flow (vph)	868	37	40	0	45	1776
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Detector Phase	4	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5	22.5		22.5	22.5
Total Split (s)	104.0	104.0	104.0		46.0	46.0
Total Split (%)	69.3%	69.3%	69.3%		30.7%	30.7%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None		Max	Max
Act Effct Green (s)	99.5	99.5	99.5		41.5	41.5
Actuated g/C Ratio	0.66	0.66	0.66		0.28	0.28
v/c Ratio	1.19	0.02	0.05		0.11	0.97
Control Delay	125.0	8.7	4.9		41.6	17.4
Queue Delay	0.1	0.0	0.0		0.0	0.0
Total Delay	125.1	8.7	4.9		41.6	17.4
LOS	F	A	A		D	B
Approach Delay		120.3	4.9		18.0	
Approach LOS		F	A		B	
Queue Length 50th (m)	~326.8	1.9	1.7		10.6	0.0

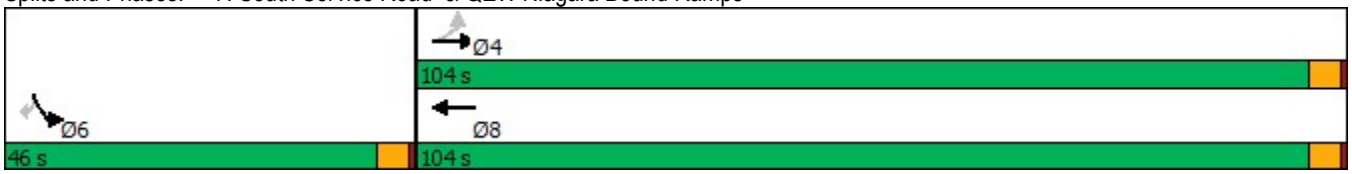
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (m)	#409.3	4.1	6.1		21.6	#121.3
Internal Link Dist (m)		211.5	208.1		117.7	
Turn Bay Length (m)	109.0					
Base Capacity (vph)	729	2053	856		395	1832
Starvation Cap Reductn	16	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	1.22	0.02	0.05		0.11	0.97

Intersection Summary	
Area Type: Other	
Cycle Length: 150	
Actuated Cycle Length: 150	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 51.3	Intersection LOS: D
Intersection Capacity Utilization 92.9%	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: 7: South Service Road & QEW Niagara Bound Ramps



Intersection: 1: Victoria Avenue North & North Service Road /North Service Road

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	T	T	R	L	TR
Maximum Queue (m)	34.7	20.2	14.2	18.4	4.9	133.8	22.3	11.4
Average Queue (m)	13.2	4.8	6.3	6.7	0.2	28.9	10.6	2.6
95th Queue (m)	26.2	13.9	13.7	15.9	2.3	104.6	19.6	8.5
Link Distance (m)			158.8	363.7	363.7		125.1	125.1
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	160.0	160.0				240.0		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Victoria Avenue North & Dustan Street

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Victoria Avenue North & Laurie Avenue

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.5
Average Queue (m)	3.6
95th Queue (m)	9.5
Link Distance (m)	226.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Victoria Avenue North & Viceroy Avenue /Site Access

Movement	WB
Directions Served	LTR
Maximum Queue (m)	20.0
Average Queue (m)	11.4
95th Queue (m)	17.4
Link Distance (m)	57.6
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: QEW Toronto Bound Ramps & North Service Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	R	L	T	T	L	L	R
Maximum Queue (m)	133.8	135.5	194.2	159.5	193.3	82.6	53.7	57.4	135.1
Average Queue (m)	124.2	127.7	163.7	159.3	183.5	6.9	39.0	57.0	124.8
95th Queue (m)	135.5	136.3	233.2	159.9	189.6	40.7	60.0	61.5	132.0
Link Distance (m)	158.8	158.8	158.8		176.7	176.7			116.6
Upstream Blk Time (%)			18		52	0			70
Queuing Penalty (veh)			69		0	0			0
Storage Bay Dist (m)				152.0			50.0	50.0	
Storage Blk Time (%)				53	1		5	14	61
Queuing Penalty (veh)				136	12		34	97	259

Intersection: 6: Victoria Avenue/Victoria Avenue North & South Service Road

Movement	WB	WB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	TR
Maximum Queue (m)	82.6	52.5	48.8	10.3	8.3	12.0
Average Queue (m)	37.9	46.3	20.6	0.8	1.1	3.4
95th Queue (m)	95.0	63.4	39.6	5.1	5.7	10.1
Link Distance (m)	204.1				363.7	363.7
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		45.0	269.0	269.0		
Storage Blk Time (%)	0	18				
Queuing Penalty (veh)	0	0				

Intersection: 7: South Service Road & QEW Niagara Bound Ramps

Movement	EB	EB	EB	WB	SB	SB	SB
Directions Served	L	T	T	TR	L	R	R
Maximum Queue (m)	116.3	138.4	14.8	15.5	131.2	138.7	142.6
Average Queue (m)	98.7	30.0	1.7	4.6	34.0	107.8	134.1
95th Queue (m)	132.7	110.1	8.4	12.4	111.5	145.5	137.9
Link Distance (m)		204.1	204.1	221.2	128.7	128.7	128.7
Upstream Blk Time (%)					1	7	99
Queuing Penalty (veh)					0	0	0
Storage Bay Dist (m)	109.0						
Storage Blk Time (%)	13	1					
Queuing Penalty (veh)	2	7					

Network Summary

Network wide Queuing Penalty: 616

APPENDIX F

ITE Trip Generation Manual 11th Edition

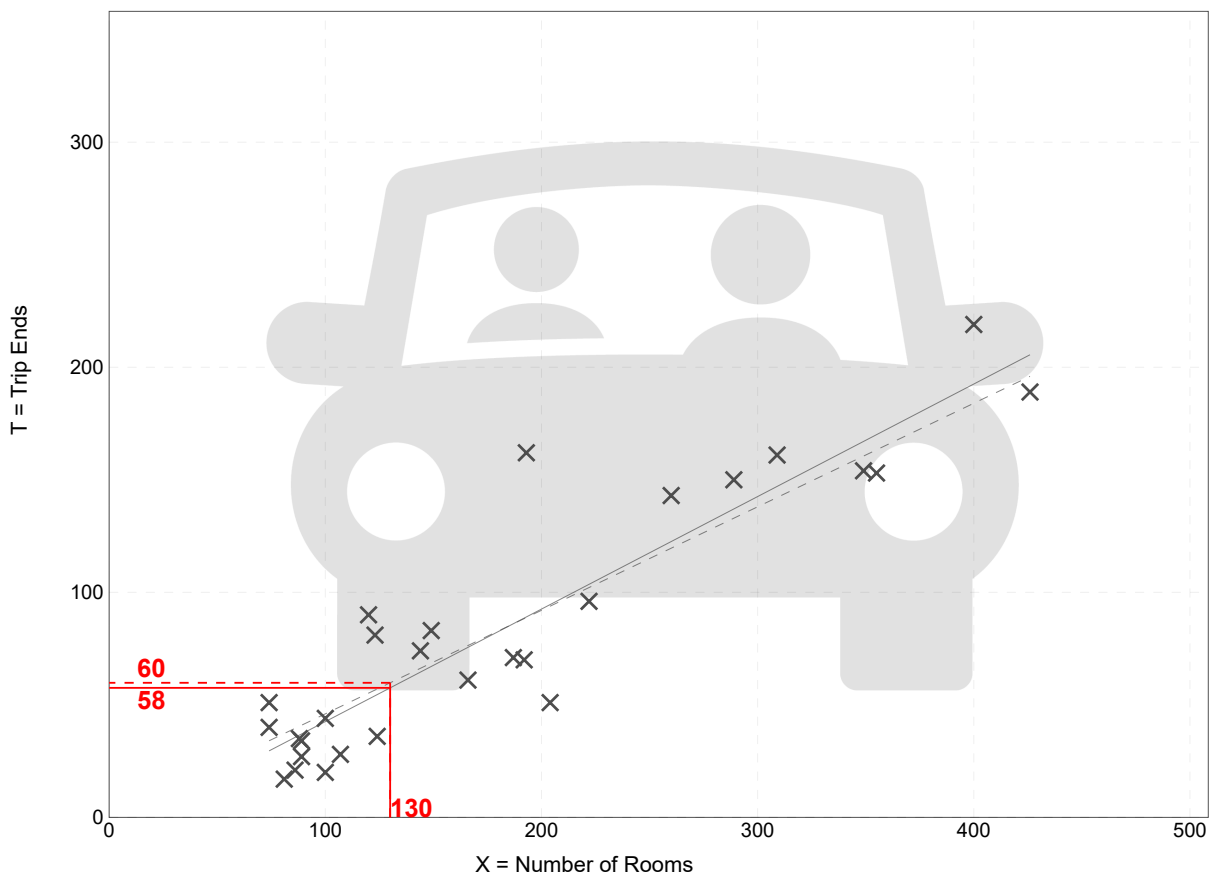
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	28
Avg. Num. of Rooms:	182
Directional Distribution:	56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.46	0.20 - 0.84	0.14

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: T = 0.50(X) - 7.45 **R^2= 0.84**

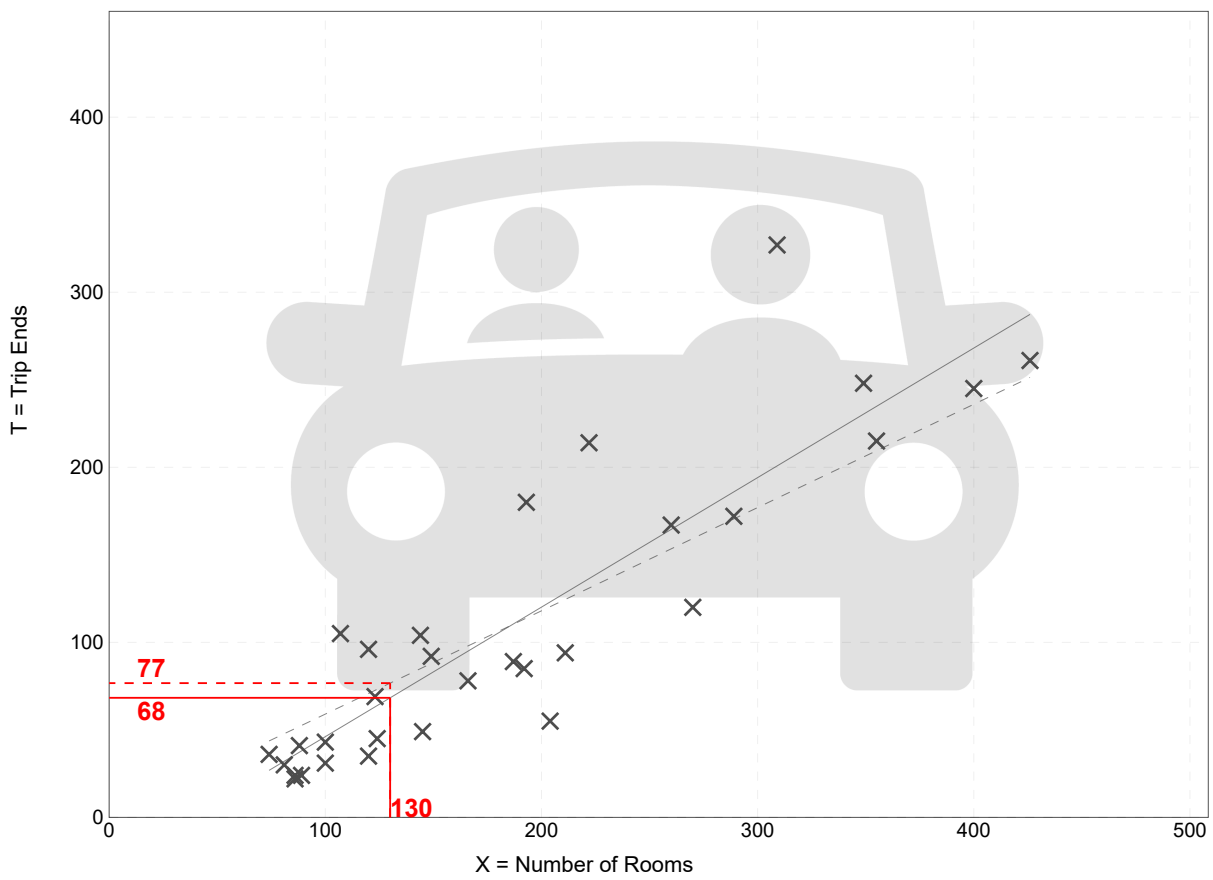
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	31
Avg. Num. of Rooms:	186
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.59	0.26 - 1.06	0.22

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: T = 0.74(X) - 27.89 **R^2= 0.78**

Hotel
(310)

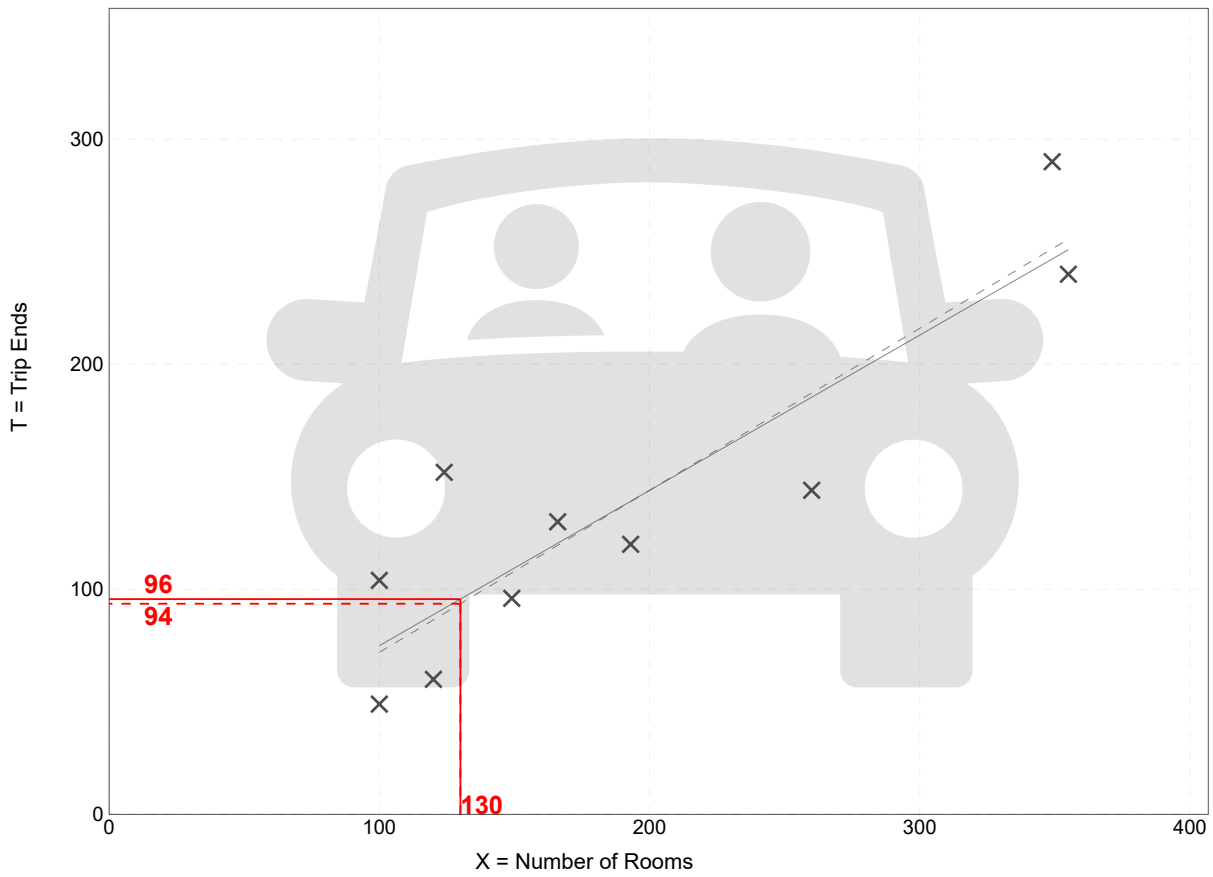
Vehicle Trip Ends vs: **Rooms**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 10
Avg. Num. of Rooms: 192
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.72	0.49 - 1.23	0.20

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - **Average Rate**

Fitted Curve Equation: T = 0.69(X) + 5.95 **R^2= 0.80**

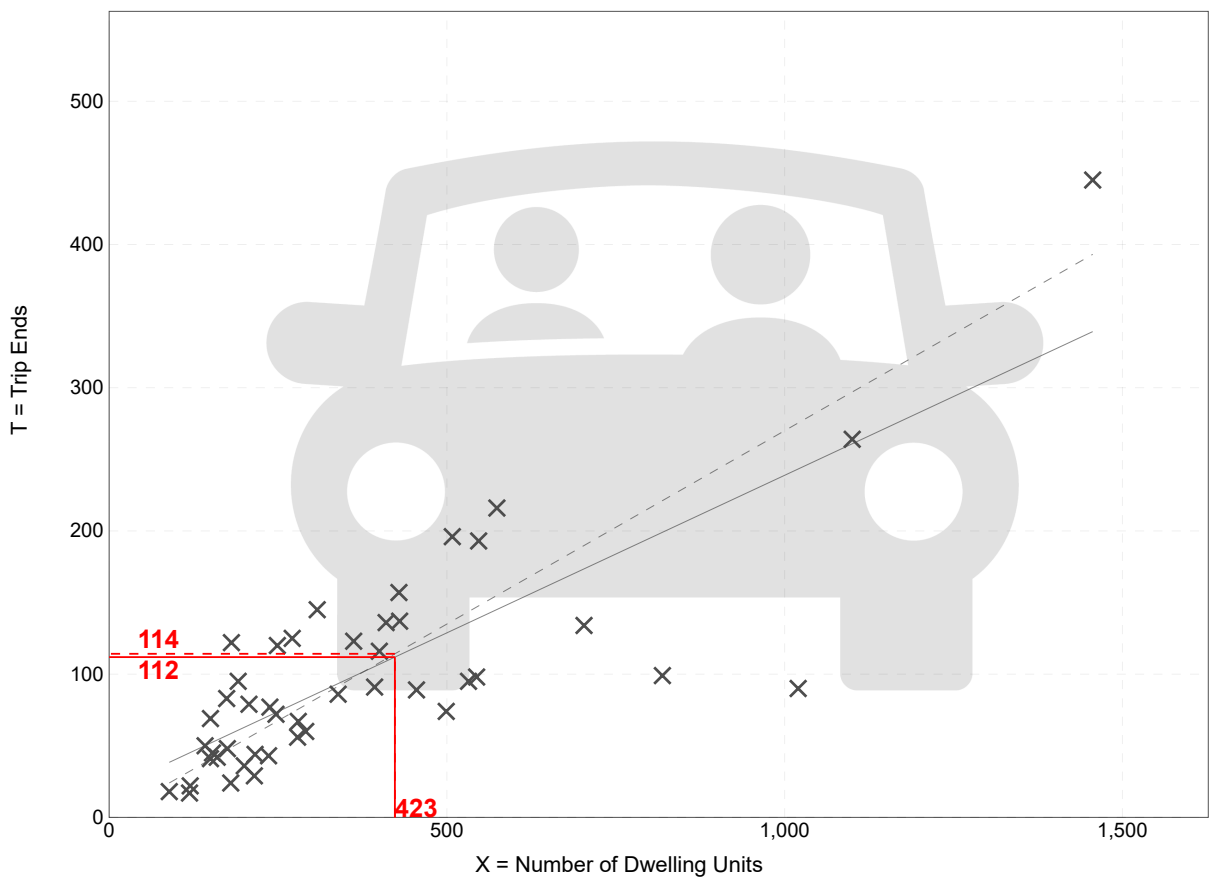
Multifamily Housing (High-Rise)
Not Close to Rail Transit (222)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	45
Avg. Num. of Dwelling Units:	372
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.27	0.09 - 0.67	0.11

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: T = 0.22(X) + 18.85 **R^2= 0.64**

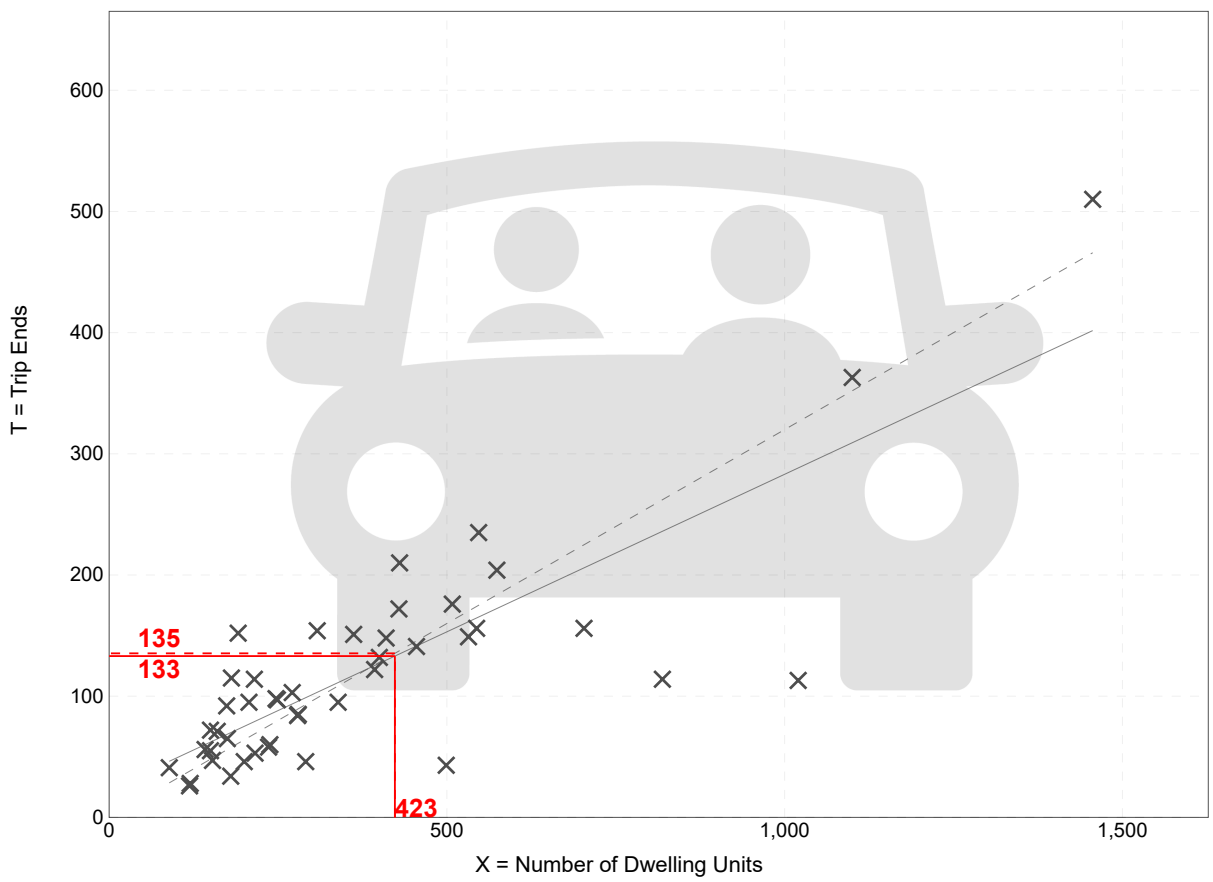
Multifamily Housing (High-Rise)
Not Close to Rail Transit (222)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	45
Avg. Num. of Dwelling Units:	372
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.32	0.09 - 0.80	0.13

Data Plot and Equation



× **Study Site** ——— **Fitted Curve** - - - - **Average Rate**

Fitted Curve Equation: T = 0.26(X) + 23.12 **R^2= 0.67**

Multifamily Housing (High-Rise)
Not Close to Rail Transit (222)

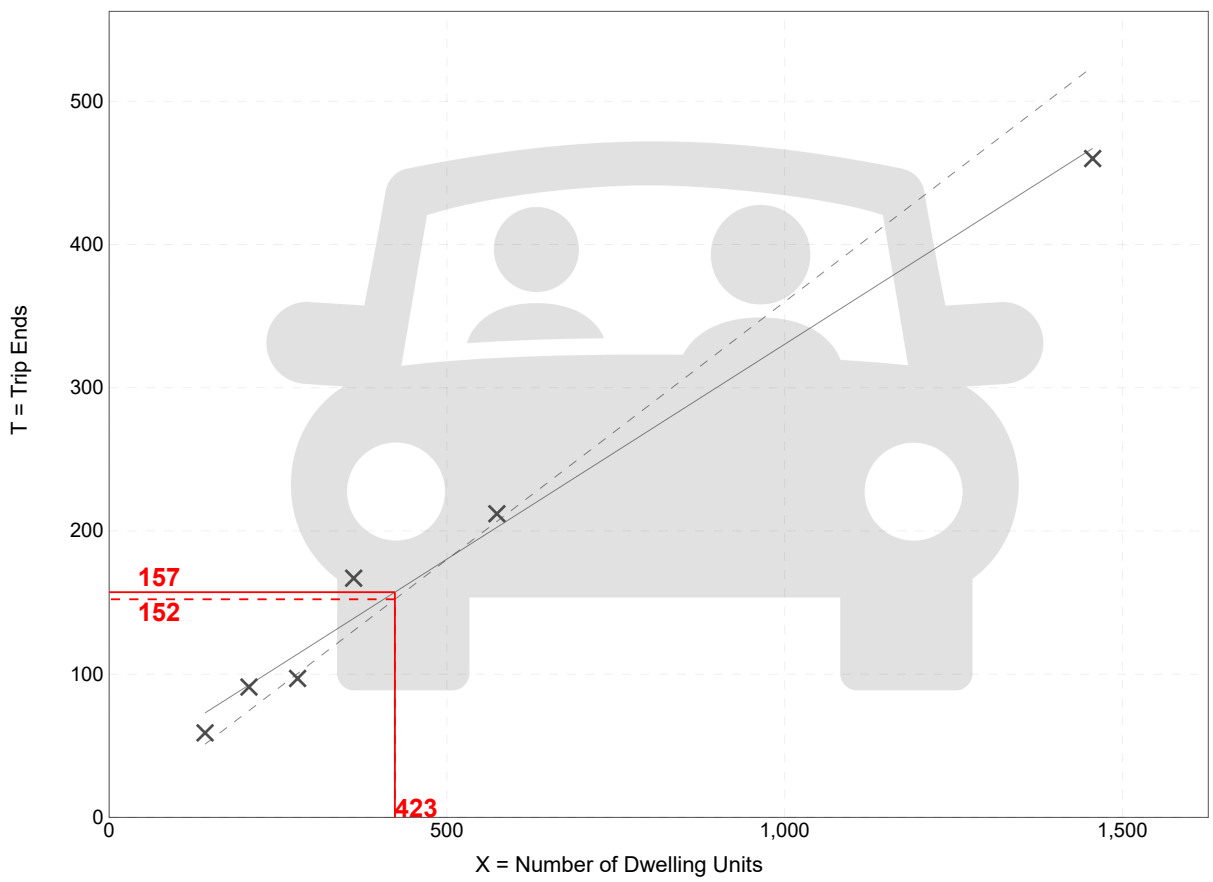
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. Num. of Dwelling Units: 503
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.32 - 0.46	0.06

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: T = 0.30(X) + 30.34 **R^2= 0.99**

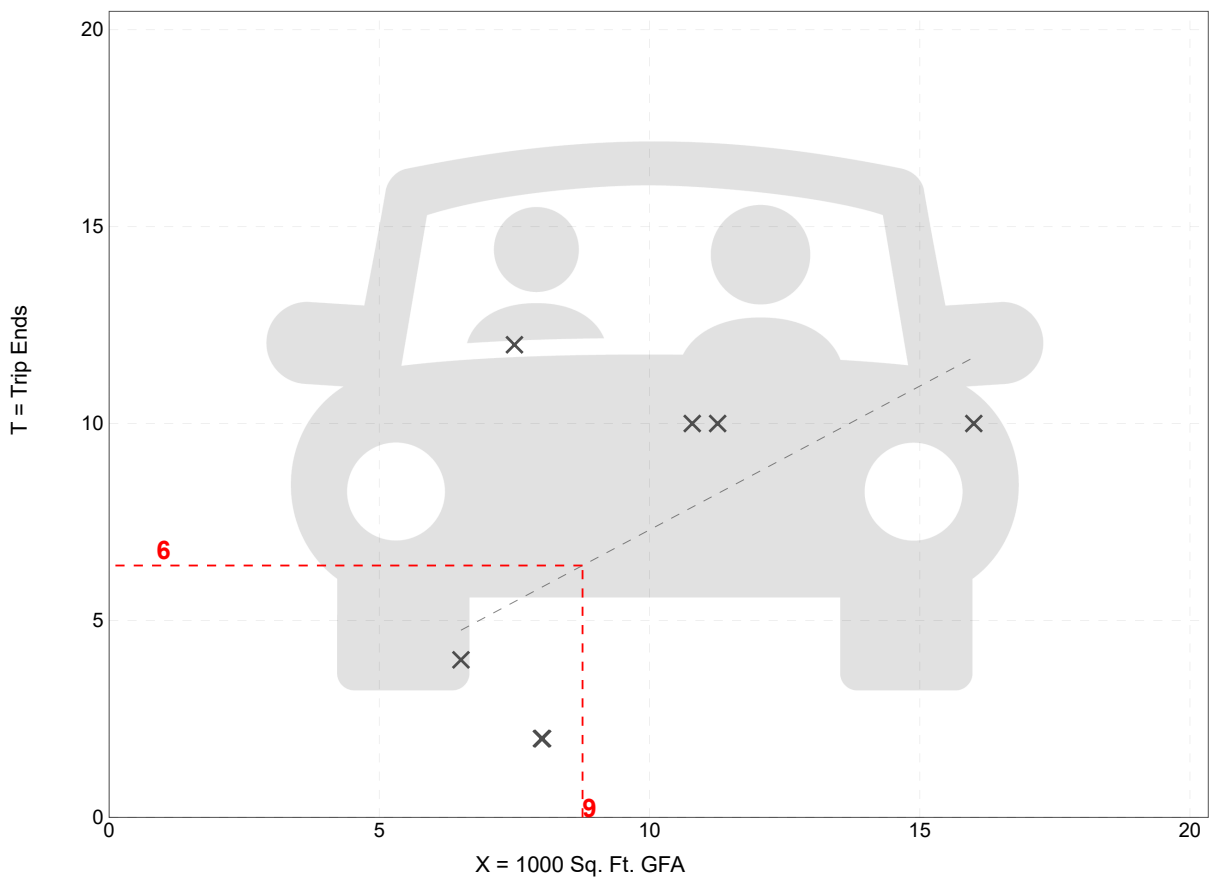
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	7
Avg. 1000 Sq. Ft. GFA:	10
Directional Distribution:	Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



× **Study Site** — — — **Average Rate**

Fitted Curve Equation: Not Given **R^2= ******

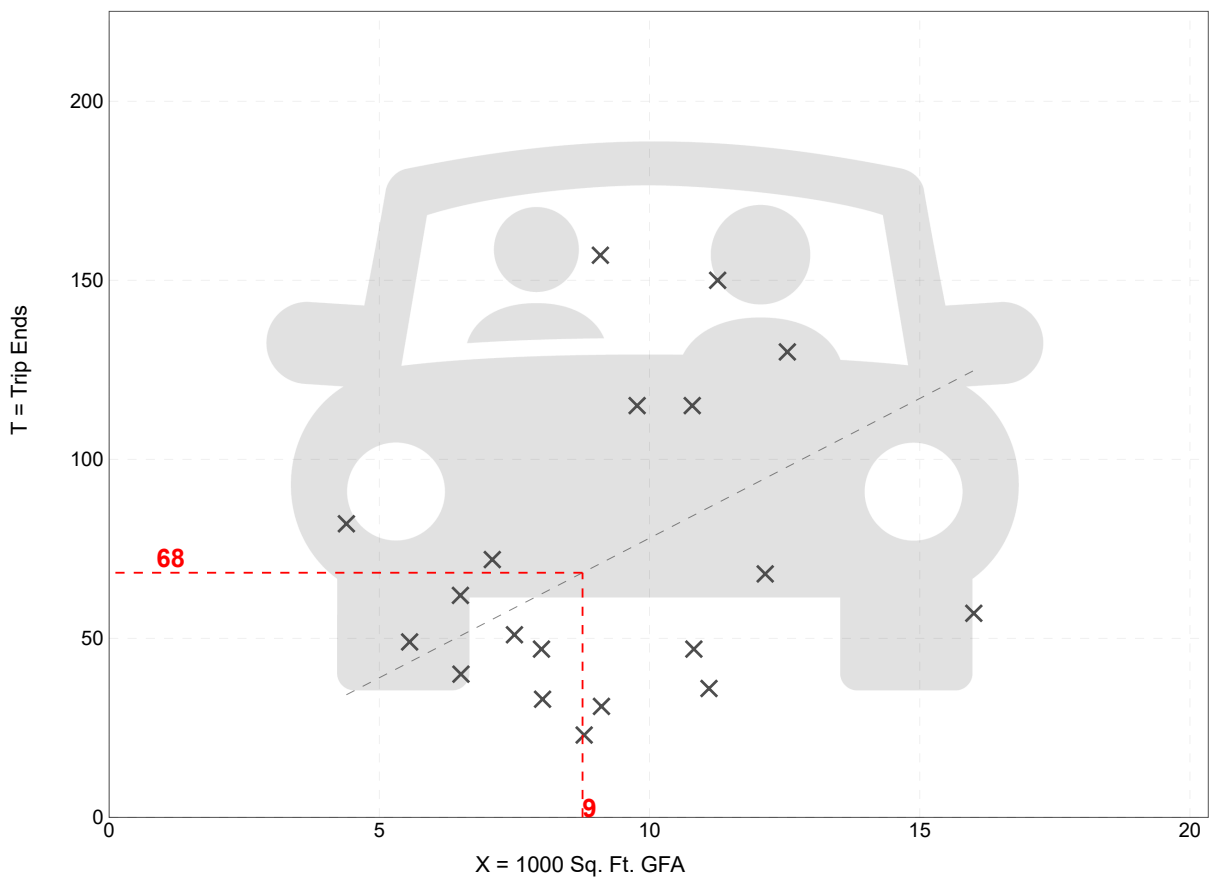
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	19
Avg. 1000 Sq. Ft. GFA:	9
Directional Distribution:	67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



Study Site — **Average Rate**

Fitted Curve Equation: Not Given — **R^2= ******

Fine Dining Restaurant
(931)

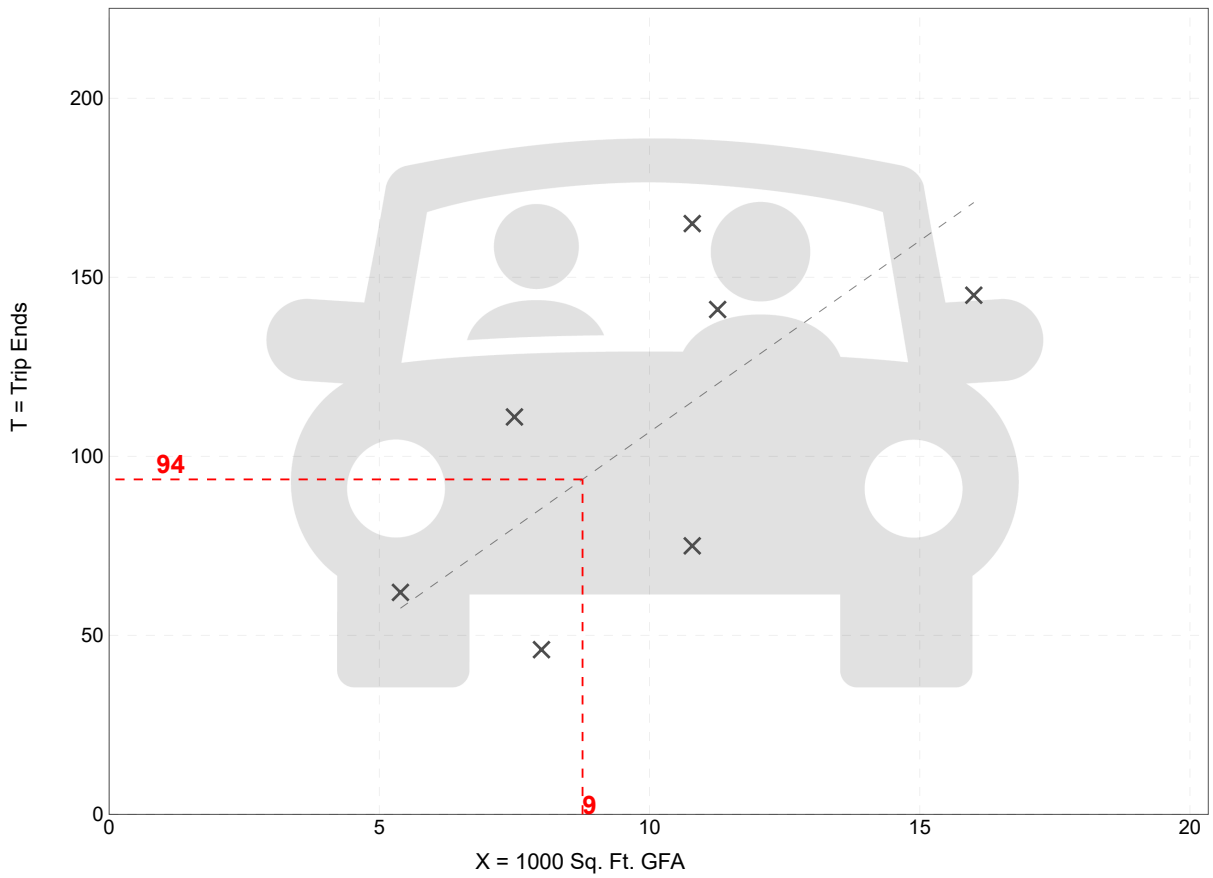
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.68	5.75 - 15.29	3.62

Data Plot and Equation



× **Study Site** — — — **Average Rate**

Fitted Curve Equation: Not Given **R^2= ******

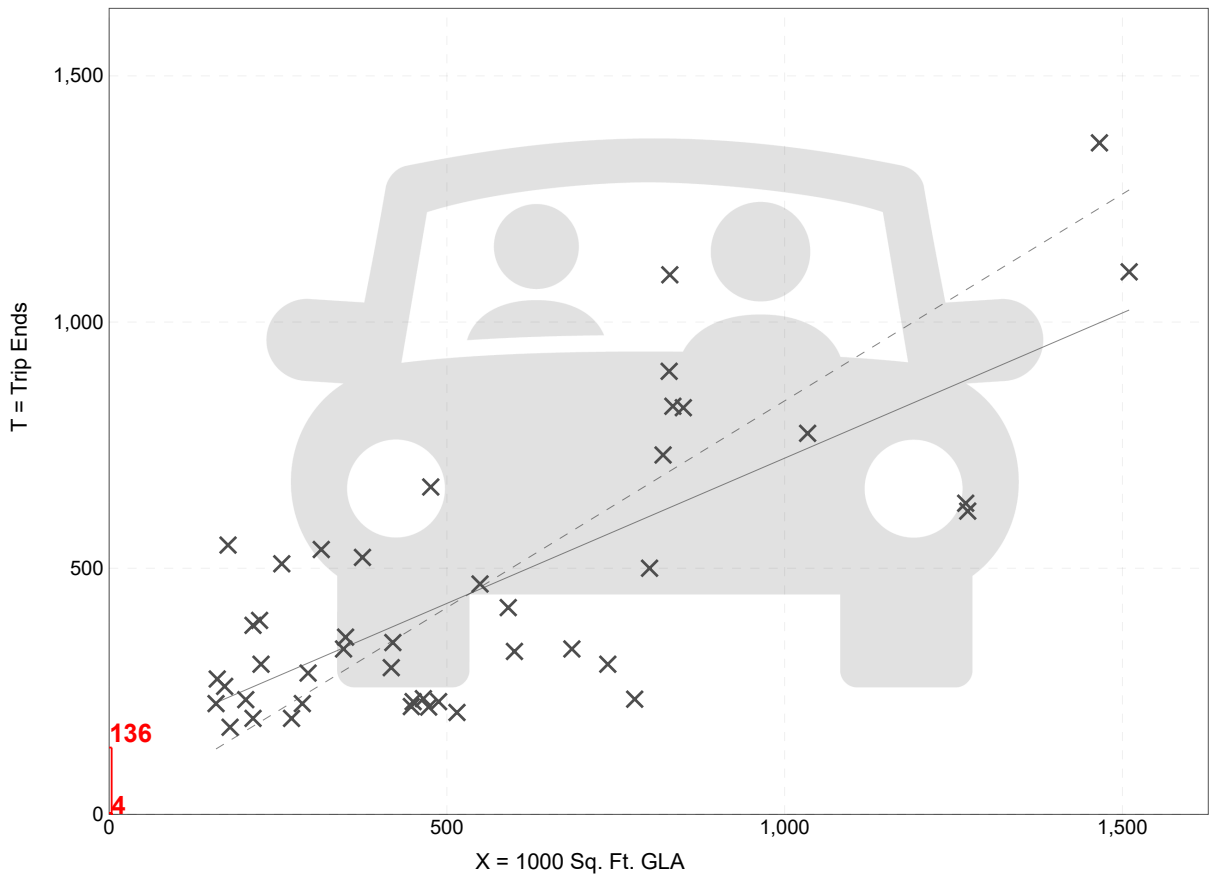
Shopping Center (>150k)
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	44
Avg. 1000 Sq. Ft. GLA:	546
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.84	0.30 - 3.11	0.42

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: T = 0.59(X) + 133.55 **R^2= 0.56**

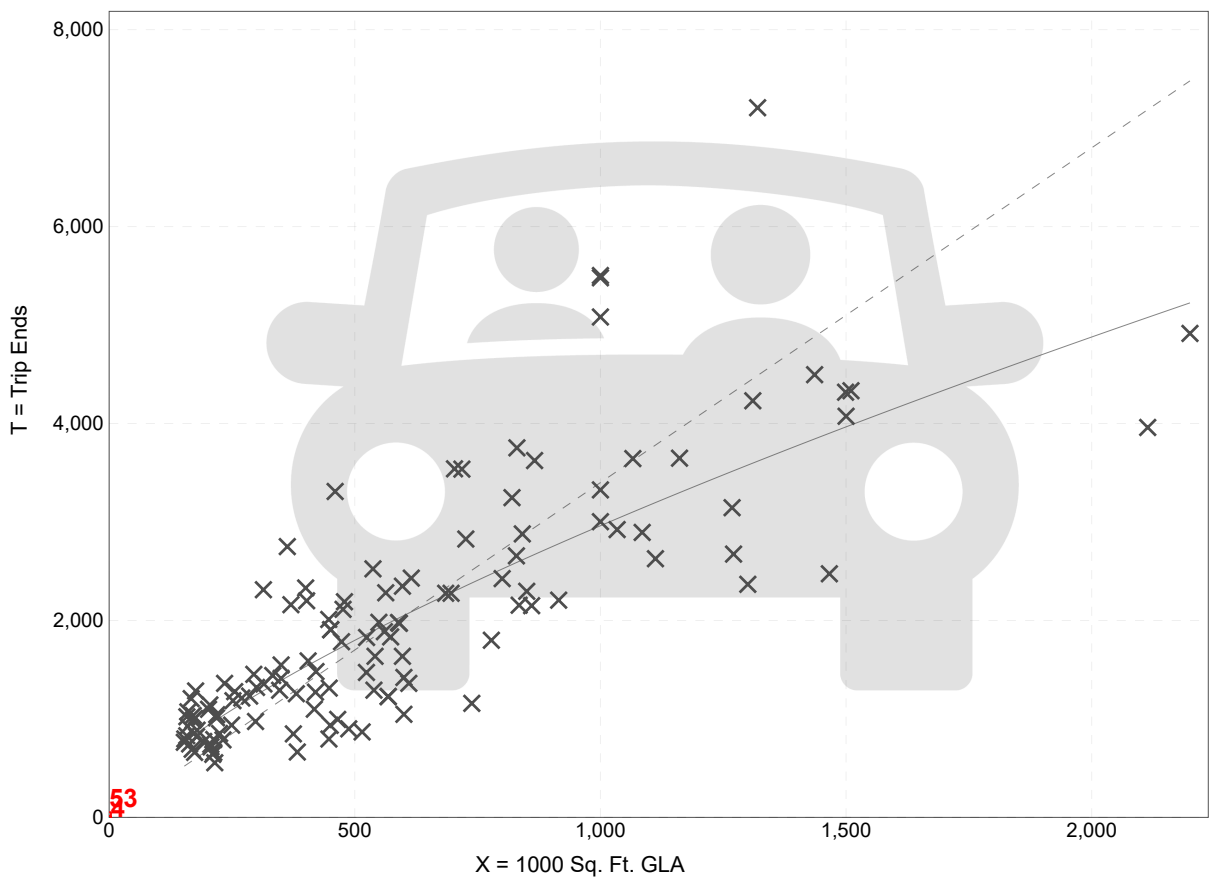
Shopping Center (>150k)
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	126
Avg. 1000 Sq. Ft. GLA:	581
Directional Distribution:	48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.40	1.57 - 7.58	1.26

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.72 Ln(X) + 3.02 **R^2= 0.70**

Shopping Center (>150k)
(820)

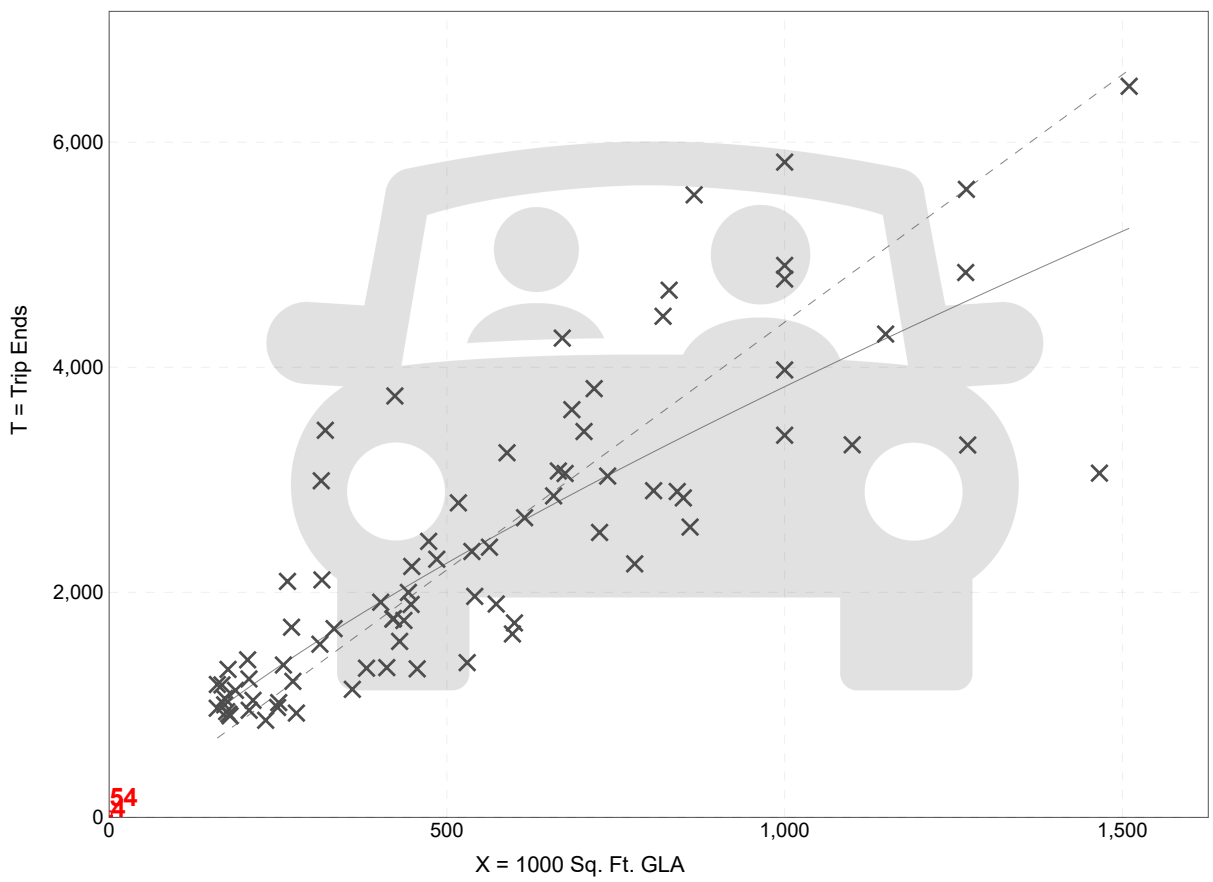
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 81
Avg. 1000 Sq. Ft. GLA: 559
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.40	2.09 - 10.75	1.41

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: Ln(T) = 0.76 Ln(X) + 3.00 **R^2= 0.75**

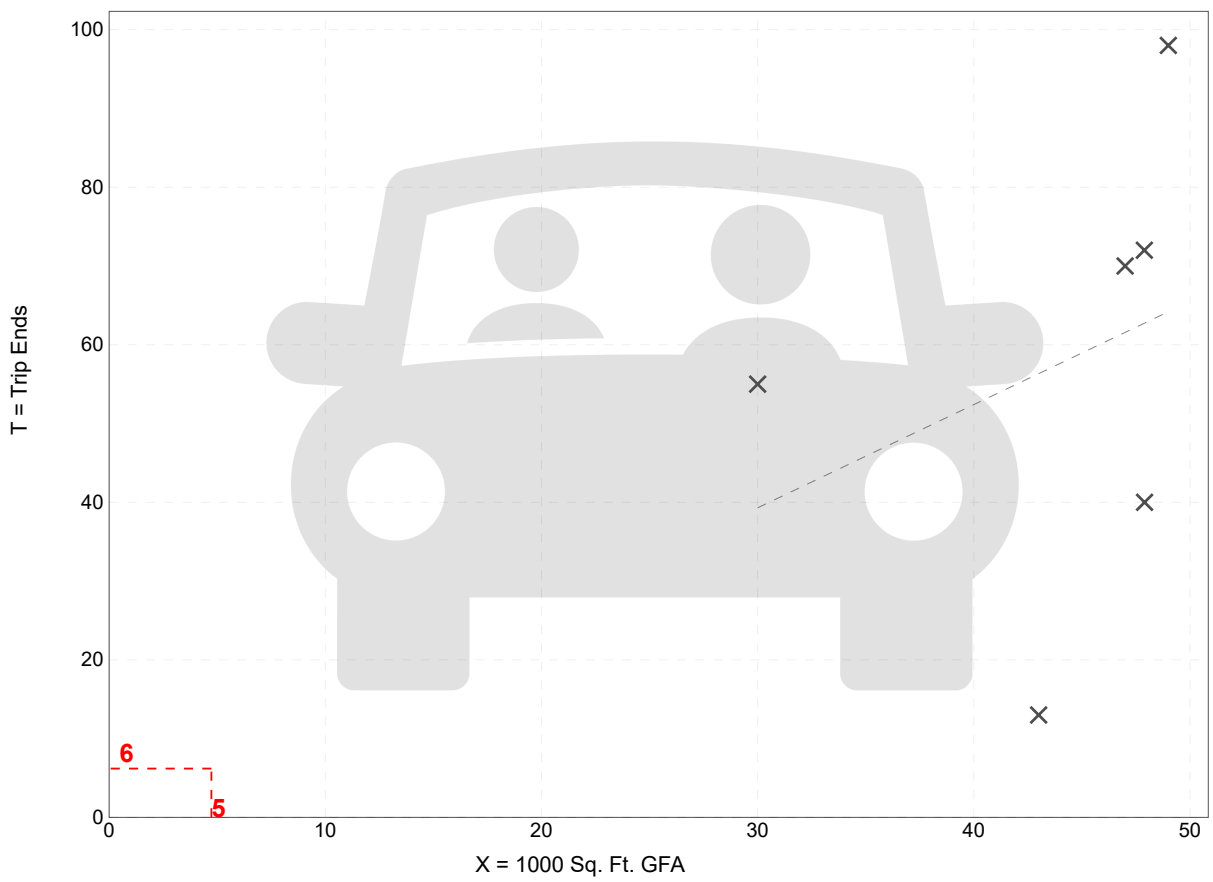
Health/Fitness Club
(492)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	6
Avg. 1000 Sq. Ft. GFA:	44
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



× **Study Site** — — — **Average Rate**

Fitted Curve Equation: Not Given **R^2= ******

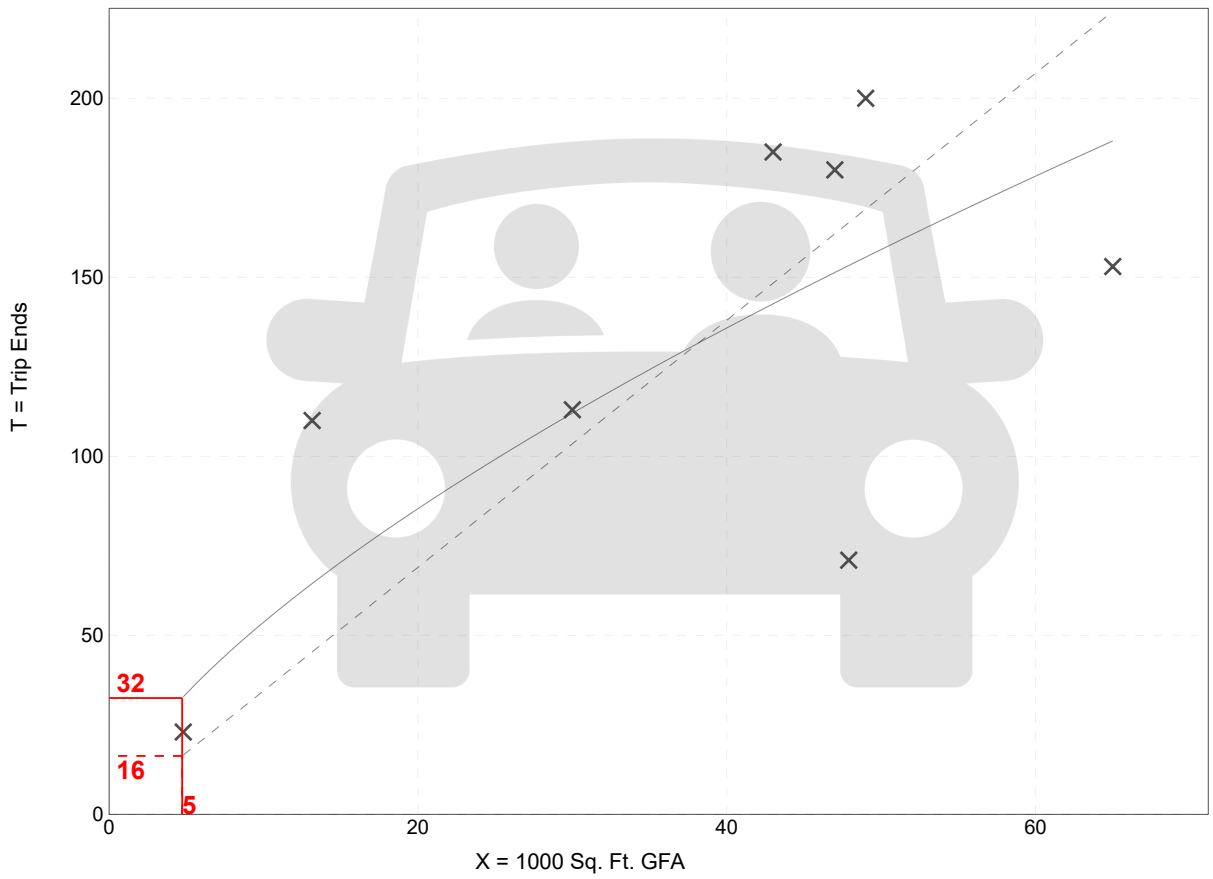
Health/Fitness Club
(492)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	8
Avg. 1000 Sq. Ft. GFA:	37
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



Study Site **Fitted Curve** **Average Rate**

Fitted Curve Equation: Ln(T) = 0.67 Ln(X) + 2.44 **R^2= 0.67**

Health/Fitness Club
(492)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

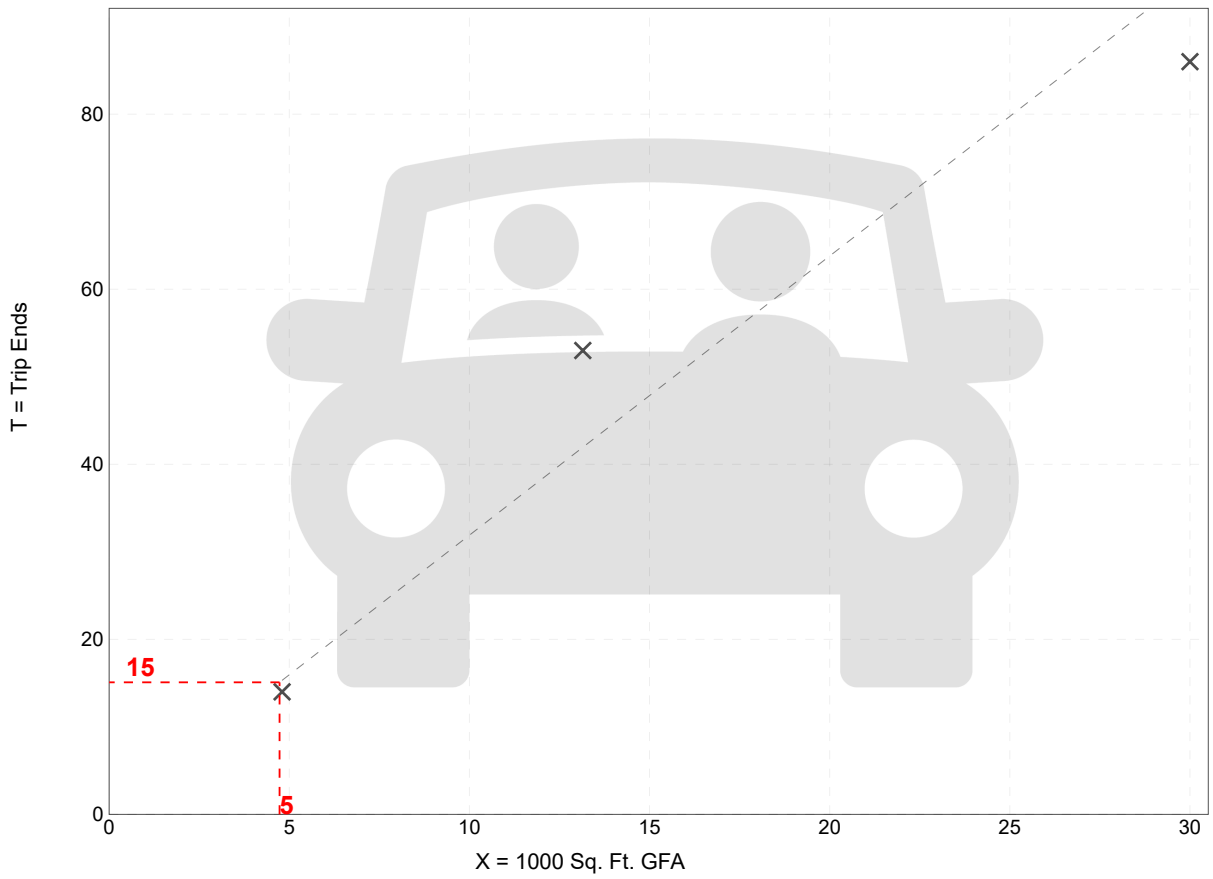
Setting/Location: **General Urban/Suburban**
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 16
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.19	2.87 - 4.03	0.63

Data Plot and Equation

Caution – Small Sample Size



× **Study Site** — — — — **Average Rate**

Fitted Curve Equation: Not Given **R^2= ******

APPENDIX G

Transportation Tomorrow Survey Results

Thu Nov 09 2023 15:25:48 GMT-0500 (Eastern Standard Time) - Run Time: 2650ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

(2006 GTA zone of destination - gta06_dest In 6028

and

Start time of trip - start_time In 0630-0930

and

Trip purpose of destination - purp_dest In H, W, E,)

Trip 2016

Table:

,6028

3720,8

4145,18

5061,16

6015,14

6016,31

6052,49

6062,14

6074,75

6143,5

6146,19

6150,55

Thu Nov 09 2023 15:29:09 GMT-0500 (Eastern Standard Time) - Run Time: 2696ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest

Column: 2006 GTA zone of origin - gta06_orig

Filters:

(2006 GTA zone of origin - gta06_orig In 6028

and

Start time of trip - start_time In 0630-0930

and

Trip purpose of origin - purp_orig In H, W, E,)

Trip 2016

Table:

,6028

4145,18

5105,33

6004,12

6009,12

6027,10

6112,12

6136,18

Thu Nov 09 2023 15:39:43 GMT-0500 (Eastern Standard Time) - Run Time: 3106ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

(2006 GTA zone of destination - gta06_dest In 6028

and

Start time of trip - start_time In 1530-1830

and

Trip purpose of destination - purp_dest In H, W, E,)

Trip 2016

Table:

,6028

5135,33

6136,18

Thu Nov 09 2023 15:45:26 GMT-0500 (Eastern Standard Time) - Run Time: 2399ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest

Column: 2006 GTA zone of origin - gta06_orig

Filters:

(2006 GTA zone of origin - gta06_orig In 6028

and

Start time of trip - start_time In 1530-1830

and

Trip purpose of origin - purp_orig In H, W, E,)

Trip 2016

Table:

,6028

3720,8

5061,16

5088,17

6016,31

6052,49

6062,14

6074,75

6109,18

6143,5

6146,19

6150,55

6158,24

6159,7

6235,90

6361,16

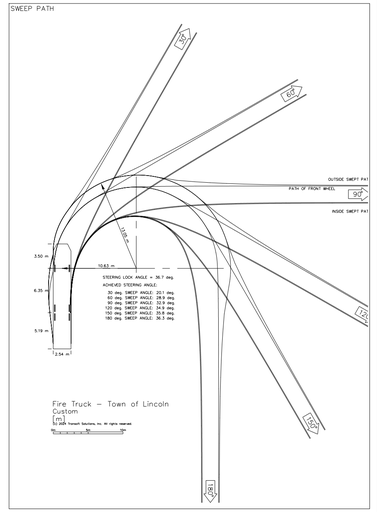
APPENDIX H

Vehicle Maneuvering Diagrams

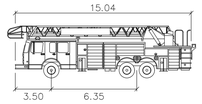
5 0m 5 10 15 20
SCALE: 1:250

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

SWEEP PATH



VEHICLE PROFILE



Fire Truck – Town of Lincoln

	meters
Width	: 2.54
Track	: 2.34
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	03/07/2024
2	ISSUED FOR REVIEW	04/26/2024

Project
GLOBIZEN GROUP
4933 VICTORIA AVENUE NORTH
TOWN OF LINCOLN

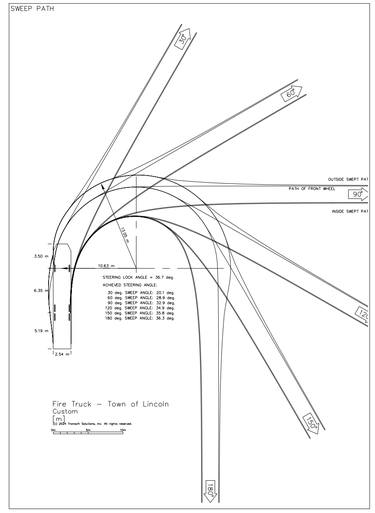
Drawing
FIRE TRUCK (TOWN OF LINCOLN)
VEHICLE MANEUVERING ANALYSIS
(GROUND LEVEL)

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905 875 0026 T
905 875 4915 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

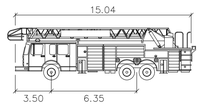
Drawn By M.P.	Design By	Project	2571–6892
Check By I.L.	Check By	Scale 1:250	Drawing T005

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

SWEEP PATH



VEHICLE PROFILE



Fire Truck – Town of Lincoln

meters

Width	: 2.54
Track	: 2.34
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	03/07/2024
2	ISSUED FOR REVIEW	04/26/2024

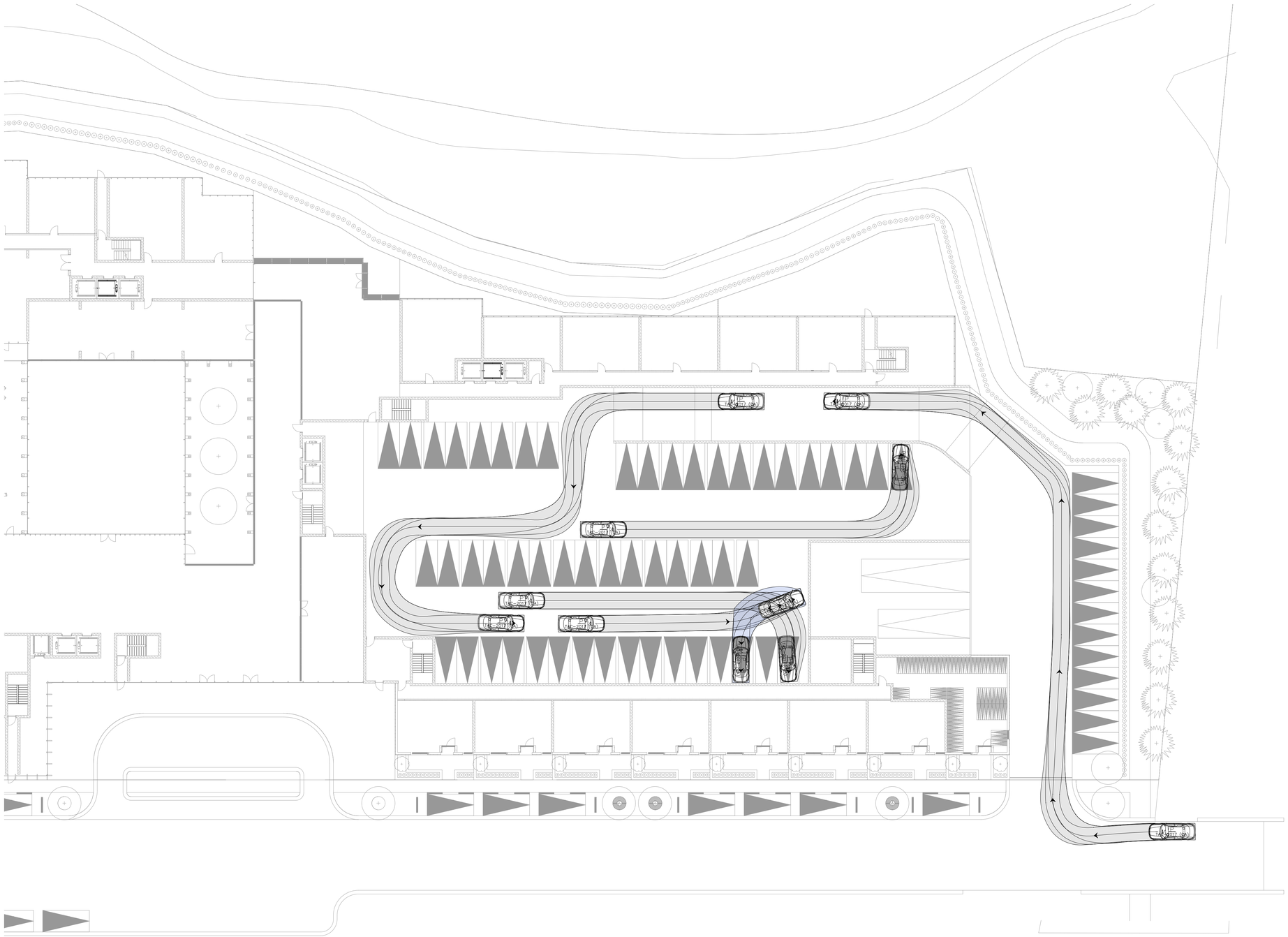
Project
GLOBIZEN GROUP
4933 VICTORIA AVENUE NORTH
TOWN OF LINCOLN

Drawing
FIRE TRUCK (TOWN OF LINCOLN)
VEHICLE MANEUVERING ANALYSIS
(GROUND LEVEL)

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON. L9T 6P4
905 875 0026 T
905 875 4915 F
WWW.CIFCROZIER.CA
INFO@CIFCROZIER.CA

Drawn By M.P.	Design By	Project	2571–6892
Check By I.L.	Check By	Scale 1:250	Drawing T006

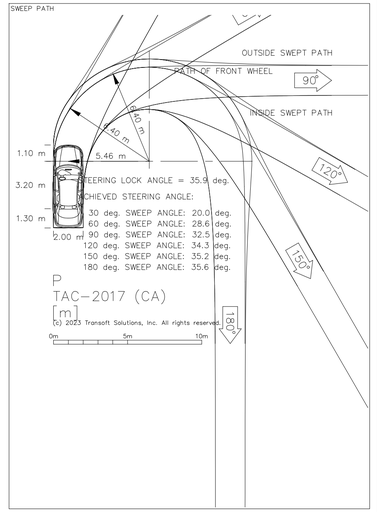
5 0m 5 10 15 20
SCALE: 1:250



N

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

SWEEP PATH



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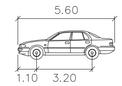
VEHICLE PROFILE



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	03/07/2024

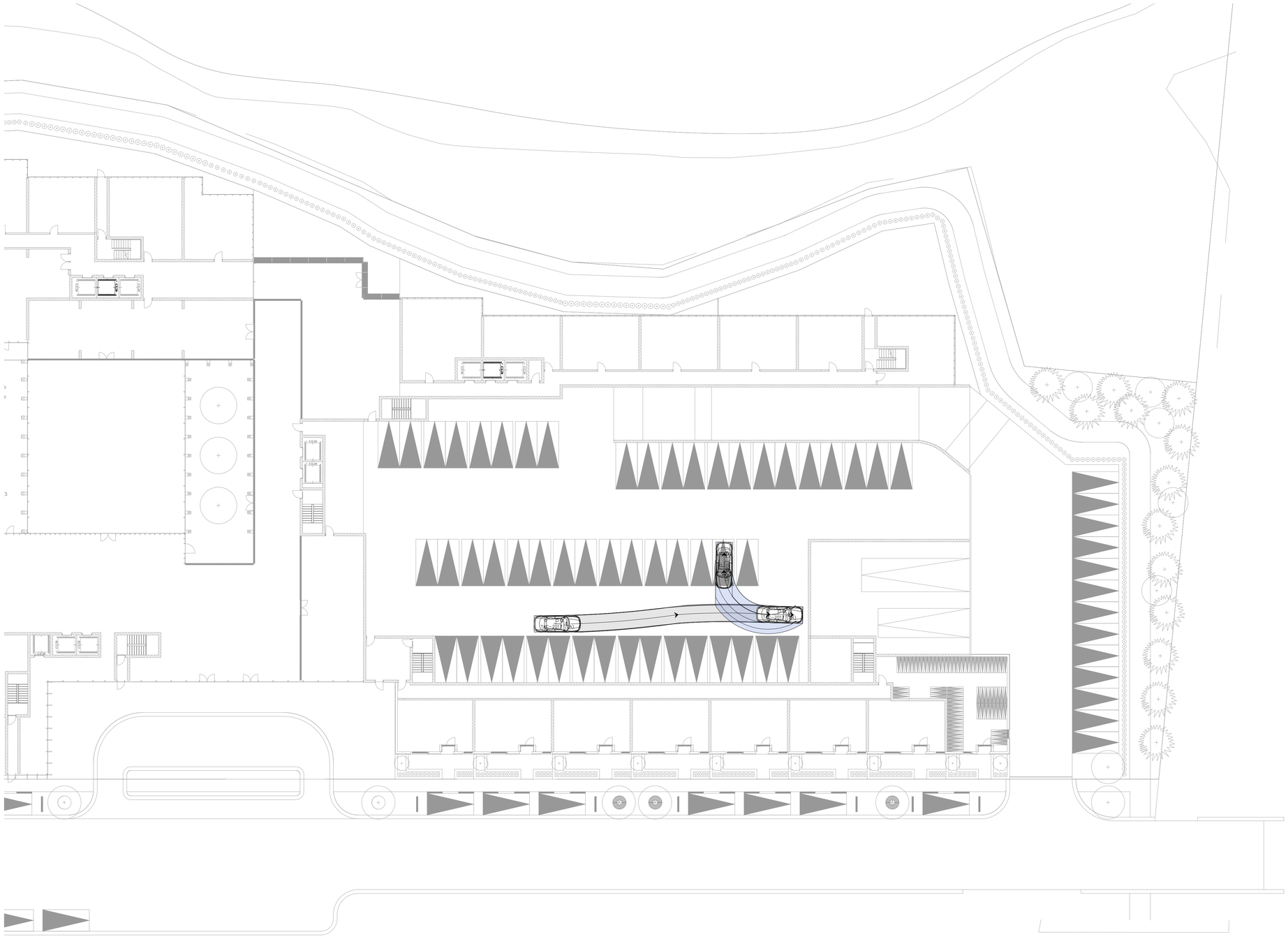
Project
GLOBIZEN GROUP
4933 VICTORIA AVENUE NORTH
TOWN OF LINCOLN

Drawing
PASSENGER CAR
VEHICLE MANEUVERING ANALYSIS
(GROUND LEVEL)

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON, L9T 6P4
905 875-0026 T
905 875-4915 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By: M.F.	Design By:	Project: 2571-6892	
Check By: I.L.	Check By:	Scale: 1:250	Drawing: T300

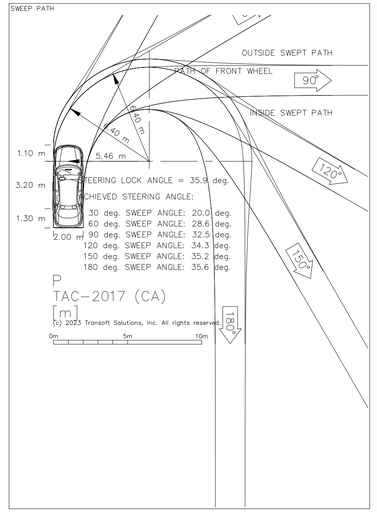
5 0m 5 10 15 20
SCALE: 1:250



N

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

SWEEP PATH



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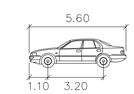
VEHICLE PROFILE



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	03/07/2024

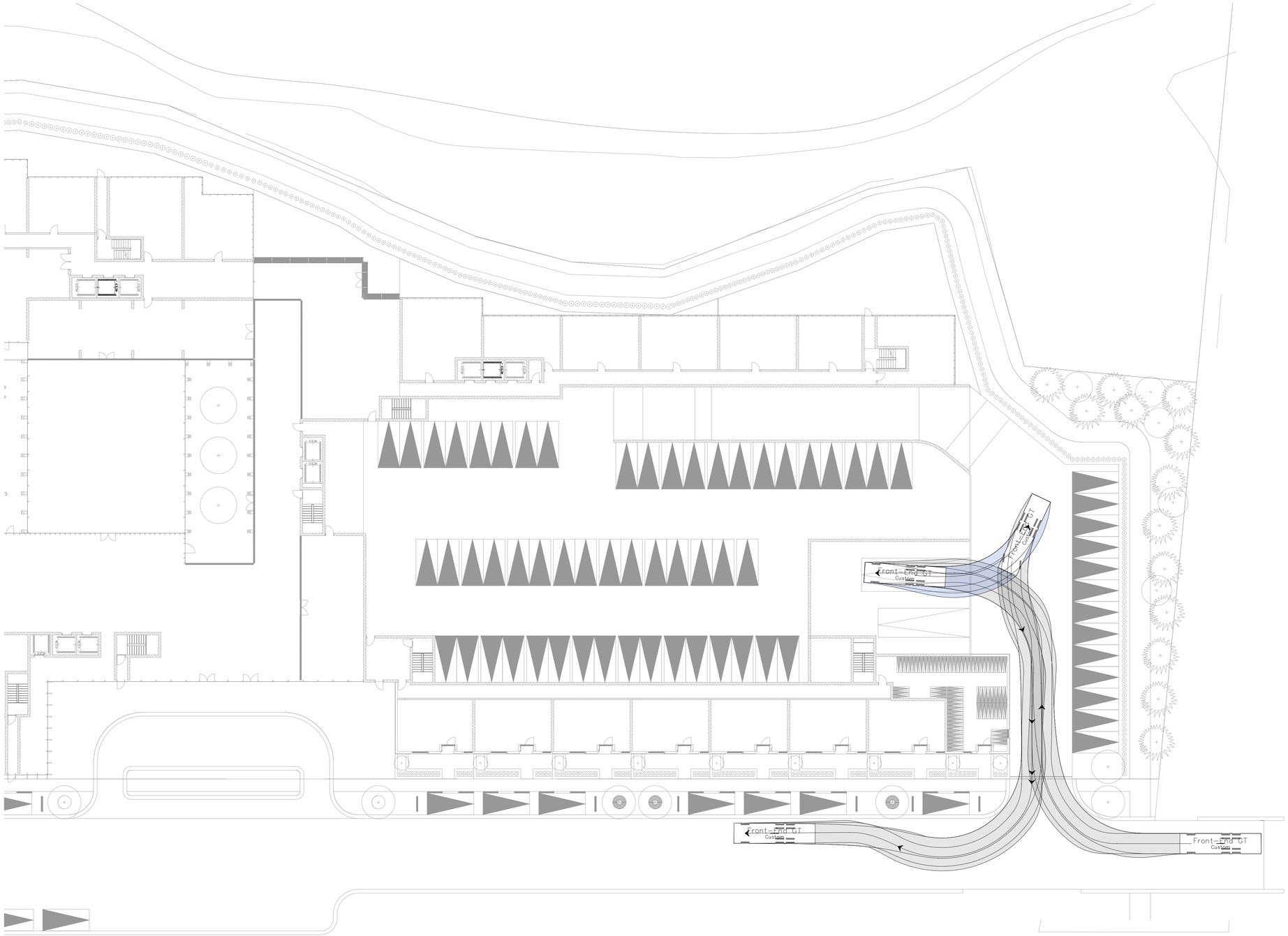
Project
GLOBIZEN GROUP
4933 VICTORIA AVENUE NORTH
TOWN OF LINCOLN

Drawing
PASSENGER CAR
VEHICLE MANEUVERING ANALYSIS
(GROUND LEVEL)

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON, L9T 6P4
905 875-0026 T
905 875-4915 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project	
M.F.		2571-6892	
Check By	Check By	Scale	Drawing
I.L.		1:250	T301

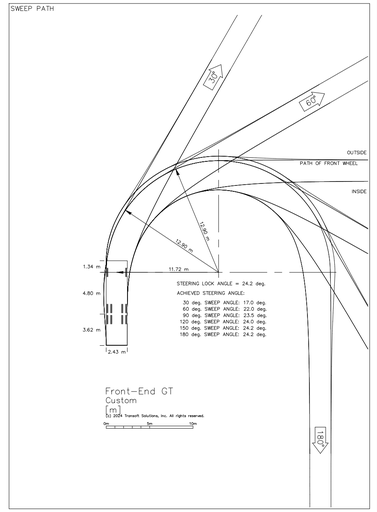
5 0m 5 10 15 20
SCALE: 1:250



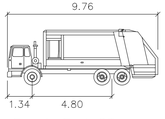
N

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

SWEEP PATH



VEHICLE PROFILE



Front-End GT

	meters
Width	: 2.43
Track	: 2.43
Lock to Lock Time	: 6.0
Steering Angle	: 24.2

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	03/07/2024

Project
GLOBIZEN GROUP
4933 VICTORIA AVENUE NORTH
TOWN OF LINCOLN

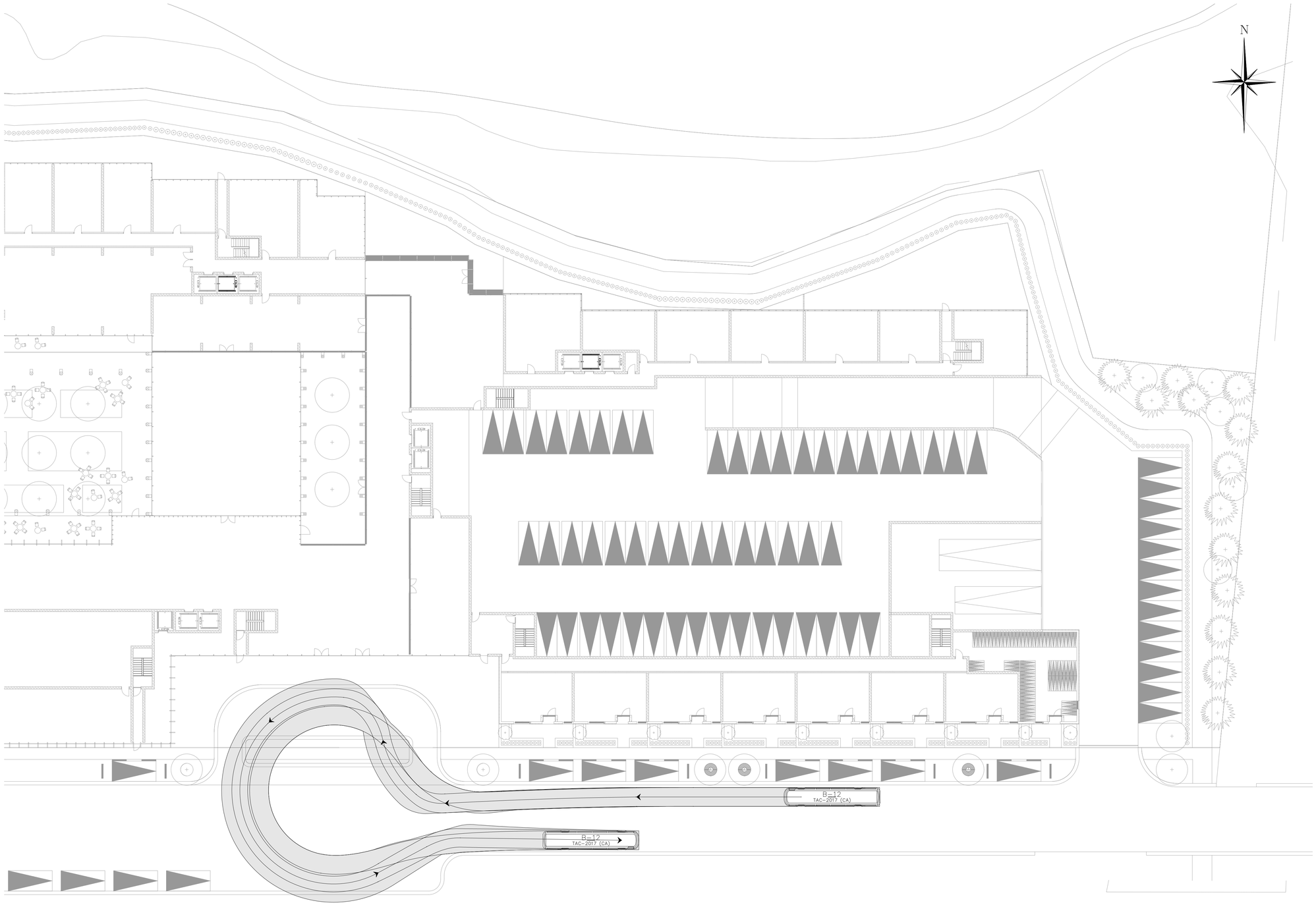
Drawing
GARBAGE TRUCK
VEHICLE MANEUVERING ANALYSIS
(GROUND LEVEL)

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON, L9T 6P4
905 875 0026 T
905 875 4915 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	M.F.	Design By		Project	2571-6892
Check By	I.L.	Check By		Scale 1:250	Drawing T302

5 0m 5 10 15 20
SCALE: 1:250

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION



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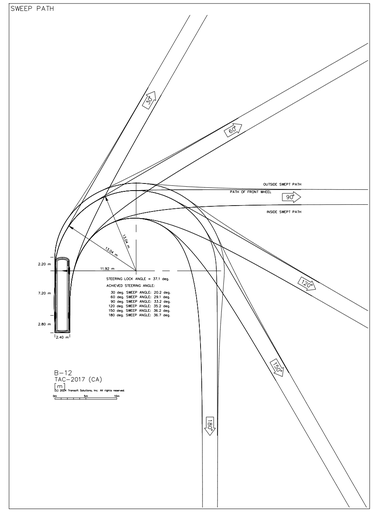
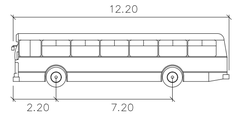
SWEEP PATH



VEHICLE PROFILE



B-12
meters

Width	: 2.40
Track	: 2.40
Lock to Lock Time	: 6.0
Steering Angle	: 37.1

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	03/07/2024

Project
GLOBIZEN GROUP
4933 VICTORIA AVENUE NORTH
TOWN OF LINCOLN

Drawing
BUS (B-12)
VEHICLE MANEUVERING ANALYSIS
(GROUND LEVEL)

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON. L9T 6P4
905 875 0026 T
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WWW.CIFCROZIER.CA
INFO@CIFCROZIER.CA

Drawn By M.F.	Design By	Project	2571-6892
Check By I.L.	Check By	Scale 1:250	Drawing T304

APPENDIX I

Relevant TAC Excerpts

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20)	11.5
Longer truck	To be established by road authority

Notes: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.2 s for each percent grade for left turns.
- Some road authorities use higher values for certain specialized vehicles (e.g., Alberta uses 22 s for very long log trucks).

The intersection sight distance along the major road (distance b in **Figure 9.9.2**) is determined by:

$$ISD = 0.278\ V_{major}\ t_g \qquad (9.9.1)$$

Where:

ISD = intersection sight distance (length of the leg of sight triangle along the major road) (m)

V_{major} = design speed of the major road (km/h)

t_g = time gap for minor road vehicle to enter the major road (s)

For example, a passenger car turning left onto a two-lane major road should be provided sight distance equivalent to a time gap of 7.5 s in major-road traffic. If the design speed of the major road is 100 km/h, this corresponds to a sight distance of 0.278(100)(7.5) = 208.5 or 210 m, rounded for design.

A passenger car turning left onto a four-lane undivided roadway will need to cross two near lanes, rather than one. This increases the recommended gap in major-road traffic from 7.5 to 8.0 s. The corresponding value of sight distance for this example would be 223 m. If the minor-road approach to such an intersection is located on a 4% upgrade, then the time gap selected for intersection sight distance design for left turns should be increased from 8.0 to 8.8 s, equivalent to an increase of 0.2 s for each percent grade.

The design values for intersection sight distance for passenger cars are shown in **Table 9.9.4**. **Figure 9.9.4** includes design values, based on the time gaps for the design vehicles included in **Table 9.9.3**.

No adjustment of the recommended sight distance values for the major-road grade is generally needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection. However, if the minor-road design vehicle is a heavy truck and the intersection is located near a sag vertical curve with grades over 3%, then an adjustment to extend the recommended sight distance based on the major-road grade should be considered.

Table 9.9.4: Design Intersection Sight Distance – Case B1, Left Turn From Stop

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	41.7	45
30	35	62.6	65
40	50	83.4	85
50	65	104.3	105
60	85	125.1	130
70	105	146.0	150
80	130	166.8	170
90	160	187.7	190
100	185	208.5	210
110	220	229.4	230
120	250	250.2	255
130	285	271.1	275

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Sight distance design for left turns at divided-highway intersections should consider multiple design vehicles and median width. If the design vehicle used to determine sight distance for a divided-highway intersection is larger than a passenger car, then sight distance for left turns will need to be checked for that selected design vehicle and for smaller design vehicles as well. If the divided-highway median is wide enough to store the design vehicle with a clearance to the through lanes of approximately 1 m at both ends of the vehicle, no separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left. In most cases, the departure sight triangle for right turns (case B2) will provide sufficient sight distance for a passenger car to cross the near roadway to reach the median. Possible exceptions are addressed in the discussion of case B3.

The time gaps in **Table 9.9.3** can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in **Table 9.9.5**. Design values based on these adjusted time gaps are shown in **Table 9.9.6** for passenger cars. **Figure 9.9.5** includes the design values for the design vehicles for each of the time gaps in **Table 9.9.5**.

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.1 s for each percent grade for left turns.

Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	36.1	40
30	35	54.2	55
40	50	72.3	75
50	65	90.4	95
60	85	108.4	110
70	105	126.5	130
80	130	144.6	145
90	160	162.6	165
100	185	180.7	185
110	220	198.8	200
120	250	216.8	220
130	285	234.9	235

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

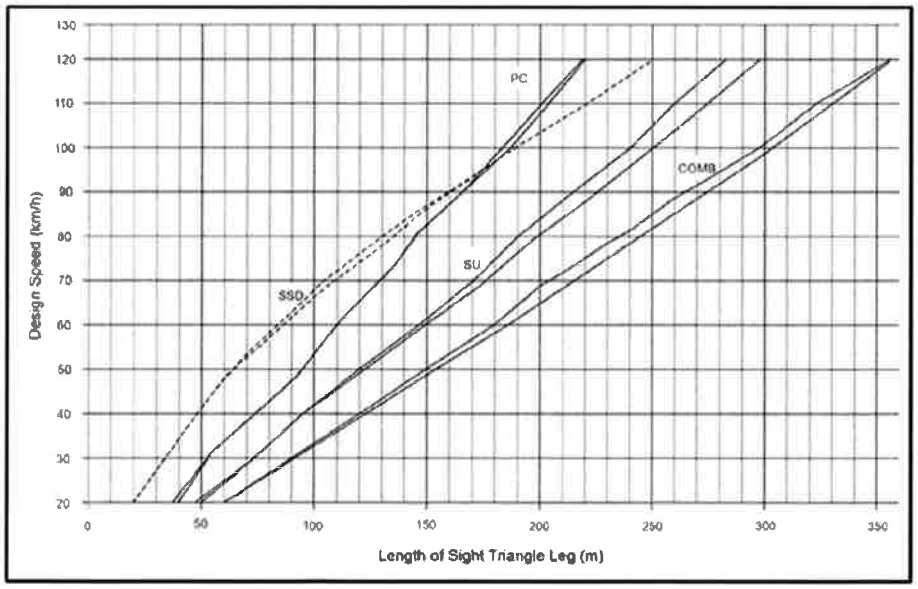


Figure 9.9.5: Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver (Calculated and Design Values Plotted)

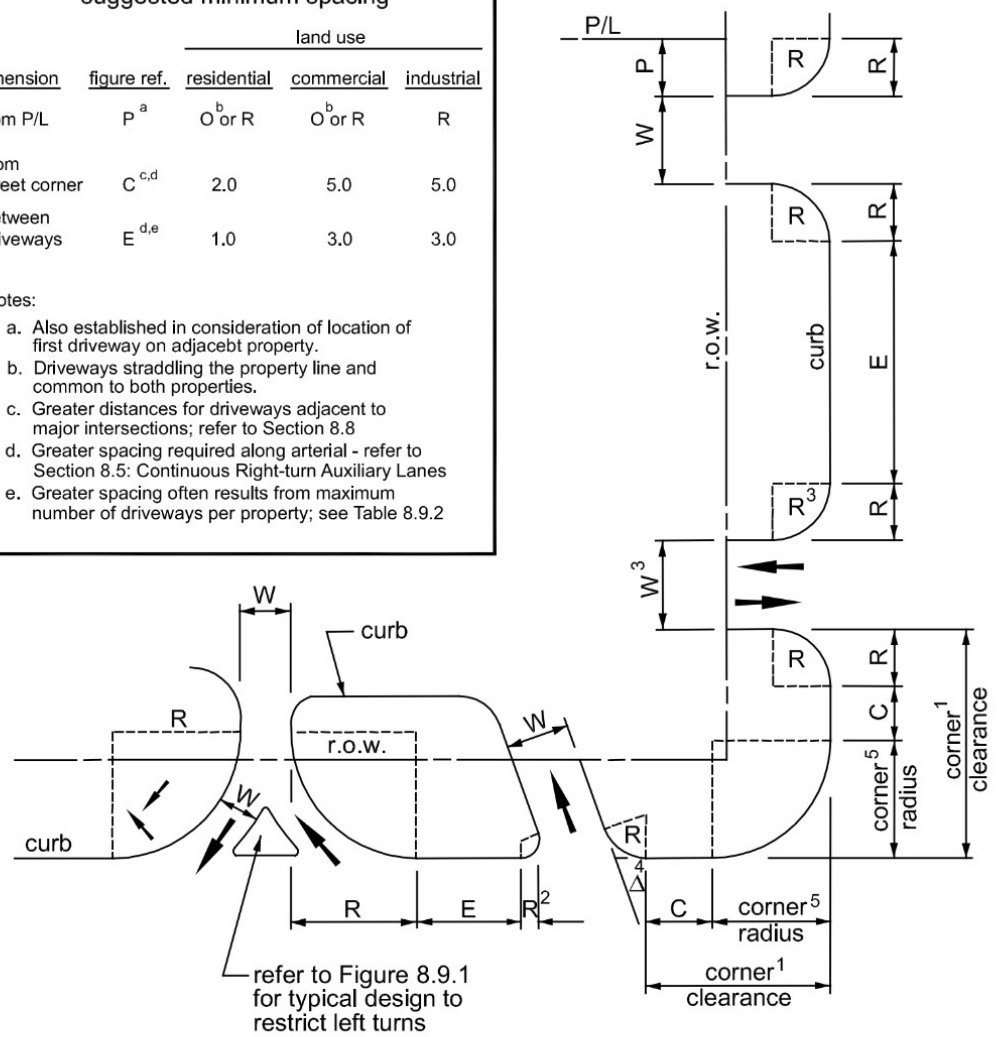
collector roadways, while a 3.0 m minimum is the suggested dimension for both commercial and industrial land uses. If there is a need to provide parallel parking between driveways along the roadway, a spacing of 6.0 to 7.5 m is suitable. If the spacing provided is in the range of 3.0 to 5.0 m, the space may appear inviting to a driver wishing to park, but if used, severely hampers the operation of the driveways by reducing sight lines and interfering with the turning paths of the vehicles.

suggested minimum spacing

dimension	figure ref.	land use: residential	commercial	industrial
from P/L	P [a]	O [b] or R	O [b] or R	R
from street corner	C [c,d]	2.0	5.0	5.0
between driveways	E [d,e]	1.0	3.0	3.0

Notes:

a. Also established in consideration of location of first driveway on adjacebt property.
b. Driveways straddling the property line and common to both properties.
c. Greater distances for driveways adjacent to major intersections; refer to Section 8.8
d. Greater spacing required along arterial - refer to Section 8.5: Continuous Right-turn Auxiliary Lanes
e. Greater spacing often results from maximum number of driveways per property; see Table 8.9.2



Notes:
1. For suggested minimum corner clearance at major intersections, see Figure 8.8.2
2. Where turns are not permitted, R=1.5 m assists in discouraging wrong-way movements.
3. For typical R and W dimensions, refer to Table 8.9.1
4. Minimum angle of 70° desirable where pedestrians routinely cross driveway, 45° minimum otherwise.

Figure 8.9.2: Driveway Spacing Guidelines – Locals and Collectors