

Fabian Serra Planner Development and Cultural Services Planning and Development Division 185 Robinson Street, Simcoe, Ontario, N3Y 5L6

DESIGN
PLAN
SERVICES
TOWN
PLANNING

August 30<sup>th</sup>, 2024 DPS File: 2069

# RE: ZONING BY-LAW AMENDMENT APPLICATION RESUBMISSION 185 ROBINSON STREET, SIMCOE (NORFOLK COUNTY)

On behalf of our client, 2273925 Ontario Inc., we are pleased to submit a revised submission for the Zoning By-law Amendment application for 185 Robinson Street.

The project is an infill development consisting of one (1), eight (8)-storey mixed-use building consisting of 143 residential dwelling units, five (5) office units on the ground floor, and two (2) retail units on the ground floor, on lands containing one (1) existing three (3)-storey mixed-use building. The Subject Property is subject to Site Plan Control however, a Site Plan Application will be submitted at a later date. Further, a consent to sever is proposed but this will also be dealt with at a later date.

This letter details the documents and plans included with this resubmission for a Zoning By-law Amendment for the Subject Property located at 185 Robinson Street. A pre-consultation meeting was held on April 22nd, 2020 with County staff to assess the requirements for the application. A public meeting was held on April 7th, 2021 and comments from the public as well as County Staff and other commenting agencies/departments have been received since that public meeting. A second public meeting was held October 4th, 2023 and additional comments from the public, County Staff, County Council and other commenting agencies/departments have been received since that second public meeting. A Council meeting was held on July 16th, 2024 for Council to make a decision on the proposed Zoning By-law Amendment application. Council granted a deferral of the application to the October 16th, 2024 Council meeting, in order to allow for more time for us to address comments received from County Council, County Staff, as well as the public. The comments received have been taken into consideration and the plans and submission materials have been revised/updated to address all comments received.

Please find the following within the digital submission package accompanying this letter:

- One (1) PDF version of the architectural drawings consisting of the following (prepared by Stoyanovskyy Architects dated July 25th, 2024):
  - Site Plan:
  - Floor Plans;
  - Elevations.
- Three (3) PDF versions of 3D renderings (prepared by Stoyanovskyy Architects);

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- One (1) PDF version of the Shadow Study (prepared by Stoyanovskyy Architects);
- One (1) PDF version of the Functional Servicing and Stormwater Management Report as well as one (1) PDF version of the associated civil engineering drawings (prepared by Crozier, dated August 2024);
- One (1) PDF version of the Traffic Impact and Parking Study (prepared by Trans-Plan, dated August 2024);
- One (1) PDF version of the revised Draft Zoning By-law (prepared by Design Plan Services Inc.);
- One (1) PDF version of the Planning Justification Report Addendum (prepared by Design Plan Services Inc.);
- One (1) PDF version of the Comment Response Matrix (prepared by Design Plan Services Inc.).

Please note that all of the information listed above is being submitted via email to County Planning Staff. No hard copy package is being submitted unless otherwise requested by County Staff. Further, the revised Draft Zoning By-law that is being provided with this resubmission is subject to County review and is intended to permit the proposal as shown on the submitted architectural plans. Should any additional modifications or revisions to the Draft Zoning By-law be required in order to permit the proposal, we request that County Staff advise DPS of any required modifications or revisions in order to permit the proposal as shown on the submitted architectural plans.

We look forward to continuing to work together on this application. Should you have any questions or concerns please do not hesitate to contact David Igelman at 416-626-5445 ext. 204.

Sincerely,

DESIGN PLAN SERVICES INC.

David Igelman, BURPL, MCIP, RPP

Associate

Encl. DI/tjc

# **Pre-Consultation Meeting**



#### **Minutes**

Description of Proposal: Construction of 8-storey mixed use apartment building

**Property Location: 185 Robinson Street, Simcoe** 

Roll Number: 40101000100, BLK 68

As a result of the information shared at the pre-consultation meeting dated April 22, 2020 the following applications and qualified professional documents / reports are required as part of the development review process.

Please note that various fees are associated with each application and there are also costs for qualified professionals retained to complete various documents / reports. All requirements identified are minimum and determined as of the date of the preconsultation meeting with the information available at that time. As the proposal proceeds and more information is made available, additional applications, studies, reports, etc. may be required.

This checklist is applicable for a period of one (1) year from the date of meeting. If an application is not received within that time frame, a subsequent pre-consultation meeting may be required due to changes in policies and technical requirements.

#### **Attendance**

Proponent	Stoyanovskyy Architects Inc., Orest Stoyanovskyy
Planning & Development Division – Planning	Tricia Givens, Interim Director Planning (Chair) Mohammad Alam, Senior Planner Scott Wilson, Planner Fabian Serra, Planner
Planning & Development Division – Building & By-Law	Scott Northcott, Building Inspector III Roxanne Koot, Zoning Administrator
Planning & Development Division – Development Engineering	Kevin Verkindt, Development Technologist
Planning & Development Division – Economic Development	Chris Garwood, Economic Development Supervisor
Corporate Support Services – Realty Services	Lydia Harrison, Realty Services Coordinator

# **Planning**

Planning application(s) required to proceed		Required
Zoning By-law Amendment Application (Regular)		X
Zoning By-law Amendment – Removal of Holding		X
Site Plan Application (Major)		X
Other -		
Planning requirements for a complete application The below items are to be submitted as part of the identified Planning Application(s).  ** electronic/PDF copies of all plans, studies and reports are required**	Required Zoning Stage	Required at Site Plan Stage
Proposed Site Plan / Drawing	X	X
Planning Impact Analysis Report / Justification Report	Х	
Landscaping Plan		Х
Elevation Plans		X
Photometrics (Lighting) Plan		Х
Shadow Analysis Report		Х
Record of Site Condition	Х	х
Contaminated Site Study **may be required dependent on the outcome of the record of site condition**	Х	Х
Parking Assessment	Х	
Additional Planning requirement	ts	Required
Development Agreement	X	
Parkland Dedication/Cash-in-lieu of Parkland	X	

# **Provincial Policy Statement, 2020**

The PPS provides policy direction on matters of provincial interest related to land use planning and development. It promotes efficient development and land use patterns and encourages growth and development within existing settlement areas, of which Simcoe is considered as.

Policy 1.1.3.1 of the PPS states, "Settlement areas shall be the focus of growth and development, and their vitality and regeneration shall be promoted."

Policy 1.1.3.2 states, "Land use patterns within settlement areas shall be based on densities and a mix of land uses which:

- a) efficiently use land and resources;
- are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion;
- c) minimize negative impacts to air quality and climate change, and promote energy efficiency;
- d) prepare for impacts of a changing climate;
- e) support active transportation;
- f) are transit-supportive, where transit is planed, exists or ay be developed; and
- g) are freight-supportive.

Land use patterns within settlement areas shall be based on a range of uses and opportunities for intensification and redevelopment in accordance with the criteria in policy 1.1.3.3, where this can be accommodated.

Policy 1.1.3.4 states, "Appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety."

Policy 1.1.3.6 states, "New development taking place in designated growth areas should occur adjacent to the existing built-up area and should have a compact form, mix of uses and densities that allow for the efficient use of land, infrastructure and public service facilities."

Policy 1.4.1 states, "To provide for an appropriate range and mix of housing options and densities required to meet projected requirements of current and future residents of the regional market area, planning authorities shall:

- a) maintain at all times the ability to accommodate residential growth for a minimum of 15 years through residential intensification and redevelopment and, if necessary, lands which are designated and available for residential development; and
- b) maintain at all times where new development is to occur, land with servicing capacity sufficient to provide at least a three-year supply of residential units available through lands suitably zoned to facilitate residential intensification and redevelopment, and land in draft approved and registered plans.

Upper-tier and single-tier municipalities may choose to maintain land with servicing capacity sufficient to provide at least a five-year supply of residential units available through lands suitably zoned to facilitate *residential intensification* and *redevelopment*, and land in draft approved and registered plans.

Policy 1.4.3 states, "Planning authorities shall provide for an appropriate range and mix of housing options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area by:

- a) establishing and implementing minimum targets for the provision of housing which is affordable to low and moderate income households and which aligns with applicable housing and homelessness plans. However, where planning is conducted by an upper-tier municipality, the upper-tier municipality in consultation with the lower-tier municipalities may identify a higher target(s) which shall represent the minimum target(s) for these lower-tier municipalities;
- b) permitting and facilitating:
  - all housing options required to meet the social, health, economic and wellbeing requirements of current and future residents, including special needs requirements and needs arising from demographic changes and employment opportunities; and
  - 2. all types of residential intensification, including additional residential units, and redevelopment in accordance with policy 1.1.3.3;
- directing the development of new housing towards locations where appropriate levels of infrastructure and public service facilities are or will be available to support current and projected needs;
- d) promoting densities for new housing which efficiently use land, resources, infrastructure and public service facilities, and support the use of active transportation and transit in areas where it exists or is to be developed;
- e) requiring transit-supportive development and prioritizing intensification, including potential air rights development, in proximity to transit, including corridors and stations; and
- f) establishing development standards for residential intensification, redevelopment and new residential development which minimize the cost of housing and facilitate compact form, while maintaining appropriate levels of public health and safety.

# **Norfolk County Official Plan**

The lands are designated Urban Residential in the Norfolk County Official Plan.

The subject lands are designated "Urban Residential" in the Official Plan. Section 5.3.1 states, that the following shall be the policy of the County

"a) Housing shall, in part, be provided through urban residential intensification, which may include any of the following:

- i) small scale intensification through modifications to an existing dwelling to include a second unit or construction of a new building containing one or two units;
- ii) infill development and residential development of vacant land or underutilized land in existing neighbourhoods; and/or
- iii) redevelopment which includes either the replacement of existing residential uses with compatible new residential developments at a high density or the replacement of non-residential uses with compatible residential or mixed use development with a residential component."

Section 4.8, Potentially Contaminated Sites, states that the following shall be the policy of the County:

- a) The County encourages the identification of contaminated sites, their remediation, and appropriate redevelopment, in accordance with the *Environmental Protection Act* and its regulations and in accordance with the procedures and the policies of this Plan.
- b) Where the development or redevelopment of land involves the change of use of the property to a more sensitive use, a Record of Site Condition shall be completed by a qualified person and filed on the Brownfields Environmental Site Registry, in accordance with the requirements of *Ontario Regulation 153/04*, before the issuance of a building permit for the proposed use. The issuance of any building permit for the proposed use shall also be consistent with any certificate of property use or order issued for the property on the Environmental Site Registry.
- c) The County shall ensure that the decommissioning and remediation of contaminated sites are completed in an environmentally responsible manner.
- d) Norfolk County is reliant on ground water sources for drinking water. The County shall require that all environmental remediation of contaminated sites be carried out to achieve potable ground water site condition standards as established by the Ministry of the Environment and Climate Change.
- e) The County may prepare community improvement plans for known contaminated properties, in accordance with the applicable policies of this Plan, and may consider a variety of incentives to encourage the remediation and redevelopment of these sites.

Based on the information provided in the pre-consultation meeting it appears that the proposal meets the intent of the Norfolk County Official Plan.

### Norfolk County Zoning By-Law 1-Z-2014

Under the Norfolk County Zoning By-Law 1-Z-2014, the subject lands are zoned Urban Residential Type 6 Zone (R6) and Urban Residential Type 6 Holding Zone R6(H).

Section 1.4.4 Establishment of Holding Zones states, "Pursuant to Section 36 of the Ontario Planning Act, holding Zones are hereby established by the use of the symbol "H" as a suffix to the Zone symbols in Subsection 1.4.1. Land subject to the symbol "H" shall not be used, nor any building or structure used, altered or erected except in accordance with the Zone applied thereon and until the "H" is removed by an amendment to this By-Law.

Section 5.6.1 of Norfolk County Zoning By-Law 1-Z-2014 outlines the permitted uses. They are as follows:

In an R6 Zone, no land, building or structure shall be used except in accordance with the following uses:

- a) dwelling, apartment
- b) home occupation
- c) retirement home.

Section 5.6.2 outlines the Provisions in the R6 Zone.

In an R6 Zone, no building or structure shall be erected or altered except in accordance with the following provisions:

a) minimum lot frontage:
b) minimum front yard:
c) minimum exterior side yard:
d) minimum interior side yard:
e) minimum rear yard:
30 metres
3 metres
5 metres
9 metres

f) maximum building height: eight (8) stories

g) maximum floor area ratio:

i) four (4) storey building 0.72 ii) five (5) storey building 0.79 iii) six (6) storey building 0.86 iv) seven (7) storey building: 0.9 v) eight (8) storey building 1

Section 2.87 of the Norfolk County Zoning By-Law 1-Z-2014 defines "Long-Term Care Facility" shall mean a building wherein lodging, meals and nursing care are provided in a supervised living environment for individuals. This definition does not include a *retirement home* or senior's apartments.

Section 2.144 of the Norfolk County Zoning By-Law 1-Z-2014 defines "**Retirement Home**" shall mean a multiple *dwelling* where all *dwelling units* do not contain full kitchens but where the *building* provides communal facilities such as kitchen/dining facilities, laundry facilities, lounges and where the residents are supervised in their daily

living activities. A *retirement home* shall not be considered a *long-term care facility*, emergency shelter, lodging house or any other facility which is licensed, approved or regulated under any general or special Act.

Therefore, the use is not permitted in the R6 Zone. To enable the use, site specific zoning may be necessary.

#### Site Plan Control

The subject lands are under site plan control. A high standard of design will be required for this location. The following is required to be included on the future site plan submission:

- All measurements in metric
- Key map
- Scale, legend and north arrow
- Legal description and municipal address
- Development name
- Drawing title, number, original date and revision dates
- Owner's name, address and telephone number
- Engineer's name, address and telephone number
- Professional engineer's stamp
- Existing and proposed easements and right of ways
- Zoning compliance table required versus proposed
- Parking space totals required and proposed
- All entrances to parking areas marked with directional arrows
- All dimensions of the subject lands
- Dimensions and setbacks of all buildings and structures
- Gross, ground and useable floor area
- Lot coverage
- Floor area ratio
- Building entrances, building type, height, grades and extent of overhangs
- Names, dimensions and location of adjacent streets including daylighting triangles
- Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
- All exterior stairways and ramps with dimensions and setbacks
- Retaining walls including materials proposed
- Fire access and routes
- Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
- Location of mechanical room, and other building services (e.g. A/C, HRV)
- Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
- Winter snow storage location

- Landscape areas with dimensions (a significant amount of landscaping is required)
- Natural features, watercourses and trees
- Fire hydrants and utilities location
- Fencing, screening and buffering size, type and location
- All hard surface materials
- Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
- Signs
- Sidewalks and walkways with dimensions
- Pedestrian access routes into site and around site
- Bicycle parking
- Architectural elevations of all building sides

#### **Agreements**

The requirements for a development agreement include the following:

- Additional user fees and performance securities
- Current Property Identification Number (PIN) (can be obtained at local registry office or your legal representative)
- Owner's Commercial General Liability Insurance to be obtained and kept in force during the term of the agreement:
- Certificate of Insurance for Professional Liability and/or Errors and Omissions coverage for surveyor and engineer
- Postponement of Interest (if there are mortgagees / charges on your property identifier – your legal representative can obtain from your bank or financial institution)
- Transfers/Easements and final reference plan for any easements or lands to be conveyed

Annette Helmig, will lead you throughout the Agreement and Performance Securities processes.

Annette Helmig
Agreement and Development Coordinator
Extension 1849
Annette.Helmig@norfolkcounty.ca

#### **Current Fees**

Please note that the fees listed below are subject to change. The \$372 pre-consultation fee is credited against future planning applications.

Consent: \$2,761.00

Surplus Farm Dwelling Consent and Zoning Amendment: \$3,301.00

Minor Variance: \$1,529.00

Zoning Amendment – Regular: \$3,727.00 Zoning Amendment – Major \$5,387.00

Zoning Amendment – Removal of Holding, Temporary Use Extensions, Down Zoning,

Garden Suite 20 year reapplication: \$586.00 Official Plan Amendment – Regular: \$3,894.00 Official Plan Amendment – Major: \$5,942.00

Official Plan and Zoning Amendments Combined – Regular: \$4,392.00 Official Plan and Zoning Amendments Combined – Major: \$8,627.00

Site Plan – Regular: \$2,995.00 Site Plan – Major: \$8,152.00

Site Plan – Minor or Amendment: \$1,079.00

Site Plan – Exemption: No Fee

Subdivision and/or Condominium (plus \$75 per lot): \$5,821.00

Condominium Conversion: \$3,148.00

Condominium Exemption from Draft Approval: \$1,816.00

Communications Tower: \$1,330.00

Deeming: \$1,816.00

Green Energy Act Application: \$1,042.00 Part Lot Control Exemption: \$2,086.00

Lot Grading Review: \$110.00 Peer Review: Full Cost Recovery

Other Engineering Agreements: \$1,357.00

Subdivision or Condominium Preservicing Agreement: \$1,284.00

Site Plan Agreement: \$2,485.00

Subdivision or Condominium Agreement: \$4,173.00

Agreement Compliance Letter: \$96.00

Public Works - Road Signs - Subdivisions (regulatory and non-regulatory per sign) (plus

HST): \$318.00

Revenue & Tax Service - Financial Administration: \$399.00 Community Services - Installation of Trees - Per Tree: \$494.00

Community Services- Cash in Lieu of Parkland 2016-126 (5% residential or mixed, 2%

commercial or industrial): TBD Agreement Default: \$745.00 Deferral or Inactive File: \$410.00

Recirculation (at first and every recirculation): \$410.00

Recirculation of Site Plan, Subdivision or Condominium (at third and every recirculation

thereafter): \$745.00

Draft Approval of Subdivision, Condominium, Site Plan or Part Lot Control Extensions:

\$1,375.00

Redline: \$1,095.00

Civic Addressing – Assignment of Number and Sign Charges: \$107.00

Fabian Serra Planner

Extension 1834

fabian.serra@norfolkcounty.ca

# **Development Engineering**

Development Engineering requirements to proceed The below requirements are to be submitted as part of the Planning application.	Required at OPA/ Zoning Stage	Required at Site Plan Stage	Potentially Required (See Notes Section)
General Requirements			
Concept Plan		X	
Area Rough Grading Plan			X <sup>1</sup>
Lot Grading Plan		X	
Siltation and Erosion Control Plan		Х	
General Plan of Services		X	
Plan and Profile Drawings			X <sup>2</sup>
Utility Plan		Х	
Geotechnical Report			X <sup>3</sup>
Functional Servicing Report		X	
Water Servicing Requirements	1	1	
Extension of Watermain			X <sup>4</sup>
Easement and/or Block Registration			X <sup>5</sup>
Disconnection of Water Service(s) to Property Line			X <sub>6</sub>
Disconnection of Water Service(s) to Main			X <sup>7</sup>
Water Modelling (County Consultant)		Х	
Backflow Preventer (RPZ)		X	
Sanitary Servicing Requirements	1	1	1
Disconnection of Sanitary Service(s) to Property Line			X8
Disconnection of Sanitary Service(s) to Main			X <sup>9</sup>
Easement and/or Block Registration			X <sup>10</sup>
Sanitary Modelling (County Consultant)		X	
Property Line Inspection Maintenance Hole		Х	
Storm Water Servicing Requirements			
Storm Water Management Design Report (including calculations)		X	

Storm Water Drainage Plan	X	
Establish/Confirm Legal and Adequate Outlet	X	
Anticipated Flow/Analysis to Receiving Collection System	X	
Easement and/or Block Registration		X <sup>11</sup>
Transportation Requirements		
Traffic Impact Study	X	
Improvements to Existing Roads & Sidewalk (urbanization, pavement structure, widening sidewalk replacement, upgrades, extension and accessibility)	X	

#### General Notes:

- 1. Securities will be required. 10% of site works and 100% of works within the right-of-way. This is to be provided in a security schedule.
- 2. Recommendations from all reports / modelling must be incorporated into the design. All reports and drawings are to be signed and sealed by a Professional Engineer.
- 3. All applicable permits and inspections to be issued by Public Works.
- 4. Any required infrastructure to facilitate development will be at the developer's expense.
- 5. As per Norfolk County By-law 2013-65, only one domestic water service pipe shall be installed per condominium corp.
- 6. Any additional sanitary service connections will require approval from Public Works.
- 7. Water and sanitary modelling is to be completed by Norfolk County's consultant at the developer's expense.
- 8. Norfolk County's Design Criteria can be provided.
- Traffic Impact Study will be required as per Norfolk County's ISMP Appendix J

   TIS Guidelines. These guidelines can be provided. Criteria for the Traffic impact study can be provided.
- 10. As-constructed drawings are available upon request.
- 11. Potential to have design peer reviewed by a third-party consultant at the discretion of Norfolk County, at the Owner's expense.
- 12. The existing bollards and retaining wall on Queen Street must be fully removed. A new barrier curb and sidewalk must be installed on Queen Street to the satisfaction of Norfolk County.

#### **General Requirements Potentially Required Notes:**

- 1. Area rough grading plan must be submitted for cut/fill in excess of 0.5m
- 2. Plan and Profile Drawings will be required to show the connection to the existing municipal infrastructure on Queen Street and/or Kars Street only.
- 3. A Geotechnical Report must be submitted if storm water management practices involving infiltration are proposed (Ex. infiltration galleries, drywells, etc.)
- 4. Existing watermain on Kars Street may need to be upgraded depending on watermain supply connection point to the development and water modelling results. All associated watermain upgrades, including cost to accommodate the development must be the responsibility of the developer.
- 5. Preliminary investigation of As Constructed drawings show an existing watermain on a closed section of Kars Street that may be subject to an existing easement.
- 6. It shall be the developer's responsibility to satisfy themselves that there is an adequate water service to the proposed development and all associated costs of construction for upgrades to existing and new infrastructure shall be the responsibility of the developer.
- 7. It shall be the developer's responsibility and at the request of Public Works that existing water services not intended to be used by the development shall be fully removed from property line to the watermain.
- 8. It shall be the developer's responsibility to satisfy themselves that there is an adequate sanitary service to the proposed development and all associated costs of construction for upgrades to existing and new infrastructure shall be the responsibility of the developer.
- 9. It shall be the developer's responsibility and at the request of Public Works that existing sanitary services not intended to be used by the development shall be plugged by lining. Plugged at property line. Capped and filled.
- 10. Preliminary investigation of As Constructed drawings show an existing sanitary main on a closed section of Kars Street that may be subject to an existing easement.
- 11. Preliminary investigation of As Constructed drawings show an existing storm main on a closed section of Kars Street that may be subject to an existing easement.

Kevin Verkindt
Development Technologist
Extension 1703
Kevin.Verkindt@norfolkcounty.ca

# **Building and By-Law**

#### **Zoning Administrator:**

R6 (holding provision)

The concept meets the zone provisions of R6 without a special provision (not including the nursing home component).

By bylaw definitions;

Front lot line = Kars St

Ext lot line = Queen St

Rear lot line= Robinson St

Interior lot line = other lot line facing MG zone

If a severance occurs, there might be a deficiency in rear yard setback. Other zoning considerations: parking requirements per Section 4.0 of Zoning Bylaw, this should be addressed if the proposal is below the required amount, also note site is subject to Special provisions 14.644 and 14.713 of the Zoning Bylaw which will need to be addressed.

Roxanne Koot Zoning Administrator Extension 1839 Roxanne.Koot@norfolkcounty.ca

#### **Building Inspector:**

editable.

If you have building related question, please contact Scott Northcott, Building Inspector III at 519-426-5870 ext. 1848 or scott.northcott@norfolkcounty.ca

#### **Building Departments comments for site plan.**

	Location of fire department connection (Siamese) connection to building [OBC
	3.2.5.16]
	Location of principal entrance/fire alarm annunciator panel [OBC 3.2.4.2]
	Location of fire hydrants to be indicated on existing streets [OBC 3.2.5]
	Location of barrier free path of travel, outside the building. [OBC 3.8.1.3]
	Exterior lighting is to comply with SB-10 requirements [OBC 12.2.1.1.(3)]
Build	ing Permits
	A completed Building Permit Application Form
	<ul> <li>Commitment to general review signed by owner and all consultants</li> </ul>
	<ul> <li>Application MUST be signed by owner of the property/authorized agent</li> </ul>

☐ Electronic PDF's of dimensioned construction drawings. PDF's are to be

Building code matrix
Completed SB-10 report (energy efficiency),
Structural, electrical, plumbing, mechanical design.
Sprinkler System design to NFPA 13 standard.
Standpipe System to NFPA 14 standard.
Fire alarm system design to ULC S524 standard.
Water and sewer connection permit (where required)
Conservation authority construction permit (where required)
Other applicable law (where required)
Payment of ALL applicable fees
Payment of applicable development charges.

Scott Northcott
Senior Building Inspector
Extension 1848
Scott.Northcott@norfolkcounty.ca

# **Fire Department**

No comments received.

Scott Pipe
Assistant Fire Chief
Extension 2404
Scott.Pipe@norfolkcounty.ca

#### **Paramedic Services**

Please consider elevator size and access when designing the building. Given that the target user appears to be retirees and long term care, it can be presumed that paramedic services will be at the building more frequently than if the residents were a younger demographic. Residents will have to be moved via stretcher or while still in bed. Ease of access into the elevator will make this movement safer for everyone. The same consideration for building access and emergency parking for ambulances would be appreciated. If an overhang is planned for the driveway please be sure to make it high enough for ambulances to drive under without damaging the building or the ambulance.

Stuart Burnett
Commander
Extension 2429
Stuart.Burnett@norfolkcounty.ca

## Parks, Facilities and Recreation

Parkland dedication or cash-in-lieu of parkland is required prior to the registration of a site plan agreement or the registration of a plan of subdivision or condominium. It is not a development charge. Development charges are a fee required at the time of a building permit application.

Parks and Recreation will require 5% of the appraised value of the property prior to any construction, to be received prior to the registration of the site plan agreement. The Appraisal Report shall be the responsibility of the land owner. The appraiser must be approved by the County. The Appraisal Report will be reviewed by staff, and will notify the land owner of the required payment.

Todd Shoemaker
Director, Parks and Recreation
Extension 2202
Todd.Shoemaker@norfolkcounty.ca

## **Forestry**

Any existing roadside trees that are required to be removed to accommodate development will be removed at the developers expense and requires approval by the County Arborist prior to any work taking place.

A Tree Planting Plan will be required for the development and will include tree planting along the frontage of all County roads, adhering to the Street Tree Planting guidelines (attached). The developer will pay to the County a fee for each tree that is designed to be planted on County owned lands (County R.O.W). The fee is established in Norfolk County's User Fee By-law (approximately \$485/tree). The developer should accommodate tree planting and landscaping on the interior of the development property as well. Norfolk County does not have design criteria for tree planting for an apartment development. Norfolk County will retain 100% security for any proposed on-site tree planting and landscaping (estimate provided by developer). All landscaping and tree planting plans will be submitted as part of the Site Plan drawings and are subject to approval by Norfolk County.

Adam Biddle
Supervisor, Forestry
Extension 2224
Adam.Biddle@norfolkcounty.ca

## **Corporate Support Services – Realty Services**

If a Site Plan Agreement is to be registered on title, the County will require a postponement agreement from the current mortgage holder, Computershare Trust Company of Canada, and any new mortgage holder. The property owner should be advised to seek the postponement as early in the process as possible to ensure it is ready for registration when the Site Plan Agreement is ready to be registered.

The drawings attached to this proposal indicate the possibility of including the north-east portion of the current parking area. Under the terms of the lease agreement that County has with the property owner, the County is entitled to 60 parking spaces. These spaces consist of the majority of the perimeter parking spots, including those shown in the drawings attached. Signage is in place indicating the County's parking spaces.

Lydia Harrison Realty Services Supervisor Extension 1323 Lydia.Harrison@norfolkcounty.ca

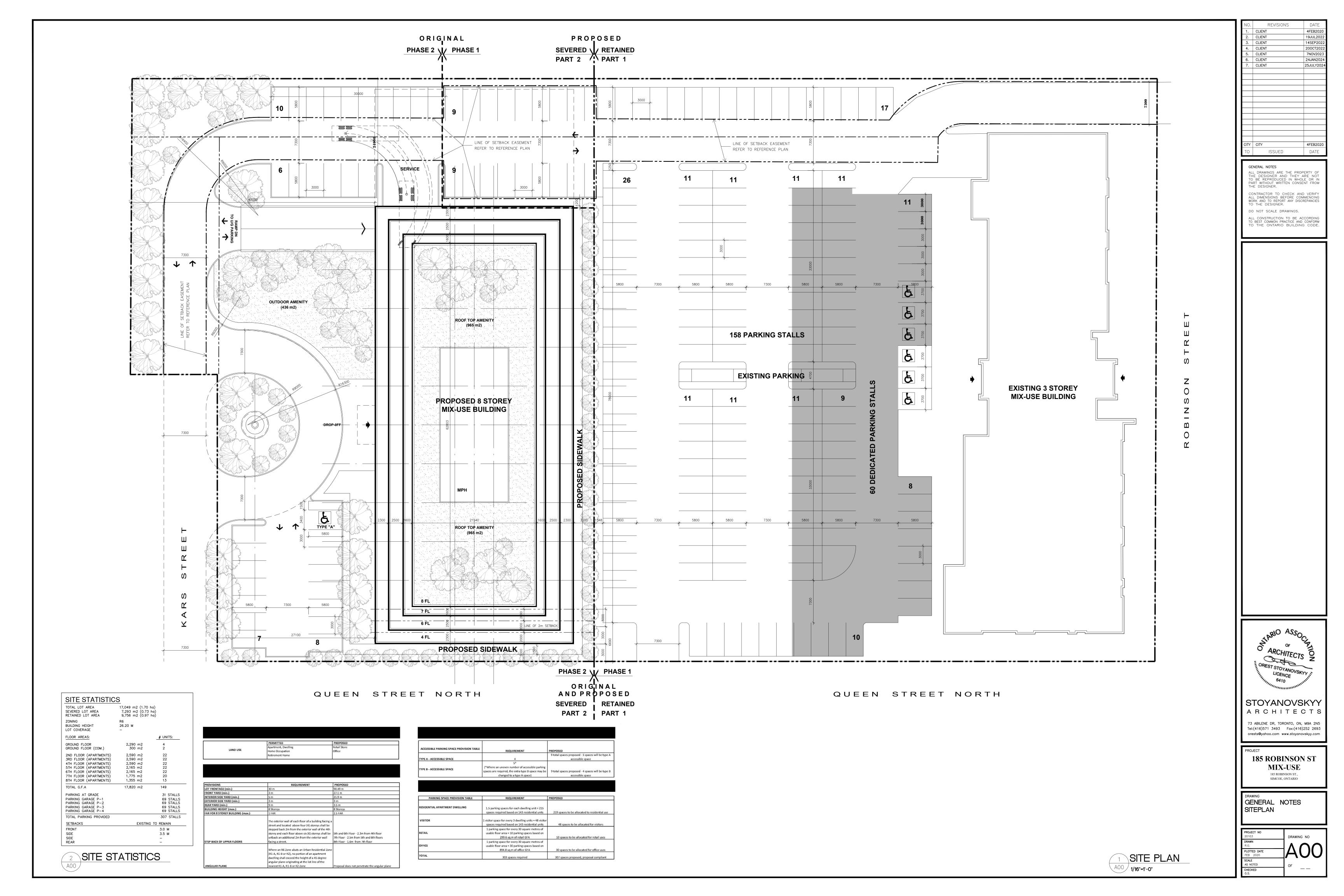
### **Housing Services:**

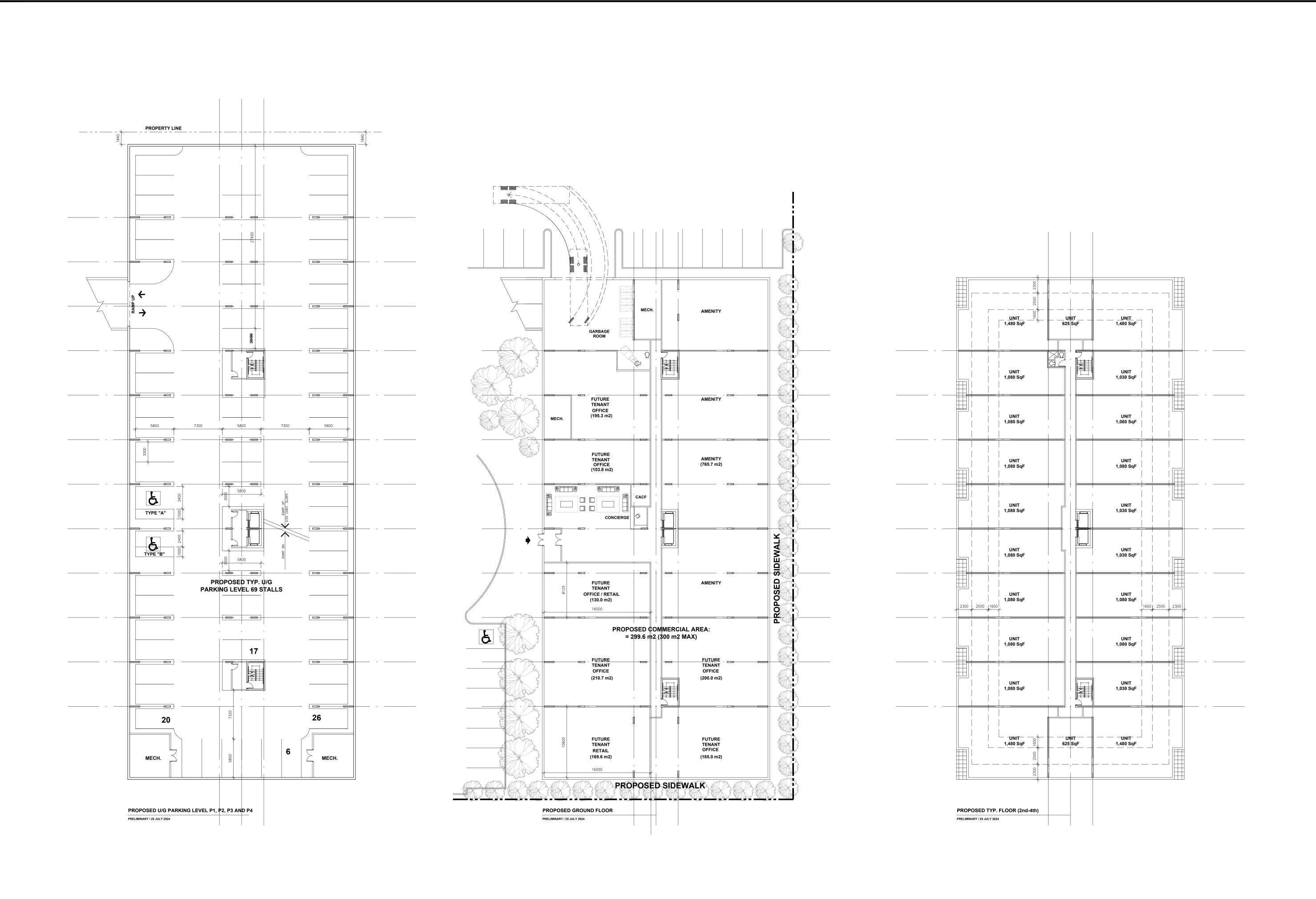
There is an acute need for additional higher density housing options in Norfolk County, and in particular Simcoe. Will these be rental units or condominium? There is a high demand for rental units in Simcoe, from affordable units to professionals seeking to relocate to Simcoe for work purposes.

# **Economic Development**

Supportive of the proposed use. Please contact us if you require further assistance in this development.

Chris Garwood
Economic Development Supervisor
Extension 1264
Chris.Garwood@norfolkcounty.ca





NO. REVISIONS DATE

1. CLIENT 4FEB2 02
2. CLIENT 19JUL 03
3. CLIENT 200CT 20
4. CLIENT 2AUG2 02
6. CLIENT 24JAN2 024
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TO ISSUED DATE

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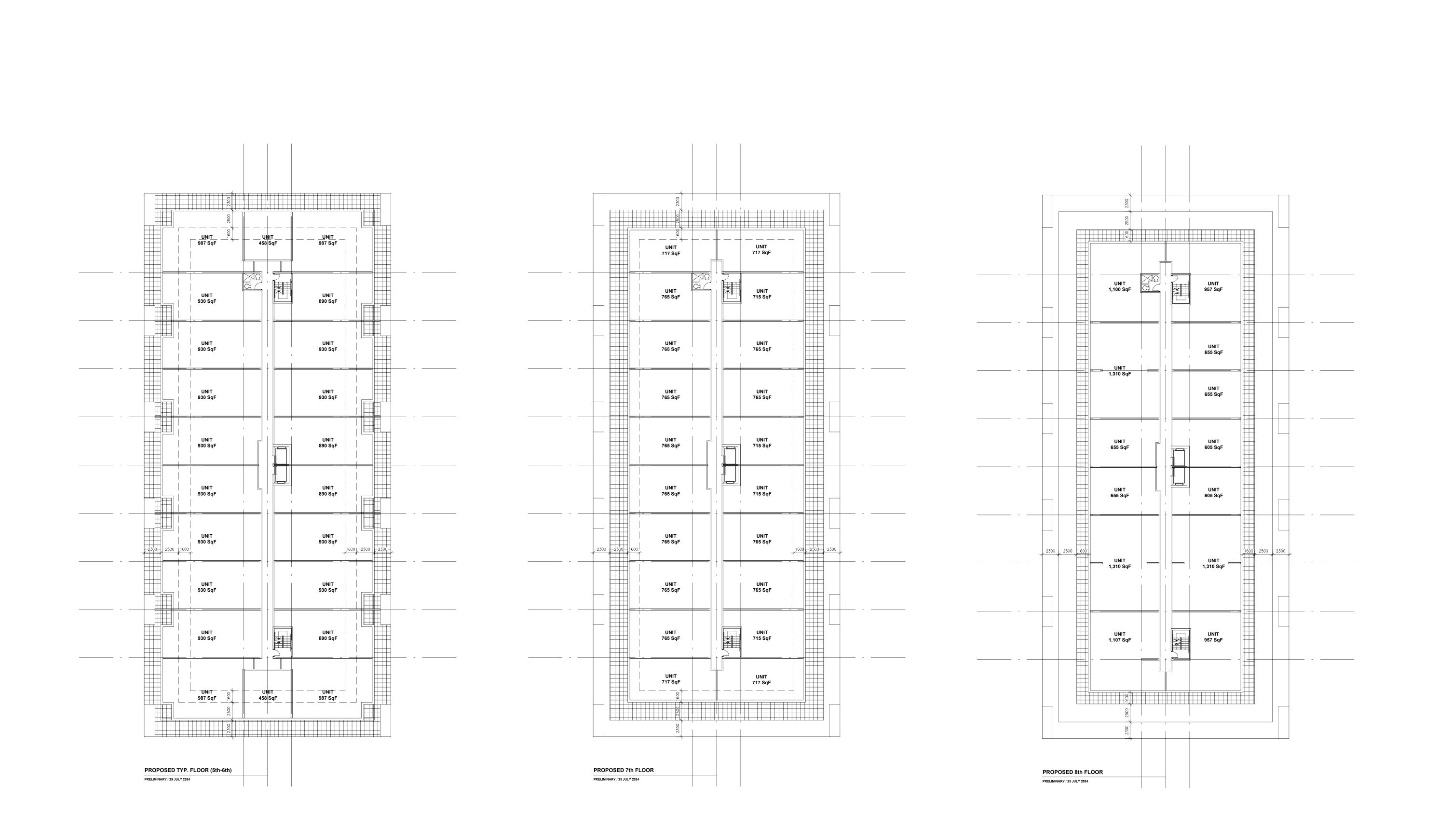
STOYANOVSKYY ARCHITECTS

73 ABILENE DR, TORONTO, ON, M9A 2N5
Tel:(416)571 3493 Fax:(416)252 2693
orests@yahoo.com www.stoyanovskyy.com

185 ROBINSON ST MIX-USE 185 ROBINSON ST., SIMCOE, ONTARIO

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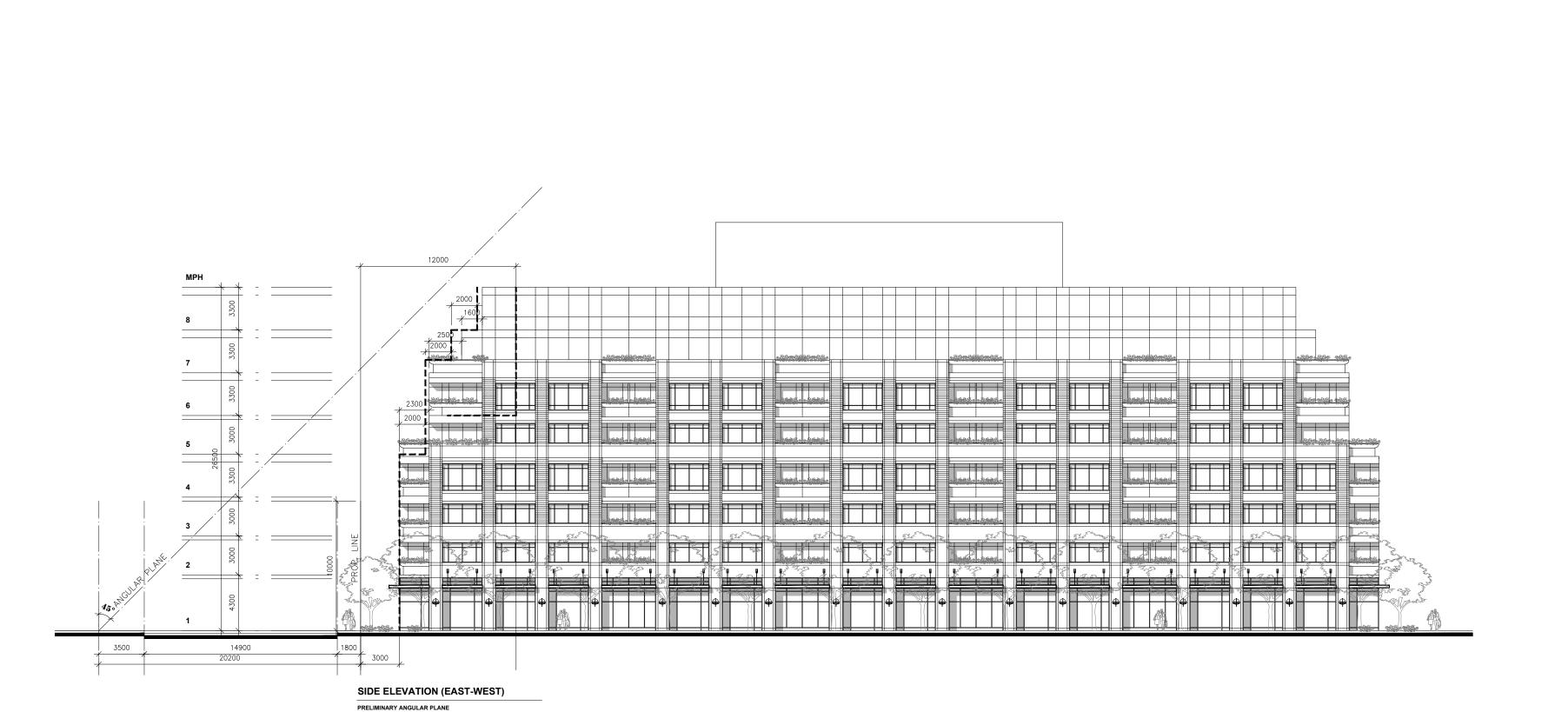
73 ABILENE DR, TORONTO, ON, M9A 2N5
Tel:(416)571 3493 Fax:(416)252 2693
orests@yahoo.com www.stoyanovskyy.com

185 ROBINSON ST
MIX-USE

185 ROBINSON ST.,
SIMCOE, ONTARIO

DRAWING FLOOR PLANS

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FRONT ELEVATION (ALONG QUEEN ST N)

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6. CLIENT 24JAN2024
7. CLIENT 25JULY2024

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Tel:(416)571 3493 Fax:(416)252 2693
orests@yahoo.com www.stoyanovskyy.com

PROJECT

185 ROBINSON ST

MIX-USE

185 ROBINSON ST.,

SIMCOE, ONTARIO

DRAWING ELEVATIONS

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**Current View** 



Proposed View



**Current View** 

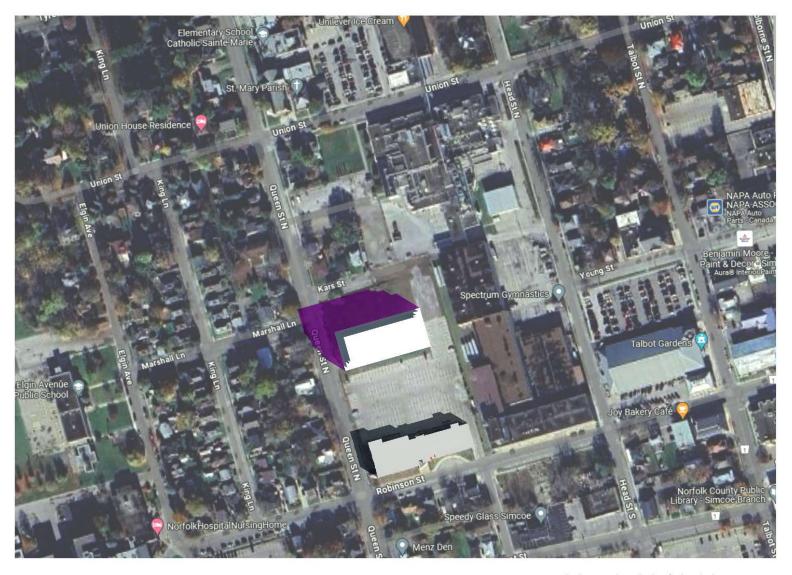


Proposed View



**185 Robinson St.** Simcoe, On

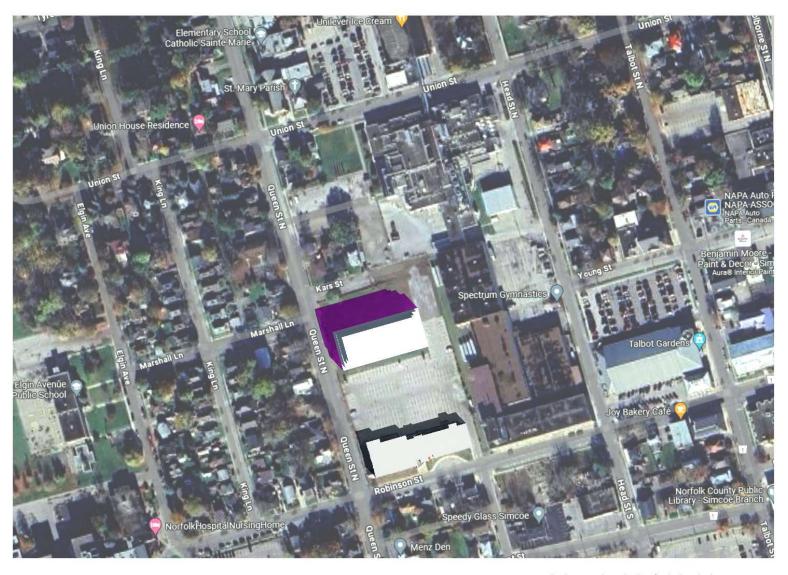
# Perspective View Queen St Looking North



March 21 / 9:18am

SHADOW STUDY

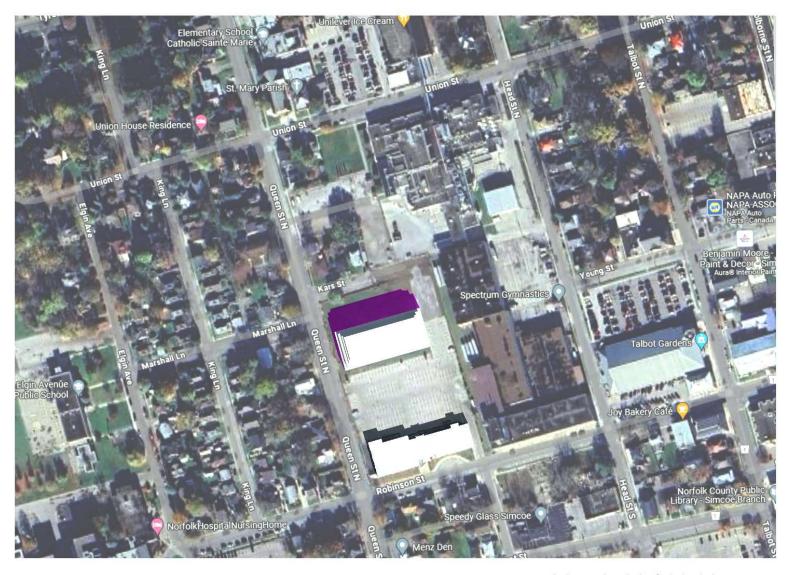




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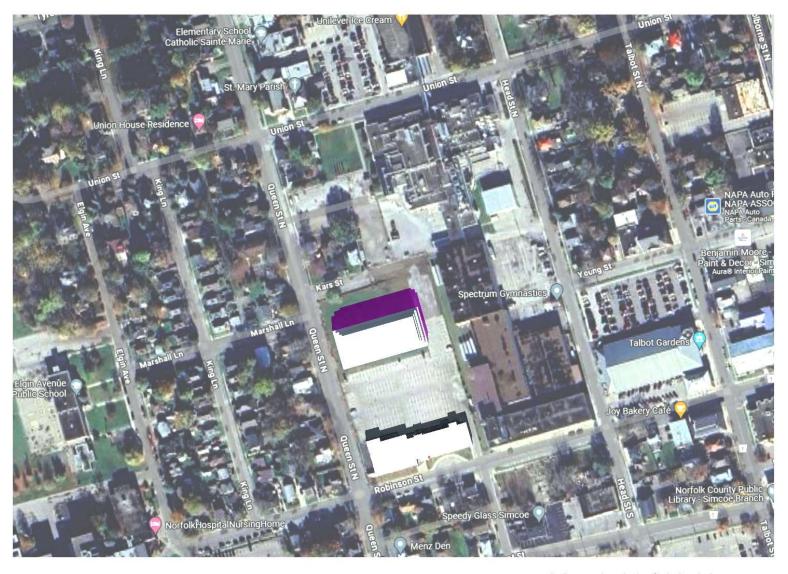




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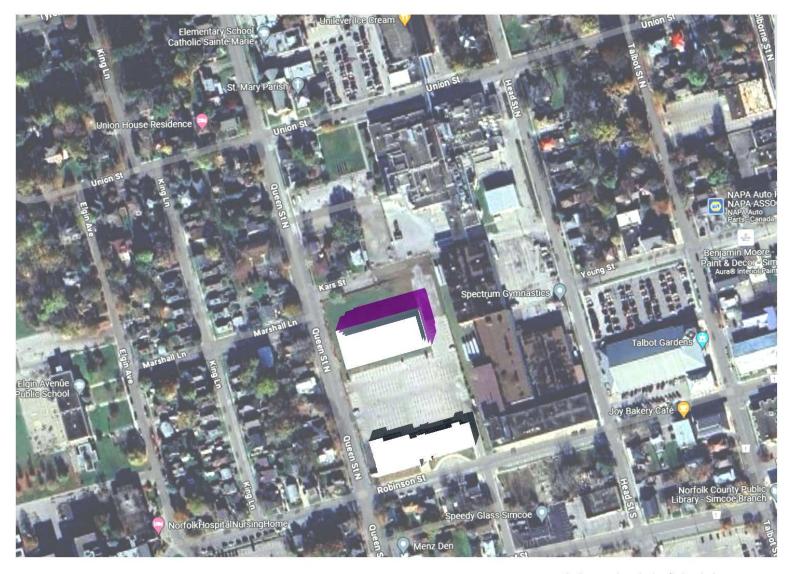




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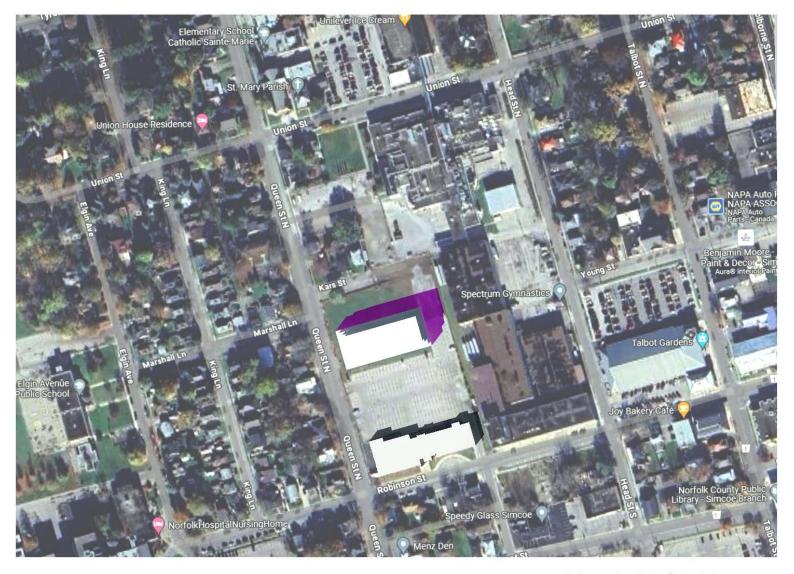




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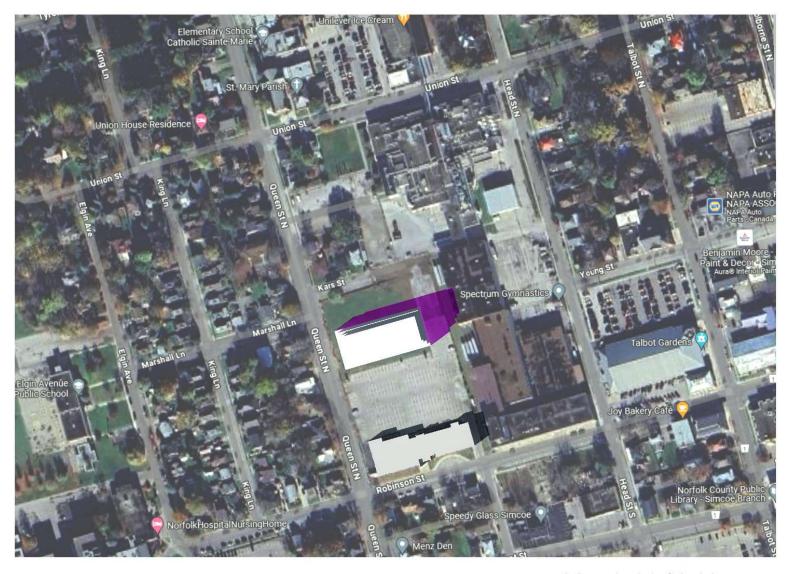




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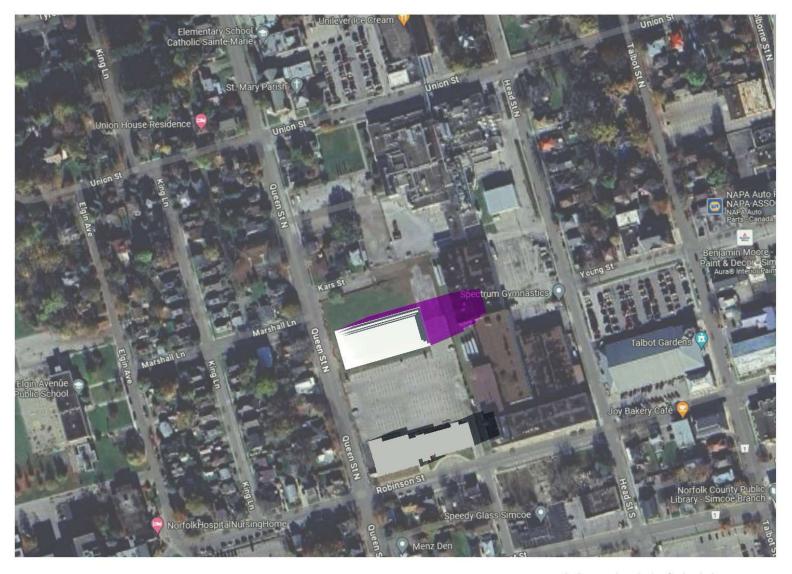




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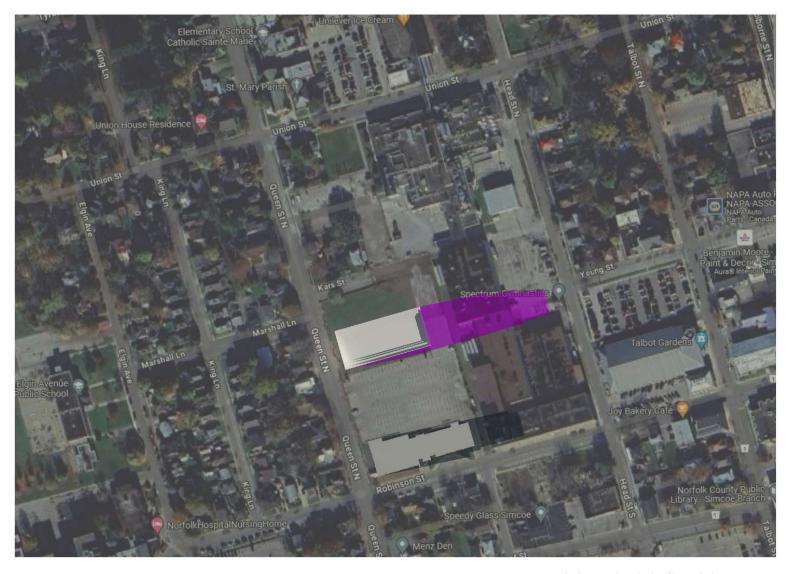




March 21 / 4:18pm

SHADOW STUDY





March 21 / 5:18pm

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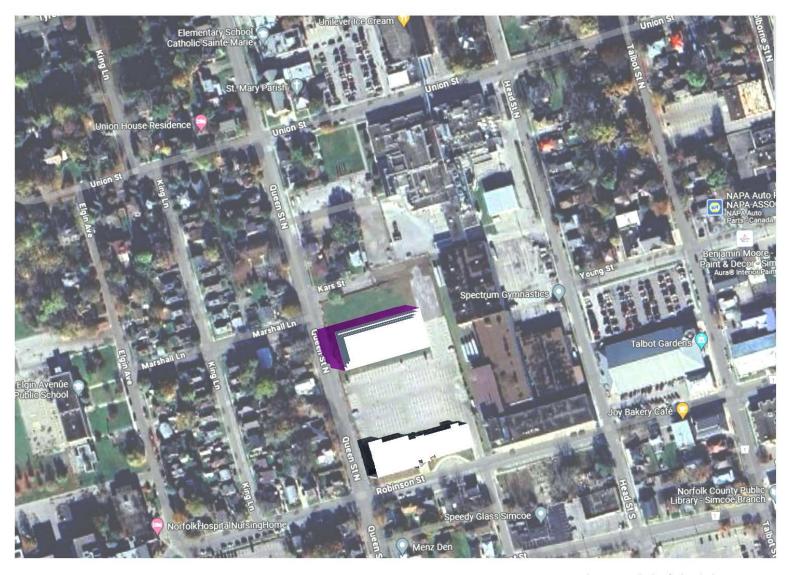




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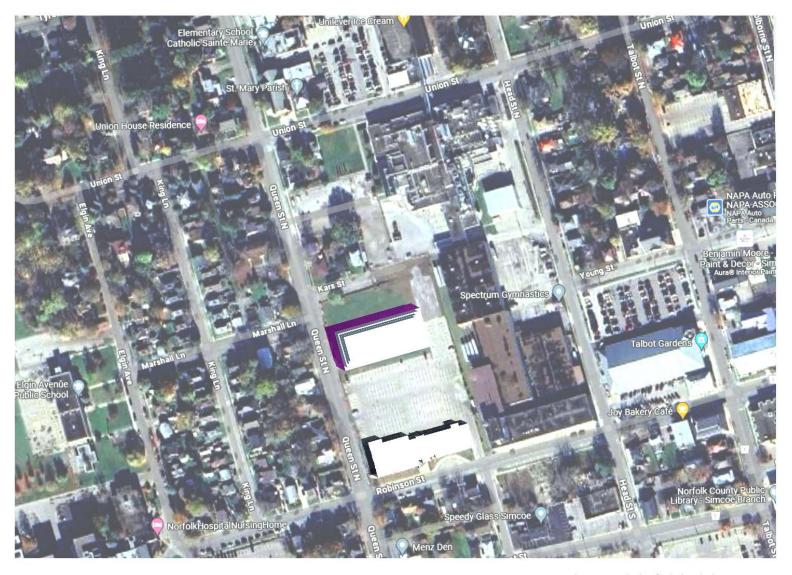




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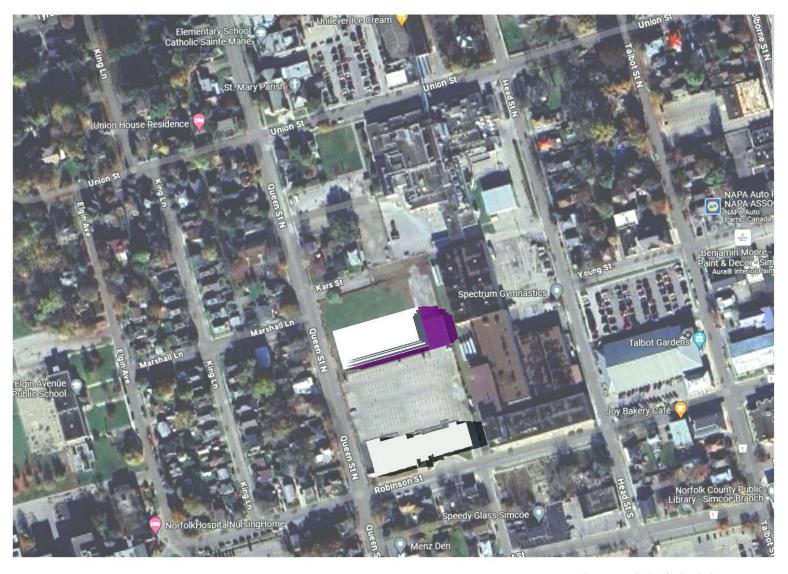




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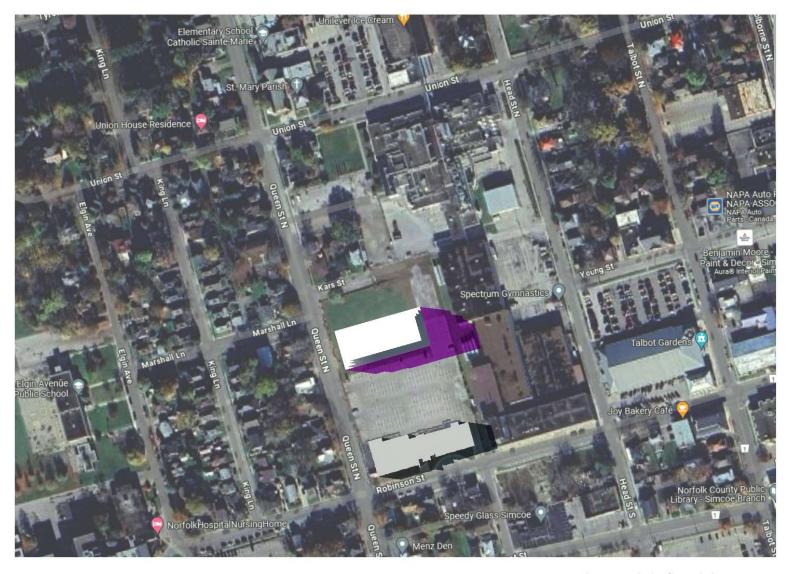




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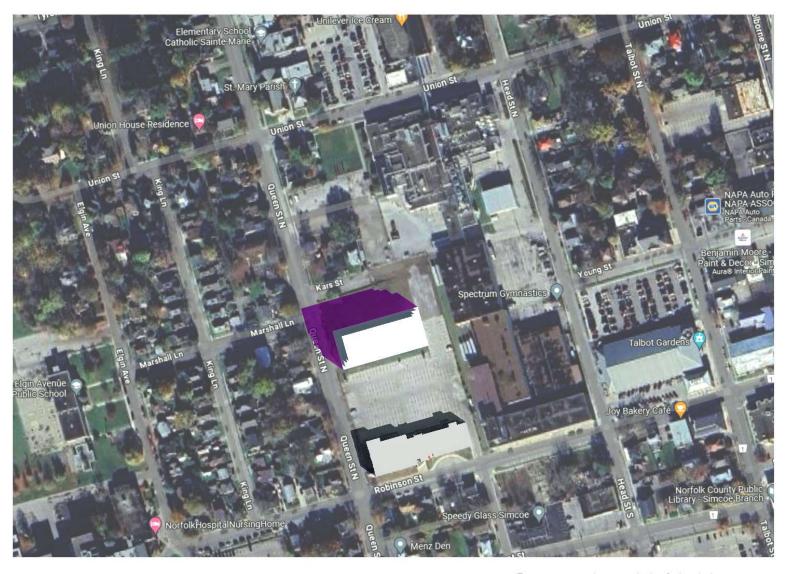




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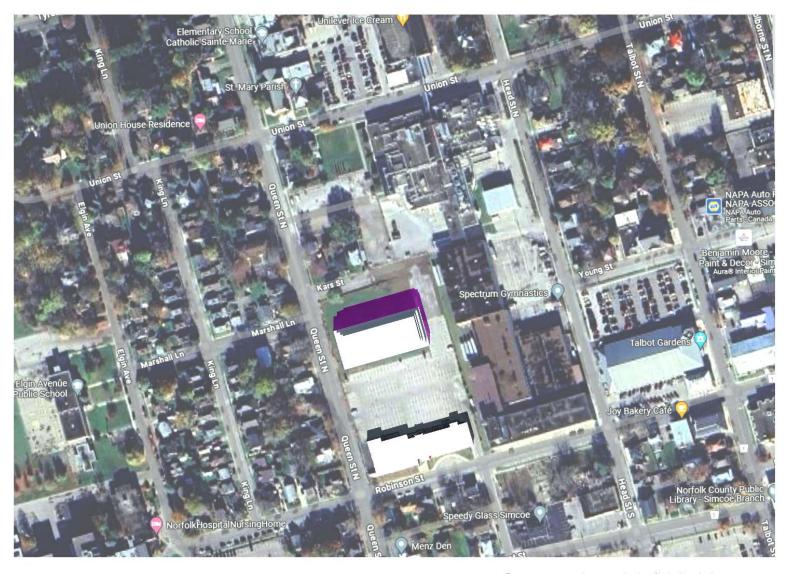




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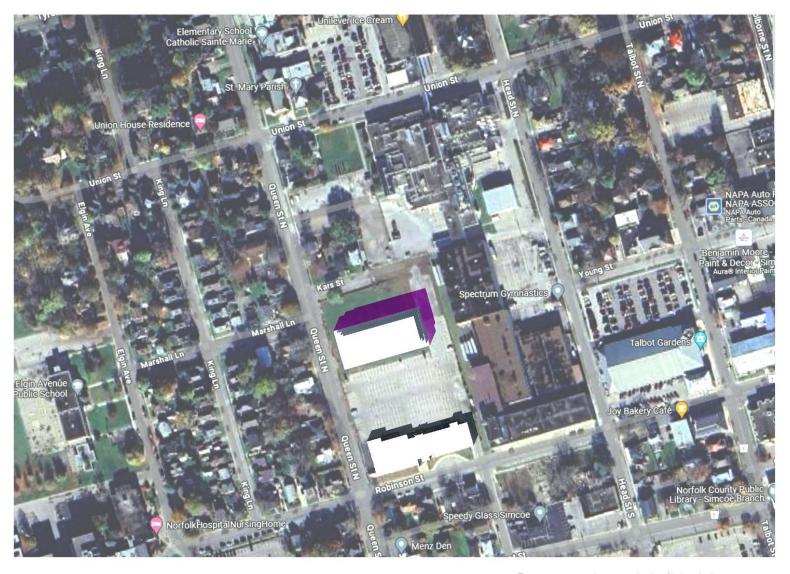




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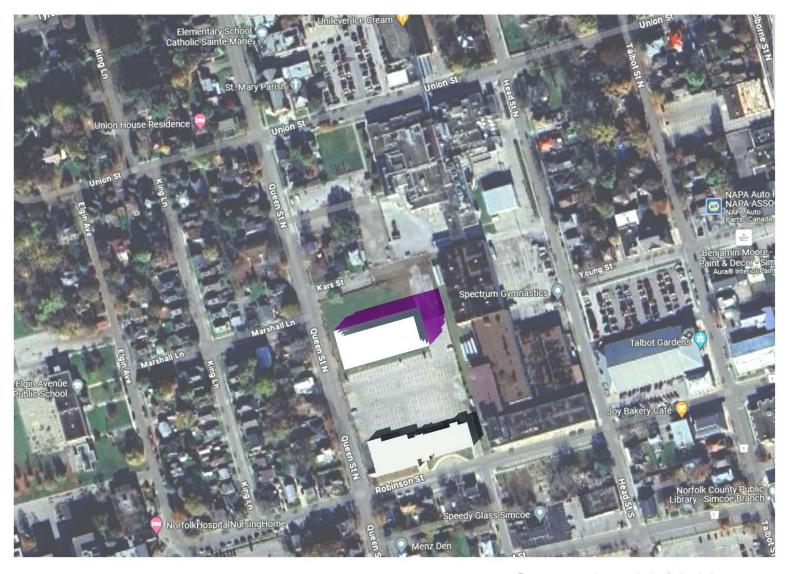




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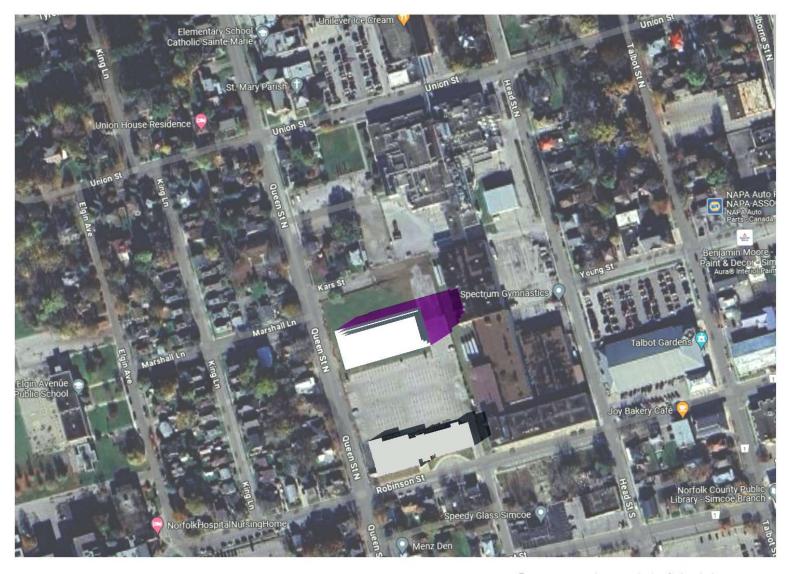




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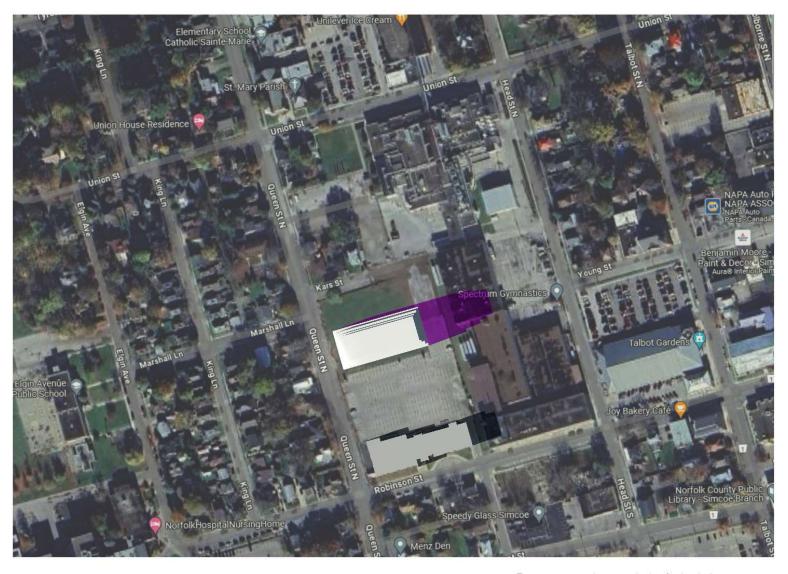
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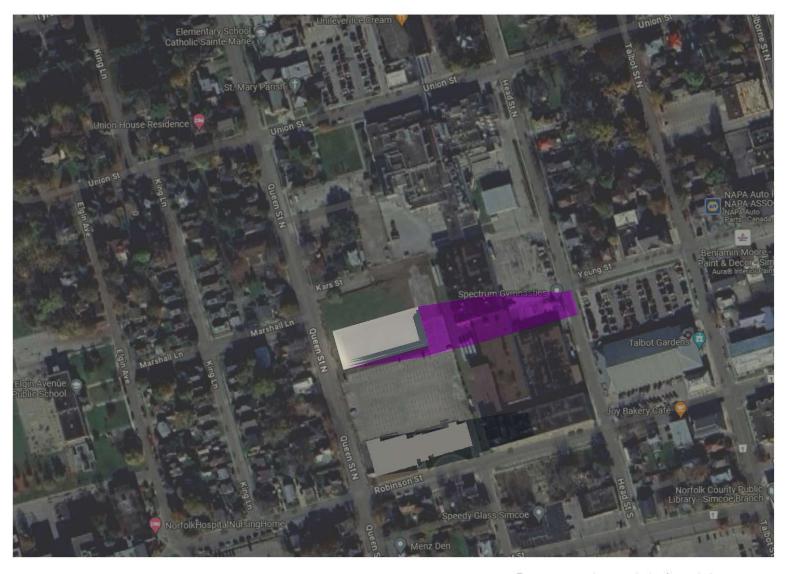
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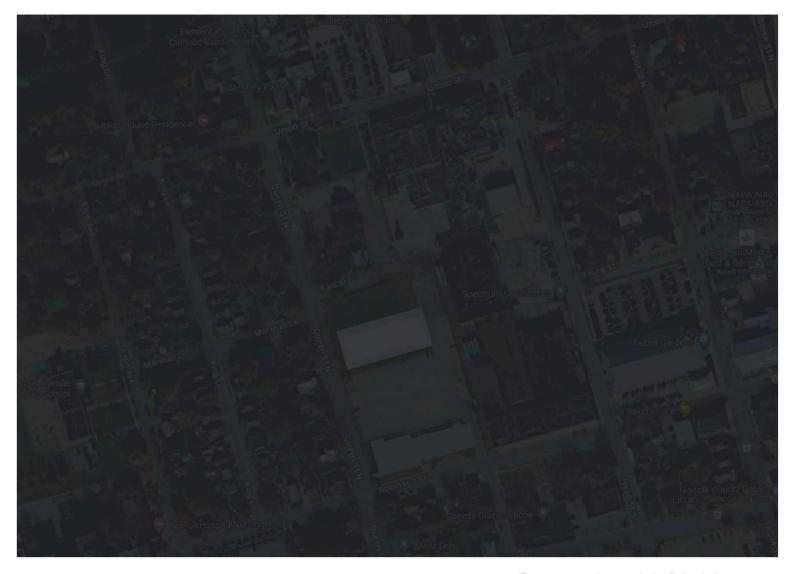
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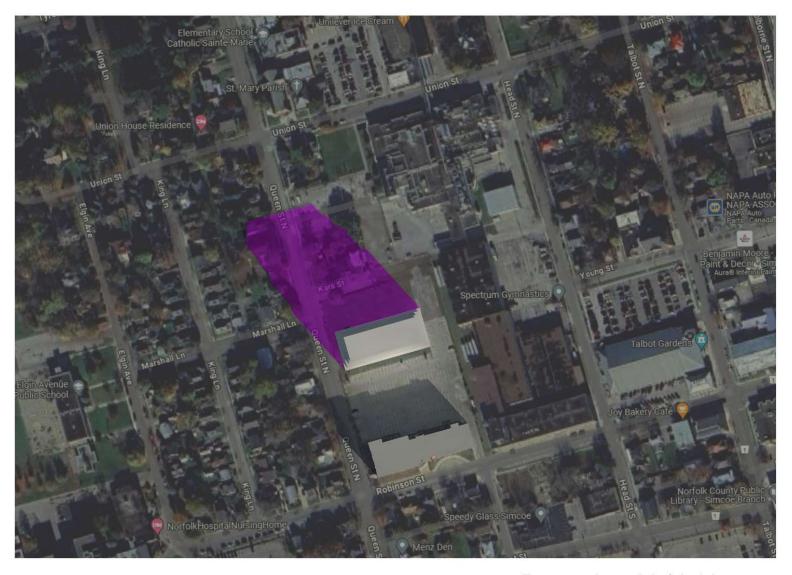
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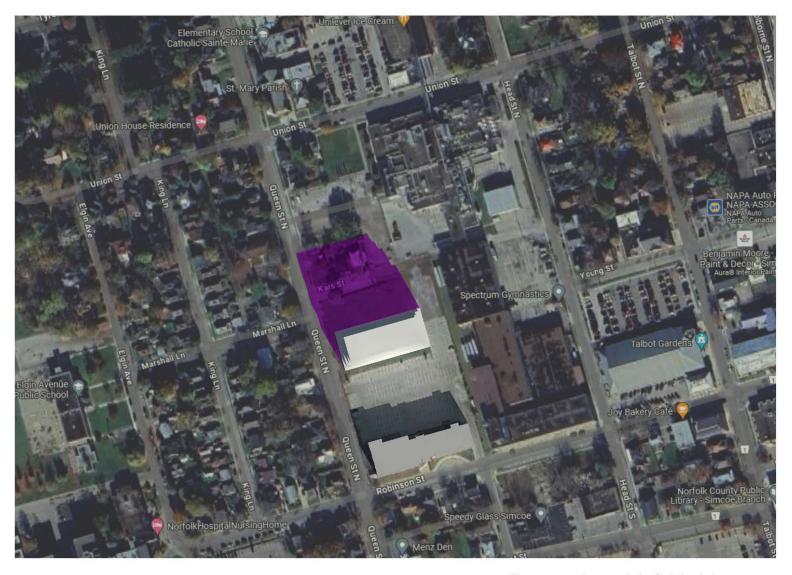




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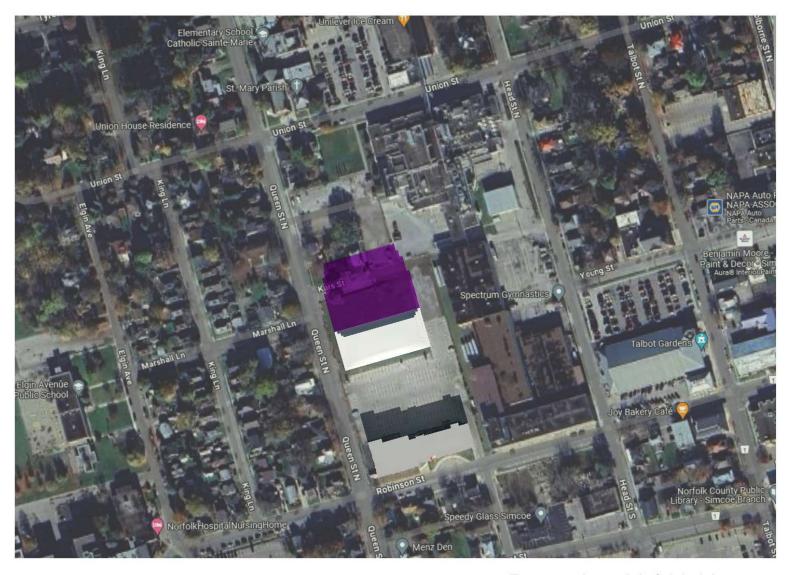




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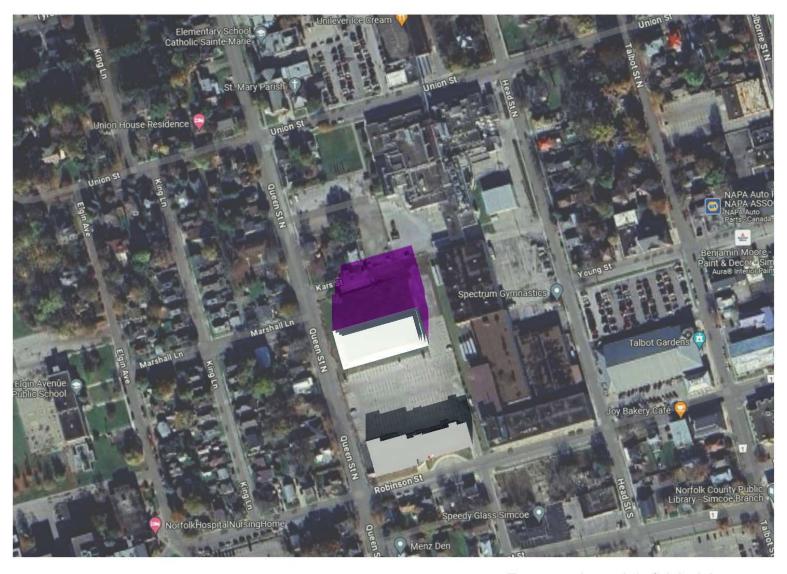




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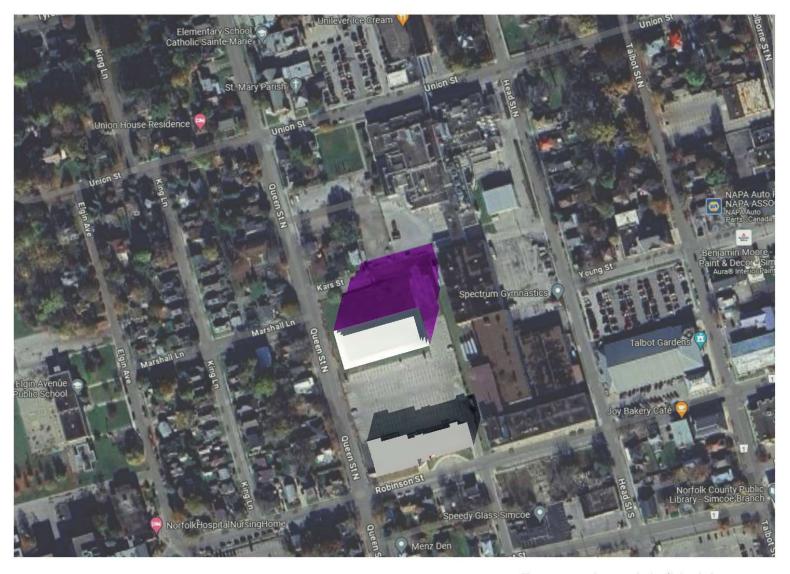




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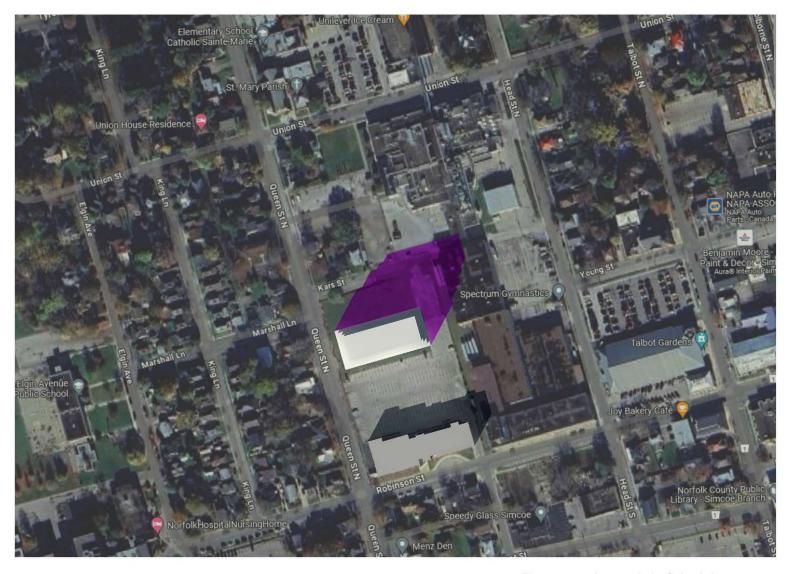




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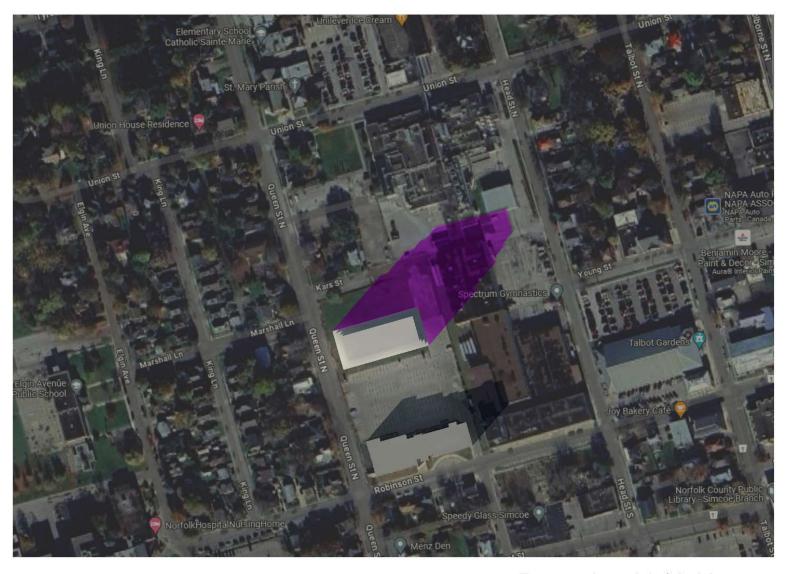




December 21 / 2:18pm

SHADOW STUDY





December 21 / 3:18pm

SHADOW STUDY





December 21 / 4:18pm





December 21 / 5:18pm



# FUNCTIONAL SERVICING & STORMWATER MANAGEMENT REPORT

**185 ROBINSON STREET** 

TOWN OF SIMCOE NORFOLK COUNTY

PREPARED FOR: 2273925 ONTARIO INC.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC. 55 WYNDHAM ST N, SUITE 215 GUELPH, ON N1H 7T8

**AUGUST 2024** 

CFCA FILE NO. 2616-6994

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Revision Number	Date	Comments	
Rev.0	August 2024	Issued for First Submission (ZBA)	

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Table 6:Post-Development Land Areas and Runoff CoefficientsTable 7:Peak Flow Summary (Discharge towards Queen Street)

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**Appendix A:** As-Constructed Drawings & Background Material

Appendix B: Water Demand Calculations

Appendix C: Sanitary Flow Calculations

**Appendix D:** Stormwater Management Calculations

## LIST OF DRAWINGS

Drawing C101: Erosion and Sediment Control Plan

Drawing C102: Preliminary Site Grading PlanDrawing C103: Preliminary Site Servicing Plan

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Figure 1: Pre-Development Drainage Plan
Figure 2: Post-Development Drainage Plan

#### 1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by 2273925 Ontario Inc. to prepare a Functional Servicing & Stormwater Management Report to support the Zoning By-Law Amendment (ZBA) for the site located at 185 Robinson Street in the Town of Simcoe.

This report will demonstrate that the site can be developed in accordance with the Town of Simcoe, Norfolk County, and Long Point Region Conservation Authority guidelines from a functional servicing and stormwater management perspective.

#### 1.1 Site Description

The site encompasses an area of approximately 1.7 ha and currently consists of an open undeveloped lot. The site, located in a mixed-use commercial and residential area, is bounded by residential buildings & Kars Street to the north, commercial/industrial buildings to the east, a 3-storey commercial building to the south and Queen Street North to the west.

Based on the Site Plan prepared by Stoyanovskyy Architects dated July 25, 2024, the elements envisioned for the proposed development include:

- An 8-storey mixed-use building containing 149 units.
- At grade and four (4) levels of underground parking area with 307 parking stalls.
- Internal roadway with access to Kars Street and the adjacent property.
- Associated amenity and landscaped areas.

#### 1.2 Background Information

The following drawings, design standards, and documents were referenced during the preparation of this report:

- As-Constructed Drawings of the Surrounding Area (Received January 24, 2024)
- Ministry of Environment Stormwater Management Planning and Design Manual (March 2003)
- Norfolk County As-Built Drawings (January 2024)
- Norfolk County Design Criteria (February 2019)
- Norfolk County Grading Plan and Site Servicing Plan (March 2013)
- Norfolk County Development Charges Background Study (December 2018)
- Topographic Survey (Jewitt and Dixon Ltd., April 2024)

Relevant excerpts from the background documents are provided in **Appendix A**.

## 2.0 Water Servicing

Norfolk County is responsible for the operation and maintenance of the public water supply for the site. The existing and proposed water servicing is discussed in the following sections.

#### 2.1 Existing Water Servicing

The existing water servicing infrastructure in proximity to the site includes:

- A 200 mm diameter watermain located on Robinson Street (Norfolk County As-Builts Drawing S-0516, November 1981).
- A 200 mm diameter watermain located on Queen Street North (Norfolk County As-Builts Drawing S-0360, received January 2024).
- A 50 mm diameter watermain located on Kars Street (Norfolk County As-Builts Drawing S-0360, received January 2024).
- A fire hydrant located on north-east side of the Kars Street and Queen Street North intersection (Norfolk County As-Builts Drawing S-0360, received January 2024).
- A fire hydrant located on north-west side of the Robinson Street and Queen Street North intersection (Norfolk County As-Builts – Drawing S-0983, January 2016).
- A fire hydrant located on south-east side of the Robinson Street and Metcalfe Street South intersection (Norfolk County As-Builts – Drawing S-0516, November 1981).

#### 2.2 Design Water Demand

The water demand for the proposed development was calculated with reference to the Norfolk County Design Criteria (February 2019). The Norfolk County design criteria requires an average daily water demand of 450 L/capita/day.

Per the Watson & Associates - Norfolk County Development Charges Background Study (December 2018) and Norfolk County Design Criteria (February 2019), the following population per unit (PPU) parameters were used to determine the estimated population equivalent for the proposed development:

- 1.43 for Apartment Units
- 90 persons/ha commercial uses

Considering the above design criteria, the average daily, maximum daily, and peak hourly water demands were calculated for the proposed development using the associated Norfolk County peaking factors. Table 1 below outlines the estimated domestic water demand generated by the proposed development. Supporting calculations are provided in **Appendix B**.

**Table 1: Estimated Domestic Water Demand** 

Standard	Average Daily Demand	Maximum Daily Demand	Peak Hourly Demand
	(L/s)	(L/s)	(L/s)
Norfolk County	1.13	2.54	4.49

Note: References to Norfolk County design guidelines are provided in **Appendix A**.

As presented in Table 1, a domestic water service is required to convey a peak flow rate of 4.49 L/s.

#### 2.3 Fire Flow Demand

The Fire Underwriters Survey (FUS) method (2020) was used to estimate the fire flow requirements for the proposed development. Flow requirements are based on the total Gross Floor Area (GFA) as depicted on the Site Plan prepared by Stoyanovskyy Architects dated July 25, 2024.

This calculation is based on the following assumptions which will be confirmed with the building architect and mechanical engineer throughout the design process:

- Building type of non-combustible construction with protected vertical openings (C-value = 0.8).
- Building to be complete with an automatic sprinkler system (50% flow reduction).
- Building to be classified as residential limited hazard occupancy (15% flow reduction).

The building Architect and Mechanical Engineer will confirm the estimated fire flow demand at the Site Plan Approval and Building Permit stage.

Table 2 summarizes the estimated fire flow requirements and durations necessary to meet fire protection for the proposed development. Supporting calculations are provided in **Appendix B**.

Table 2: Estimated Fire Demand Flows

Method	Demand Flow (L/s)	<b>Duration</b> (h)
Fire Underwriters Survey 2020	117	2.00

Based on the results from Table 2 the governing fire flow for the proposed development was calculated to be 117 L/s for a duration of 2.0 hours.

It should be noted that the fire flows determined from the FUS method are a conservative estimate for comparison purposes only. The Mechanical Engineer will complete the required analysis for fire protection and the Architect will design fire separation methods per the determined fire flow rate to meet municipally available flows and pressures at the Site Plan Approval and Building Permit stage.

Based on the estimated domestic water demand (4.59 L/s) and fire flow demand (117 L/s) summarized in Table 1 and Table 2, the total design flow for the internal water distribution system is approximately 121.59 L/s.

## 2.4 Proposed Water Servicing

The proposed development is to be serviced by connecting to the existing 200 mm diameter watermain located within Queen Street North. An internal watermain network will connect the proposed building to the existing 200 mm watermain near the northwest corner of the proposed building. The existing fire hydrants located on Queen Street North and Robinson Street do not provide sufficient fire coverage for the proposed development, therefore an additional internal hydrant is proposed. Refer to the Preliminary Servicing Plan (Drawing C103) for an illustration of the location of the proposed water connection and internal network. The water system internal to the building will be designed by the mechanical engineer.

## 3.0 Sanitary Servicing

Norfolk County is responsible for the operation and maintenance of the public sanitary sewage conveyance and treatment near the site. The existing and proposed sanitary servicing are outlined in the following sections.

#### 3.1 Existing Sanitary Servicing

The existing sanitary servicing infrastructure close to the site includes:

- A 300 mm diameter sanitary sewer on Robinson Street, draining west to east at a slope of 1.1% (Norfolk County As-Builts Drawing S-0983, January 2016).
- A 250 mm diameter sanitary sewer on Queen Street North, draining south to north at a slope of 0.67% (Norfolk County As-Builts Drawing S-0213, received January 2024).
- A 200 mm diameter sanitary sewer on Kars Street, draining east to west at a slope of 0.26% (Norfolk County As-Builts – Drawing S-0360, received January 2024).

Based on the as-constructed drawings provided by Norfolk County (January 2024), there are two (2) existing sanitary laterals installed from the Queen Street sewer to service future development. These laterals are to be decommissioned and capped as part of the proposed development.

## 3.2 Design Sanitary Flow

The Norfolk County Design Criteria (February 2019) were referenced to calculate the sanitary sewage design flows for the proposed development. A unit sewage flow of 450 L/capita/day was used to determine the average daily flow for the proposed development. Infiltration flow into the sanitary sewer and a peaking factor were applied to the unit sewage flow to obtain the total estimated sanitary design flow. A summary of the estimated sanitary design flow is presented in Table 3. Supporting calculations are provided in **Appendix C**.

**Table 3: Estimated Sanitary Design Flows** 

Standard <sup>1</sup>	Average Flow (L/s)	Residential Peaking Factor	Commercial Peaking Factor	Infiltration Flow (L/s)	Total Peak Flow <sup>2</sup> (L/s)
Norfolk County	1.11	4.14	3.56	0.48	5.09

Note: <sup>1</sup> References to Norfolk County design guidelines are provided in **Appendix C**.

<sup>&</sup>lt;sup>2</sup> Peak flow includes infiltration flow.

As shown in Table 3, a sanitary service is required to convey 5.09 L/s to service the proposed development.

Sanitary servicing for the proposed development is proposed to connect to the existing 200 mm diameter sewer within Kars Street at a newly proposed maintenance hole location.

### 3.3 Proposed Sanitary Servicing

The development is proposed to be serviced by a 200 mm diameter sanitary service, connecting to the existing 200 mm diameter sanitary sewer on Kars Street. The proposed sanitary service will be designed per the Norfolk County standards.

The Preliminary Servicing Plan (Drawing C103) illustrates the location of the sanitary sewer and connection to the building. The internal sanitary system of the building will be designed per the mechanical engineer's details and specifications.

### 4.0 Grading and Drainage Conditions

The drainage conditions for pre-development and post-development conditions are outlined in the following sections.

### 4.1 Existing Storm Servicing

The Norfolk County Grading Plan and Site Servicing Plan (March 2013) was referenced to determine the existing municipal storm infrastructure surrounding the site. The existing storm infrastructure close to the site includes:

- An 825 mm diameter concrete storm sewer on the south side of Queen Street North draining south to north at a slope of 0.65% (Norfolk County Grading Plan and Site Servicing Plan (March 2013).
- A storm sewer network exists on the retained portion of the Site. Stormwater runoff is
  collected via catch basins and is treated by an Oil and Grit Separator (OGS) prior to being
  discharged to a 450 mm storm sewer at a slope of 0.8% to the existing 900 mm diameter
  storm sewer on Queen Street.
- A 900 mm diameter concrete storm sewer on the North side of Queen Street North draining south to north at a slope between 0.7% and 0.9% abutting the site (Norfolk County Grading Plan and Site Servicing Plan (March 2013).
- A 450 mm diameter concrete storm sewer on Kars Street draining east to west at a slope of 0.30% (Norfolk County Grading Plan and Site Servicing Plan (March 2013).
- A 375 mm diameter storm sewer on Robinson Street draining west to east at a slope of 1.0% (Norfolk County As-Builts – Drawing S-0516, January 2024)

Referenced as-constructed drawings have been included in Appendix A.

### 4.2 Existing Drainage Conditions

The site is currently comprised of a grassed landscaped area, bounded by residential buildings & Kars Street to the north, commercial/industrial buildings to the east, a 3-storey commercial building to the south, and Queen Street North to the west.

Based on the review of the Norfolk County Grading Plan and Site Servicing Plan (March 2013), there are three existing catchbasins located adjacent to the western property line. These catchbasins are connected to the existing 900 mm diameter concrete storm sewer on Queen Street North. There is an existing catchbasin located near the northeast corner of the site for swale drainage. This catchbasin is proposed to remain following site development.

Under existing conditions, the site can be divided into four (4) drainage catchments. Figure 1 illustrates the existing (pre-development) drainage conditions of the Site. The following discussion outlines the pre-development drainage catchments, outlined in Figure 1.

- Catchment 101 (0.43 ha) consists of drainage from primarily grassed area on the northeast portion of the site, discharging northeast towards the existing catchbasin near the northeast corner of the Site.
- Catchment 102 (0.18 ha) consists of drainage from the grassed area on the north-west portion of the site, discharging northwest towards the existing catchbasins along Queen Street North.
- Catchment EXT-1 (1.03 ha) consists of controlled drainage from the retained portion of the site, including the existing building and parking lot on the south. Runoff from this catchment is directed into catchbasins located throughout the parking lot and is conveyed to the existing storm sewer on Queen Street North after passing through an oil and grit separator.
- Catchment EXT-2 (0.07 ha) consists of uncontrolled drainage along the frontage of the existing building. This flow is outside the limit of work for this development and therefore will remain unchanged in post-development conditions.

Table 4 summarizes the pre-development land areas and weighted runoff coefficients.

Table 4: Pre-Development Land Areas and Runoff Coefficients

Catchment ID	Pervious Area (ha)	Impervious Area (ha)	<b>Total Area</b> (ha)	Runoff Coefficient
101	0.37	0.06	0.43	0.34
102	0.18	0.00	0.18	0.25
EXT-1	0.11	0.92	1.03	0.83
EXT-2	0.02	0.05	0.07	0.70
Site Total	0.68	1.03	1.70	0.61

- 1. Impervious area has a runoff coefficient of 0.90 and pervious area has a runoff coefficient of 0.25.
- 2. Sum of areas may not necessarily add up to the total value due to rounding and significant digits.

The pre-development flows and associated target release rates are summarized in Table 5 below. As demonstrated in Table 5, post-development flows will be controlled to 5-yr pre-development rates for all storm events.

Table 5: Pre-Development and Target Release Rates

Return Period (years)	Pre-Development Discharge Rate (101 + 102) (m³/s)	Maximum Release Rate (m³/s)
2	0.031	0.041
5	0.041	0.041
10	0.047	0.041
25	0.055	0.041
50	0.062	0.041
100	0.068	0.041

### 4.3 Proposed Storm servicing

Storm servicing for the proposed development will be provided by an internal storm sewer and catchbasin network, capturing post-development drainage, conveying it to an underground storage tank before being treated and discharged into the existing 450 mm diameter storm sewer on Kars Street. Storm sewers will be sized at a subsequent design stage.

Runoff will be attenuated using a proposed underground storage tank. The tank will hold runoff from the entirety of the severed portion of the lands, including the building, amenity areas, parking areas, and the access road. The tank has been sized to store the post-development flows resulting from the 100-year event. Prior to discharging to the existing storm sewer, the post-development drainage will be controlled using an orifice tube to meet the target release rates in Table 5.

All stormwater collected will discharge to an Oil and Grit separator unit for water quality treatment prior to discharging into the existing 450 mm storm sewer. The proposed stormwater management controls are further discussed in Section 5.0 below. The Preliminary Site Servicing Plan (Drawing C103) illustrates the proposed storm sewer network. A Storm Sewer Drainage Plan and an associated Storm Sewer Design Sheet will be prepared at a subsequent design stage to ensure all proposed storm sewers are sized appropriately.

### 4.4 Proposed Drainage Conditions

The proposed development consists of an 8-storey mixed-use building, above and below ground parking, internal roadway, and landscaped areas. Under post-development conditions, the Site can be separated into three catchment areas: Catchments 201, 202 and 203 with areas of 0.67 ha, 0.96 ha, and 0.07 ha, respectively. Figure 2 illustrates the post-development drainage conditions of the Site.

- Catchment 201 (0.67 ha) consists of drainage from the proposed building, parking lot, roadway, and landscaped areas. Stormwater runoff in this catchment will be collected by catchbasins and conveyed via storm sewers to a stormwater storage tank. The stormwater collection system including the proposed tank are further discussed in section 6.2.
   Stormwater leaving the tank is conveyed to the existing 450 mm diameter storm sewer on Kars Street before entering the existing 900 mm diameter storm sewer on Queen Street North.
- Catchment 202 (0.96 ha) consists of controlled drainage from the retained portion of the site, including the existing building and parking lot on the south. Runoff from this catchment is directed to catchbasins located throughout the parking lot and is conveyed to the existing storm sewer on Queen Street North after passing through an oil and grit separator.
- Catchment 203 (0.07 ha) consists of uncontrolled drainage along the frontage of the existing building on Robinson Street. This flow is outside the limit of work for this development and will remain unchanged in post-development conditions.

Refer to the Preliminary Site Grading Plan (Drawing C103) and the Post-Development Drainage Plan (Figure 2) for the proposed development grading and post-development catchments.

Table 6 provides details of the catchment areas and runoff coefficients for the post-development conditions.

Table 6: Post-Development Land Areas and Runoff Coefficients

Catchment ID	Impervious Area (ha)	Pervious Area (ha)	<b>Total Area</b> (ha)	Runoff Coefficient
201	0.48	0.19	0.67	0.72
202	0.92	0.04	0.96	0.87
203	0.02	0.05	0.07	0.70
Site Total	1.42	0.28	1.70	0.80

- 1. Impervious area has a runoff coefficient of 0.90 and pervious area has a runoff coefficient of 0.25.
- 2. Sum of areas may not necessarily add up to the total value due to rounding and significant digits.

The storm sewer system will be designed to capture and convey runoff events up to and including the 5-year design storm. The underground storage tank has been designed to provide storage for storm events up to and including the 100-year storm event. A major overland flow route conveys runoff in excess of the 100-yr event northeast towards an adjacent parking lot for storage. The proposed emergency overland flow route for the Site mimics the flow direction and patterns of the existing condition, discharging east towards the adjacent parking lot.

Figures 1 and 2 highlight the pre- and post-development pervious and impervious areas for the Site. The Site Grading and Site Servicing Plans (Drawings C102 and C103) illustrate the proposed drainage of the Site, the location and design of the storm sewer and all connections. Existing stormwater management and proposed strategies are proposed in the following section.

### 5.0 Stormwater Management

### 5.1 Stormwater Management Criteria

The stormwater management design criteria are based on the Norfolk County Design Criteria (February 2019). The stormwater management criteria include:

- Quantity Control: Peak runoff flows are to be controlled to the pre-development levels for all storm events (Norfolk County Design Criteria, February 2019).
- Quality Control: At least 80% removal of Total Suspended Solids will be provided with "Enhanced Protection" as outlined in the Ministry of Environment Stormwater Management Planning and Design Manual (March 2003).

### 5.3 Stormwater Quantity Control

Pre-development flows were calculated given the existing land use and drainage conditions provided in the topographic survey prepared by Jewitt and Dixon Ltd. (April 2024), and the Site Plan prepared by Stoyanovskyy (July 2024). The Post-Development Drainage Plan (Figure 1) was prepared using the Preliminary Grading Plan and Preliminary Servicing Plan (C102 and C103). Post-development release rates were calculated using the rational method. The existing and proposed peak flows for each respective design storm are presented in Table 7. Rational method calculations are provided in **Appendix C**.

Table 7: Peak Flow Summary (Discharge towards Queen Street)

Return Period	Peak Flow (Queen Street N), Q				
(year)	<b>Existing</b> (m³/s)	Proposed (uncontrolled) (m³/s)			
2	0.031	0.078			
5	0.041	0.103			
10	0.047	0.120			
25	0.055	0.141			
50	0.062	0.157			
100	0.068	0.172			

Based on the Modified Rational Calculations and results outlined in Table 7, a total of 127 m<sup>3</sup> of onsite storage will be required to control the 100-year post-development storm event to the 5-year pre-development flow rate. An underground stormwater storage tank is proposed to provide 130 m<sup>3</sup> of stormwater storage just beyond the northeast building footprint.

At this preliminary stage, site specific water quantity controls are not proposed for the site. Options will be considered throughout the design process as it is advanced to further reduce post-development peak flows discharging to Queen Street North.

### 5.4 Stormwater Quality Control

Stormwater quality controls for the Site must incorporate measures to provide an Enhanced Level of Protection (Level 1) according to the MOE (March 2003) guidelines. Enhanced water quality protection is the long-term average removal of at least 80% of the total suspended solids (TSS) from 90% of the annual runoff volume.

Water quality control for Catchment 201 will be provided using an oil-grit separator (Stormceptor EF4 or approved equivalent). The oil-grit-separator, located downstream of the underground stormwater storage unit, will provide quality control for runoff before discharging the Ontario Street South storm sewer. Details of the oil-grit separator can be referenced in **Appendix C**.

### 6.0 Erosion and Sediment Controls During Construction

The design of the erosion and sediment controls will be completed during the detailed design phase of the proposed development. The erosion and sediment controls will be required to be installed prior to the beginning of any construction activities. They will be maintained until the site is stabilized or as directed by the Site Engineer and/or Norfolk County. Controls will be inspected after each significant rainfall event and maintained in proper working condition.

### <u>Light Duty Silt Fencing</u>

Light duty silt fencing will be installed on the perimeter of the site to intercept sheet flow. Additional silt fencing may be added based on field decisions by the Site Engineer and Owner, prior to, during, and following construction.

### Rock Mud Mat

A rock mud mat will be installed at the entrance to the construction zone to prevent mud tracking from the site onto surrounding lands and the perimeter roadway network. All construction traffic will be restricted to this access only.

### <u>Silt sacks in Catchbasins</u>

A silt sack will be installed in each new catch basin as they are installed. The silt sack will provide sediment control to prevent silt and sediment from entering the storm water system. Silt sacks will also be installed on the existing catchbasins during construction to prevent sediment from entering the existing storm sewer pipe.

The Removals, Erosion and Sediment Control Plan will be refined throughout the planning application process with consultation with the County and Conservation Authority to ensure potential environmental hazards during construction are minimized.

Refer to drawing C101 for the Erosion and Sediment Control Plan.

### 7.0 Conclusions and Recommendations

The proposed development of the Site includes the construction of an eight-storey, 149-unit mixed-use building, including above and below ground parking. Based on the information offered in this report, we believe that this proposed development can be serviced from a functional servicing and stormwater management perspective.

Our conclusions for the proposed development include:

### <u>Proposed Water Services</u>

- 1. The domestic peak hourly water demand for the proposed development is 4.19 L/s. The design fire flow is 117 L/s for 2.0 hours.
- 2. Water demand for the proposed development will be met by connecting a 200 mm diameter PVC water service with tapping sleeve to the existing 200 mm diameter water service on Queen Street North.

### **Proposed Sanitary Services**

- 1. Total peak sanitary flow for the proposed development is 5.09 L/s.
- 2. Sanitary conveyance for the proposed development will be provided using a 200 mm diameter PVC sanitary sewer which will connect to the existing 200 mm sanitary sewer on Queen Street North.

### Storm Services and Stormwater Management

- The Site's stormwater runoff will be collected in catch basins and conveyed to a storm water storage tank that controls events up to and including the 100-year storm event to the 5-year pre-development peak flows before discharging into the existing storm sewer on Queen Street North.
- 2. Stormwater quality controls for the Site will be provided by an in-line-oil-grit separator (Stormceptor EF4 or approved equivalent) unit installed downstream of the underground stormwater storage tank.

It is recommended that all as-built information be confirmed in the field prior to detailed design.

Based on the above conclusions, we recommend the approval of the Zoning By-Law Amendment from the perspective of functional servicing and stormwater management.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Trevor Fraser, P. Eng.

Project Manager, Land Development

C.F. CROZIER & ASSOCIATES INC.

Matt Bowman

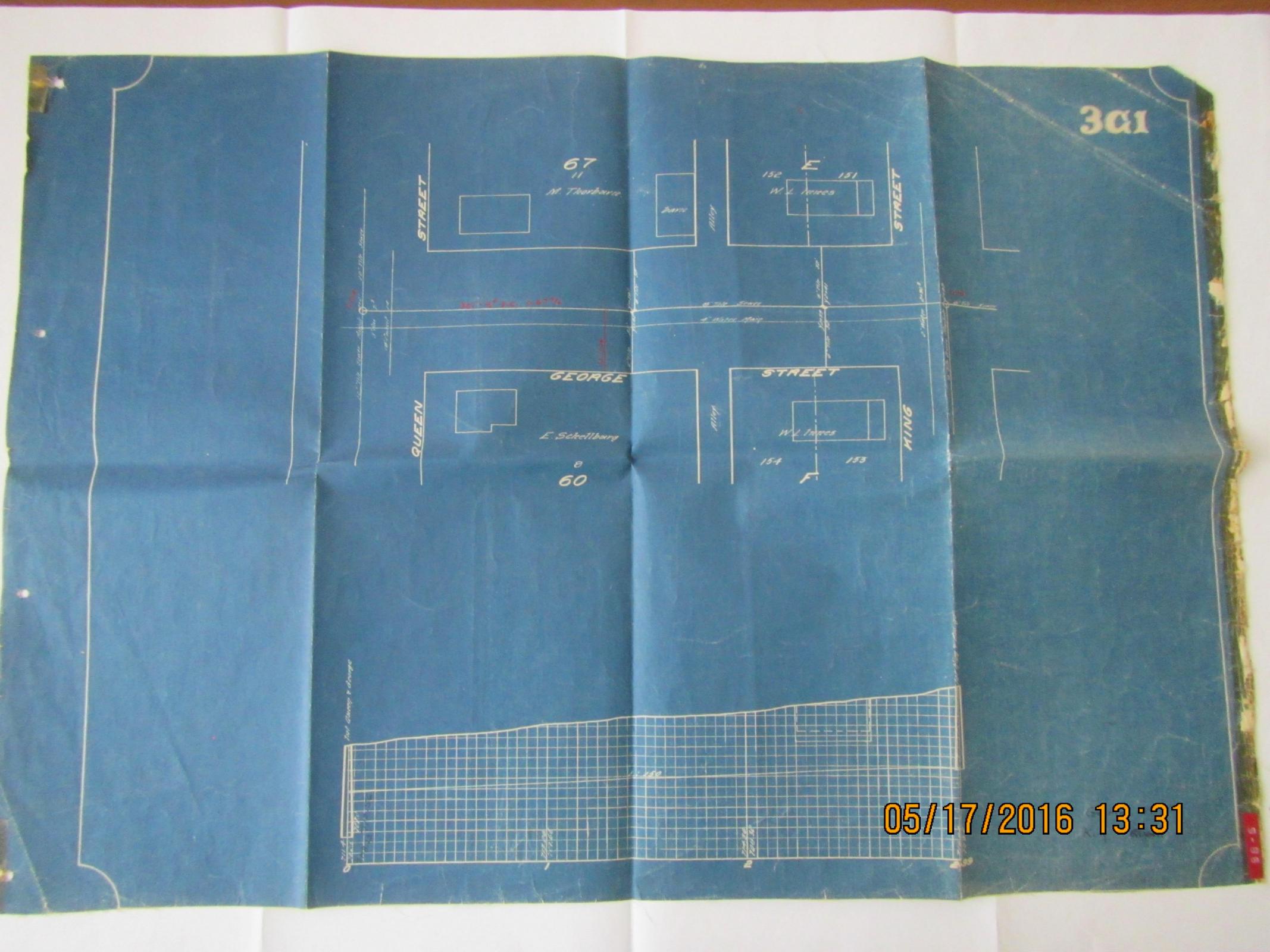
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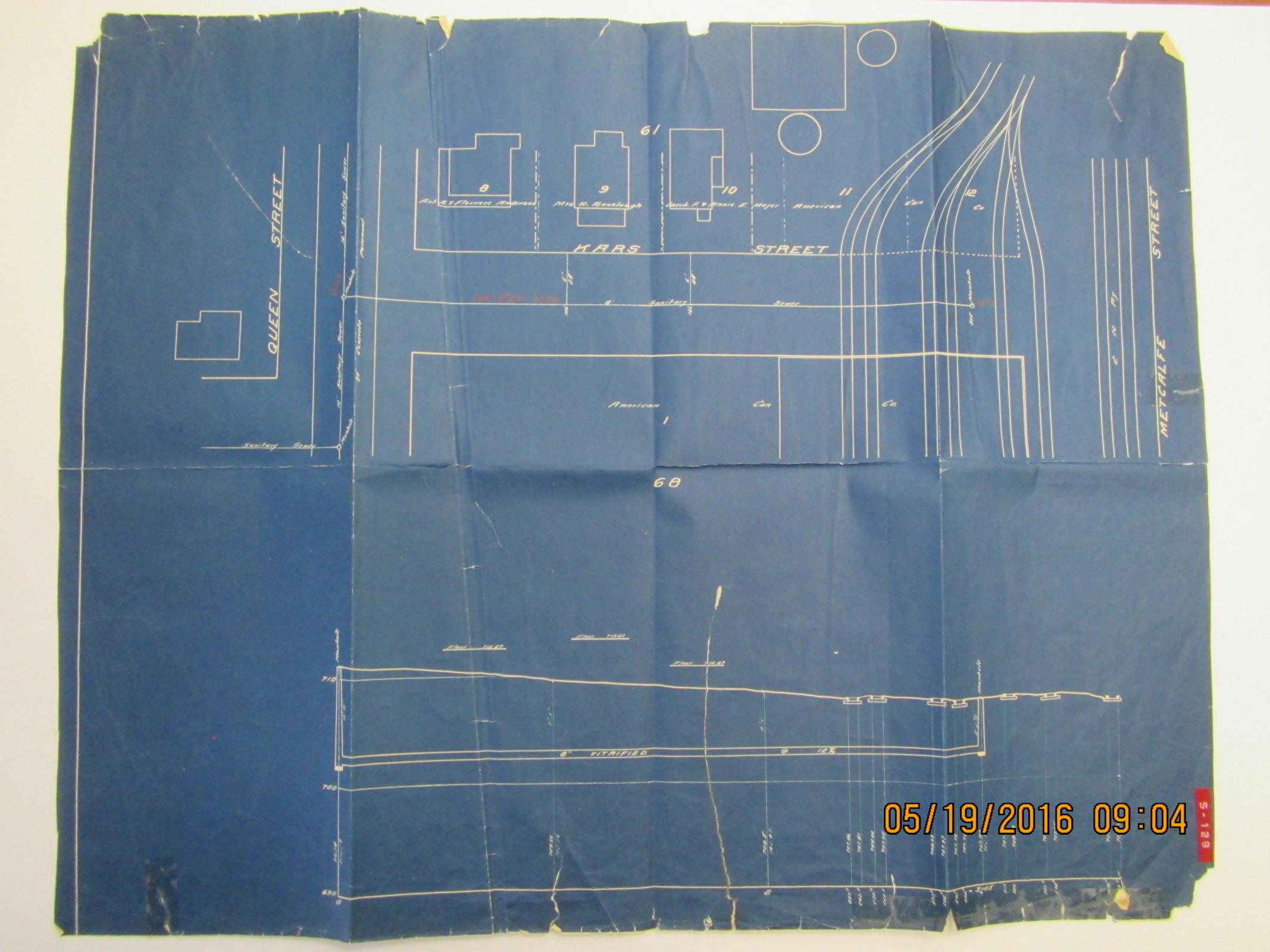
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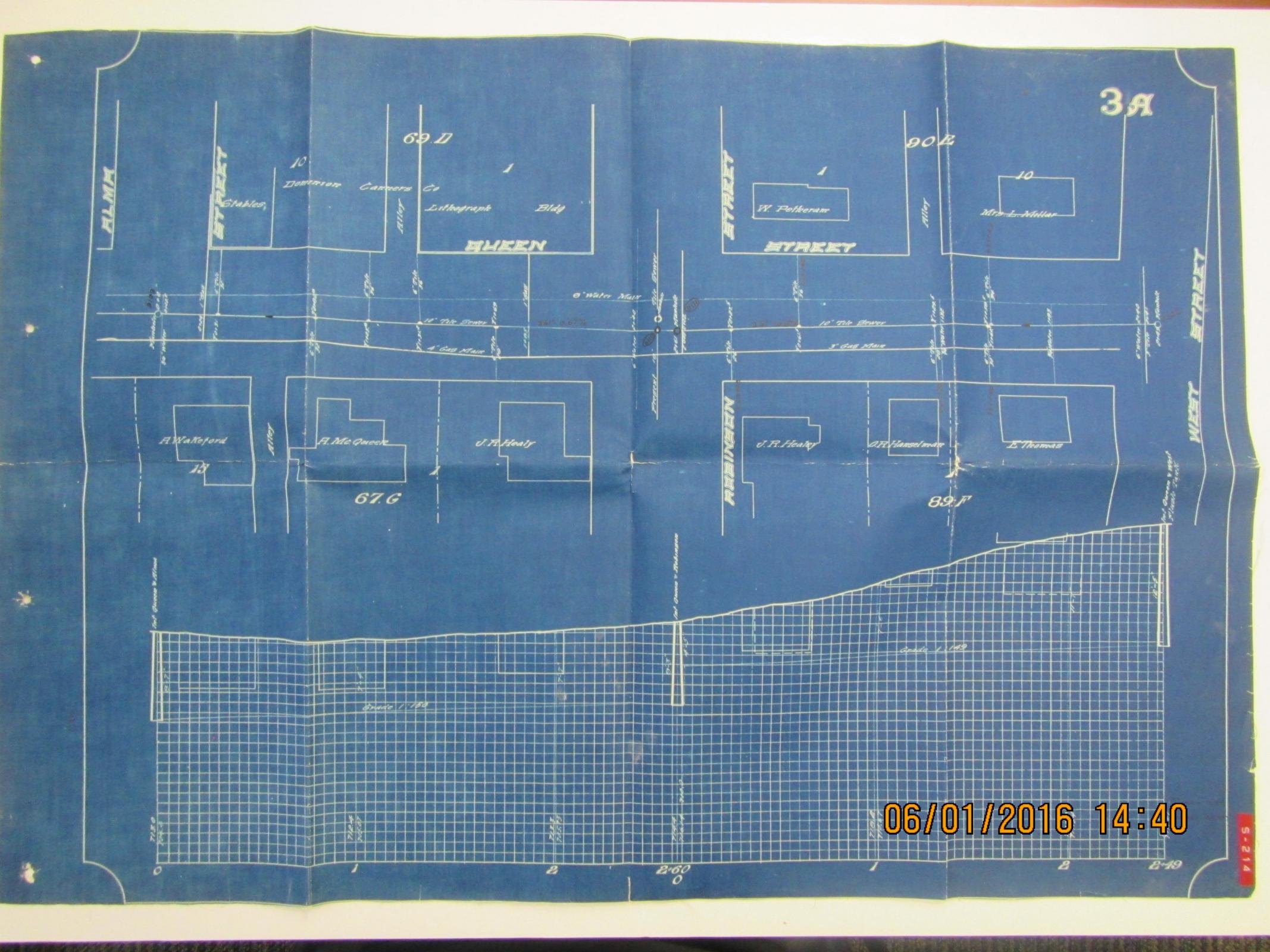
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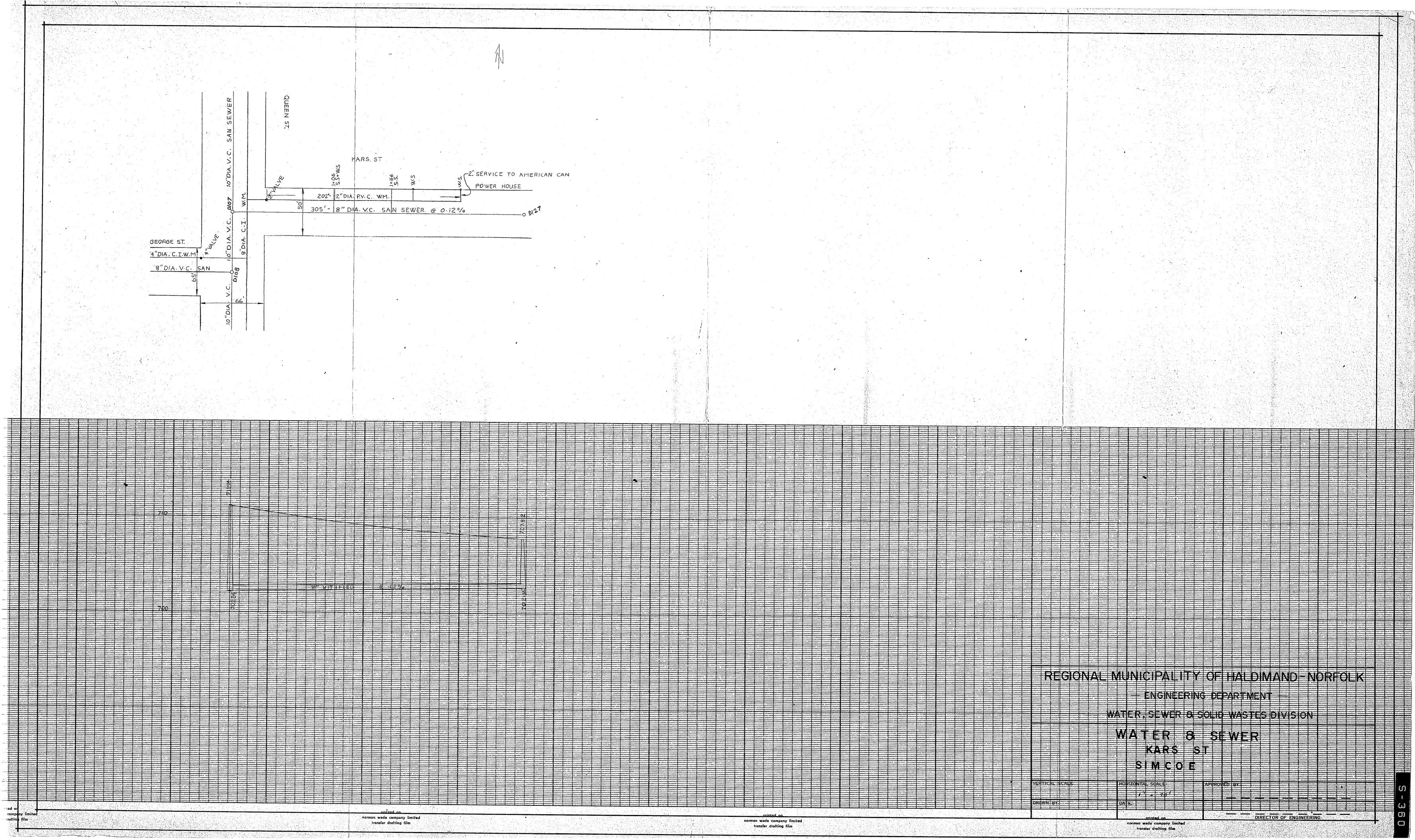
### APPENDIX A

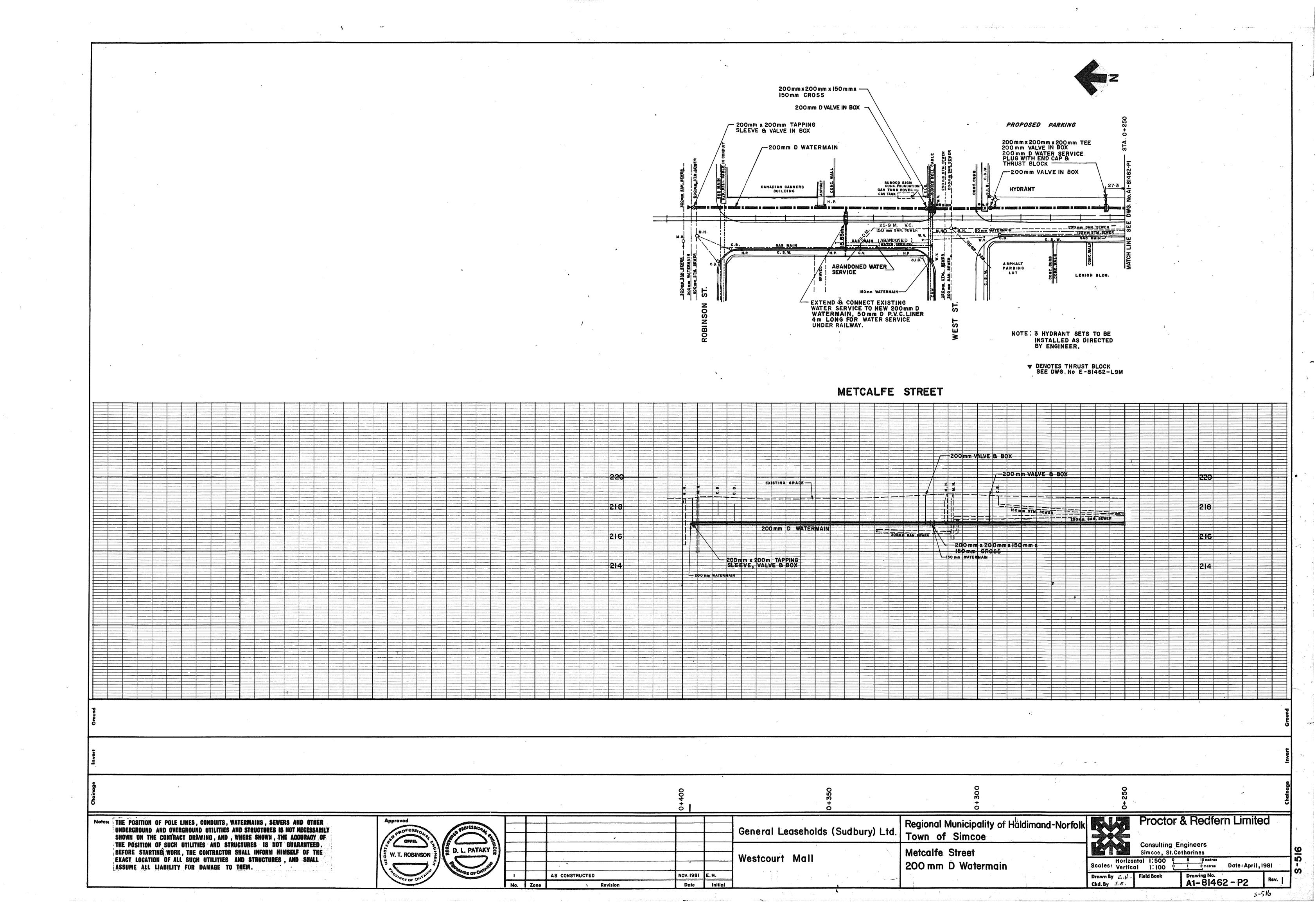
As-Constructed Drawings & Background Material

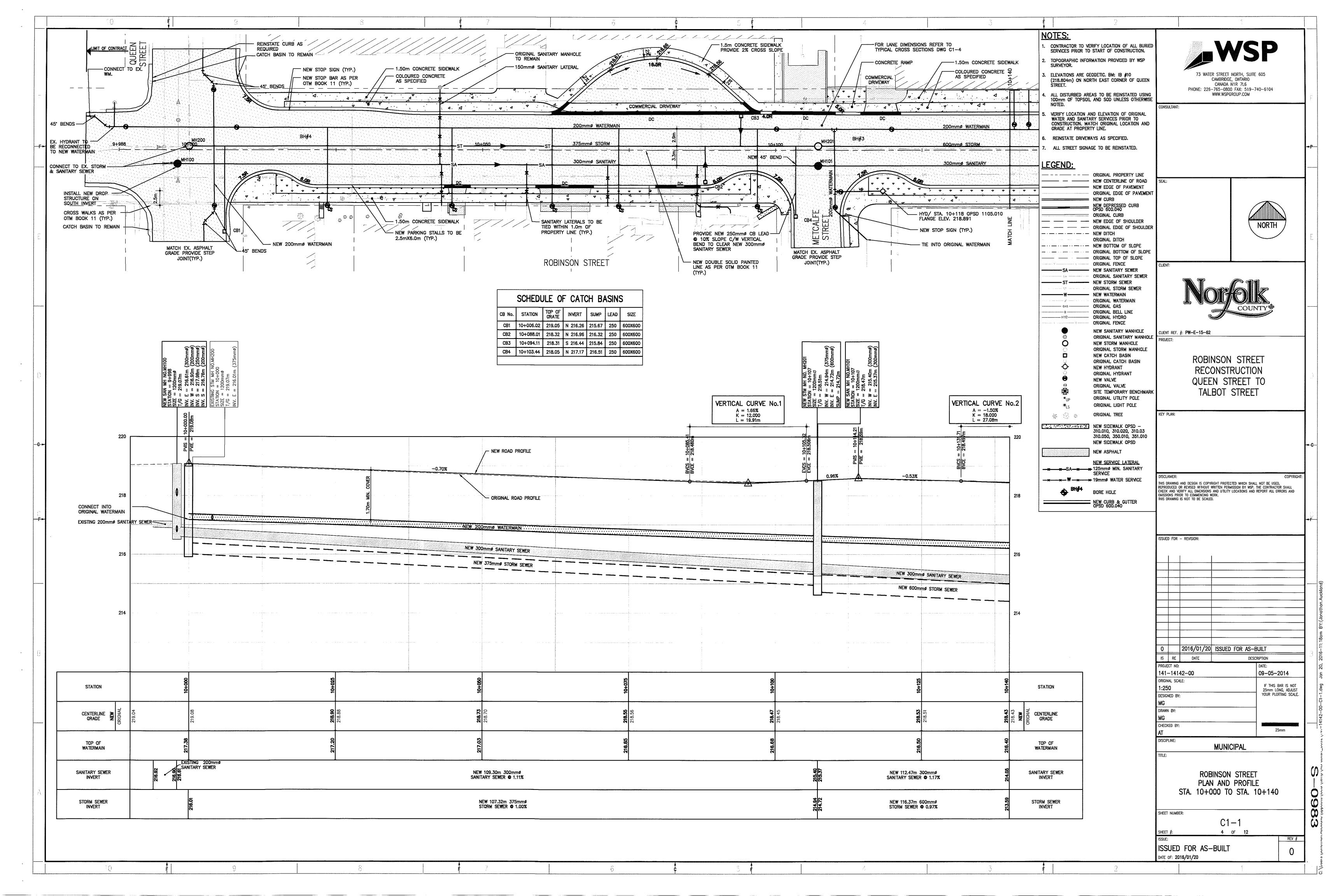












# APPENDIX B

Water Demand Calculations



**Project:** 185 Robinson Street

**Project No.:** 2616 - 6994

Created By: DC Checked By: **Date:** 2024-07-30 **Updated:** 2024-08-16

### **Domestic Water Demand Calculations**

			Notes & References
Population Estimate			
Site Area =	1.70	ha	Per Site Plan prepared by Stoyanovskyy Architects (July 2024)
Number of Residential Units = Residential Population Density = Total Residential Population =	149 1.43 214	units persons/unit persons	Population Density from Norfolk County DC Background Study (December 2018), assuming high density Residential Development
Area of Commercial Units = Commercial Population Density = Total Commercial Population =	0.03 90 3	ha persons/ha persons	Population Density from Norfolk County Design Criteria (February 2019), assuming commercial development
Total Population =	217	persons	
Water Demand			
Average Daily Demand =	0.45	m³/person/d	Average Per Capita Demand and Peaking Factors from Norfolk County Design Criteria (February 2019),
Avg. Residential Daily Demand =	96 <b>1.11</b>	m³/d <b>L/s</b>	Section 10.1.2
Avg. Commercial Daily Demand =	1.35 <b>0.02</b>	m³/d <b>L/s</b>	
Average Total Daily Demand =	97.65 <b>1.13</b>	m³/d <b>L/s</b>	
Maximum Day Factor =	2.25		
Residential Peak Hour Factor =	4.00		
Commercial Peak Hour Factor =	2.00		
Maximum Daily Flow = Peak Hour Flow =	2.54 4.49	L/s L/s	
Summary Table			

### **Summary Table**

Average	Maximum	Peak Hour
Daily Flow	Daily Flow	Flow
(L/s)	(L/s)	(L/s)
1.13	2.54	4.49



# CONSULTING ENGINEERS 185 Robinson Street Fire Protection Volume Calculation CFCA File: 2616-6994

**Date:** 2024-08-16 Designed By: DC Checked By:

ater Supply for Public Fire re Underwriters Survey	Protection	(2020)			Page
			Part II - Guide for Determination of	Required Fire Flow	
1. An estimate of fire flow	v required f	or a given area may be detern	nined by the formula:		
		F = 220 * C * √A			
Where:	F= the	required fire flow in litres per mi	nute		
	A = The For For	Construction Coefficient from 1 = 100% of ALL Floor Construction Coefficient below ors With Any Unprotected Verti	for wood frame construction (struction type IV-A mass timber construction type IV-B mass timber construction type IV-D mass timber construction type IV-D mass timber construction (brick or for ordinary construction (brick or for non-combustible construction for fire-resistive construction (fully letters (plus the following percentage to to 1.5:	ction tition ction ction ction ction ction other masonry walli (unprotected metc orrotected frame, flo s of the total areas	s, combustible floor and interior) al structural components) pors, roof) of the other floors).
	- Flo	ors With Any Protected Vertica	ng 11001s + 30% all 11001s Immediate I Openings and Protected Exterior V nmediately adjoining floors		
Proposed Buildings					
Area:		<u>3,885</u> sq.m			
	A=	3,885 sq.m 0.8	2024		per Site Plan prepared by Stoyanovskyy Architects, dated July
Therefore		10,970 L/min	- non-combustible construction (u	nprotected metal s	structural components)
		ed above shall not exceed: 30,000 L/min for wood fram 30,000 L/min for ordinary co 25,000 L/min for non-comb 25,000 L/min for fire-resistive	onstruction ustible construction		
Values obtained in No.	o. 1 may be	reduced by as much as 25% fo	or occupancies having low content	s fire hazard or may	y
		arge for occupancies having a			
*Non-Comb Limited Comb Comb		-25% -15% 0%	Free Burning Rapid Burning	15% 25%	
Occupanc	y Type: <u>Res</u> i	dential (C)	Reduction %:	-15%	- Combustible to Free Burning
Sub	total =	1,646 L/min reduction 9,325 L/min			
Note: Flow determine	d shall not b	pe less than 2,000 L/min			
3. Sprinklers - The value protection.	obtained	n No. 2 above may be reduce	d by up to 50% for complete auton	natic sprinkler	
		er Design System	Credit to part of building with a	overage	
installe	d in accord	er protection designed and dance with NFPA 13.	30%		
	supply is sto partment h	indard for both the system and	10%		
	pervised sy		10%		
Peduc	tion %	50%	Puilding to be sprinkle	arad	

5,485 L/min reduction 3,840 L/min

Subtotal =

#### Part II - Guide for Determination of Required Fire Flow

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 30 meters by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) exposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	>30 m	0%
10.1 to 20 m	15%		

**Exposed buildings** 

Direction	Distance (m)	Charge	Surcharge (L/min)
North	>30	0%	0
South	>30	0%	0
East	30	10%	1,097
West	25	10%	1,097
Tota	2,194		

- Existing Industrial BuildingExisting residential

#### **Determine Required Fire Flow**

No.1 10,970 No. 2 No. 3 1,646 reduction 5,485 reduction

No. 4 2,194 surcharge

Required Flow: 6,034 L/min Rounded to nearest 1000 L/min: 7,000 L/min

117 L/s 1,848 USGPM

Note: USGPM = 0.264\*(L/min)

Required Duration of Fire Flow				
Flow Required	Duration			
(L/min)	(hours)			
2,000 or less	1.00			
3,000	1.25			
4,000	1.50			
5,000	1.75			
6,000	2.00			
8,000	2.00			
10,000	2.00			
12,000	2.50			
14,000	3.00			
16,000	3.50			
18,000	4.00			
20,000	4.50			
22,000	5.00			
24,000	5.50			
26,000	6.00			
28,000	6.50			
30,000	7.00			
32,000	7.50			
34,000	8.00			
36,000	8.50			
38,000	9.00			
40,000 and over	9.50			

# APPENDIX C

Sanitary Flow Calculations



Average

**Daily Flow** 

(L/s)

1.11

**Residential** 

**Peaking** 

Factor

4.14

**Project:** 185 Robinson St **Project No.:** 2616-6994

Created By: DC Checked By:

**Date:** 2024-07-30 **Updated:** 2024-08-16

### **Sanitary Flow Calculations**

			Notes & References
Population Estimate			
Subject Property Area =	1.7	ha	
Number of Residential Units = Residential Population Density =	149 1.43	units persons/unit	Population Density from Norfolk County DC Background Study (December 2018), assuming high density Residential
Total Residential Population =	214	persons	Development  Commercial unit area from Site Plan prepared by
Area of Commercial Units =	0.03	ha	Stoyanovskyy Architects (July 2024)
Commercial Population Density =	90	persons/ha	Population Density from Norfolk County Design Criteria
Total Commercial Population =	3	persons	(February 2019), assuming commercial development
Total Population =	217	persons	
Sanitary Design Flow			
Residential Average Daily Flow =	0.45	m³/person/d	Average Sanitary Flow and Infiltration Allowance from
Commercial Average Daily Flow =	0.40	m³/ha/d	Norfolk County Design Criteria (February 2019), Section 9.2.02 and 9.2.04
Average Residential Daily Flow =	96.30 <b>1.11</b>	m³/d <b>L/s</b>	
Average Commercial Daily Flow =	0.01 <b>0.00014</b>	m³/d <b>L/s</b>	
Average Total Daily Flow =	96.31 <b>1.11</b>	m³/d <b>L/s</b>	
Modified Harmon Peak Factor, M = (Residential)	4.14		$M = 1 + [14 / (4 + (P^{0.5}))]$
Modified Harmon Peak Factor, Me = (Commercial)	3.56		Me = 0.8*[1 + 14 / (4 + (P <sup>0.5</sup> ))]
Infiltration Allowance, I =	0.28	L/s/ha	Takal kafikantina dafikantina Allawana * Cita Azar
Total Infiltration =	0.48	L/s	Total Infiltration = Infiltration Allowance * Site Area
Total Peak Flow, Q =	5.09	L/s	Q = Average Daily Flow x Peaking Factor + Infiltration
Summary Table			
Average Residential	Infiltration	Total	

Peak

Flow

(L/s)

5.09

Flow

(L/s)

0.48

Commercial

**Peaking Factor** 

3.56

## APPENDIX D

Stormwater Management Calculations



Project: 185 Robinson St Project No.: 2616-6994 Created By: AD Checked By:

**Date:** 2024-07-30 **Updated:** 2024-08-16

### **Modified Rational Calculations - Input Parameters**

Storm Data:

Time of Concentration:  $T_c = 15$  min (per Norfolk County standards)

Return Period	A	В	С	l (mm/hr)
2 yr	529.711	4.501	0.745	57.94
5 yr	583.017	3.007	0.703	76.40
10 yr	670.324	3.007	0.698	89.12
25 yr	721.533	2.253	0.679	104.33
50 yr	766.038	1.898	0.668	115.89
100 yr	801.041	1.501	0.657	126.98

**Pre-Development Conditions** 

Catchment ID	Area	Area	С	Weighted
	(ha)	$(m^2)$		Average C <sup>1</sup>
101	0.43	4319	0.34	0.09
102	0.18	1757	0.25	0.03
EXT-1	1.03	10300	0.83	0.50
EXT-2	0.07	660	0.70	0.03
Total Site	1.70	17036	-	0.61

**Post-Development Conditions** 

Catchment ID	Area	Area	С	Weighted
	(ha)	(m²)		Average C <sup>1</sup>
201	0.67	6730	0.72	0.28
202	0.96	9646	0.87	0.49
203	0.07	660	0.70	0.03
Total Site	1.70	17036	-	0.80

**Equations:** 

Peak Flow
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i(T_d) \cdot A$$

$$I = \frac{A}{(t_c + B)^C}$$



**Project:** 185 Robinson St

**Project No.:** 2616-6994

Created By: AD Checked By: MB

**Date:** 2024-07-30 **Updated:** 2024-08-16

### **Modified Rational Calculations - Summary**

### Outlet to Ontario Street

Storm Event	Pre-Devleopment (m3/s)	Post-Development (m3/s)		Storage Required	Storage Provided
	101+102	201 201-Controlled*		(m3/s)	(m3/s)
2 yr	0.031	0.078		34	
5 yr	0.041	0.103		56	1
10 yr	0.047	0.120	0.041	72	130
25 yr	0.055	0.141	0.041	93	130
50 yr	0.062	0.157	157		
100 yr	0.068	0.172		127	

<sup>\*</sup>Catchment 201 controlled to the 5-yr pre-development peak flow rate for Catchment 101.



Project: Project No.: 185 Robinson St 2616-6994 
 Date:
 2024-01-16

 Revised:
 2024-08-16

 Designed By:
 AD

 Checked By:
 BP

### MODIFIED RATIONAL METHOD CALCULATIONS - 100 YEAR STORM EVENT

			CONTROLLED AREA		UNCONTROLLED ARE	: Λ	
			CHIROLLED ARLA		UNCONTROLLED ARE		
			Drainage Area ID =	201	Drainage Area ID =	n/a	
			Drainage Area =	0.67 ha	Drainage Area =	n/a	
Rainfall Intensity	Equation:		Runoff Coefficient =	0.72	Runoff Coefficient =	n/a	
1=	A						
_	(T+b)°	Controlled I	Release Rate at MH1 =	40.6 L/s	Target Site Release Rate =	40.6 L/s	
	` ,						
	County IDF						
•	Year)		ge Volume Required =	127 m3	Controlled Release Rate at MH1 =	40.6 L/s	
a=		Storaç	ge Volume Provided =	130 m3	Uncontrolled Release Rate =	0.0 L/s	
b=	1.501				Total Site Release Rate =	40.6 L/s	
C=	0.657 Rainfall						
Time	Intensity	Q <sub>Runoff</sub>	Q Release		Storage Volume Required		
(minutes)	(mm/hr)	(L/s)	(L/s)		(m³)		
5	234.2	314.1	40.6		82.0		
10	161.0	215.9	40.6		105.2		
15	127.0	170.3	40.6		116.7		
20	106.7	143.1	40.6		123.0		
25	93.0	124.8	40.6		126.2		
30	83.0	111.4	40.6		127.4		
35	75.4	101.1	40.6		127.0		
40	69.3	92.9	40.6		125.5		
45	64.3	86.2	40.6		123.1		
50	60.1	80.6	40.6		120.0		
55	56.6	75.9	40.6		116.3		
60	53.5	71.8	40.6		112.1		
65	50.8	68.2	40.6		107.4		
70	48.5	65.0	40.6		102.4		
75	46.4	62.2	40.6		97.0		
80	44.5	59.6	40.6		91.3		
85	42.8	57.4	40.6		85.3		
90	41.2	55.3	40.6		79.1		
95	39.8	53.4	40.6	72.7			
100	38.5	51.6	40.6	66.1			
105	37.3	50.0 48.5	40.6	59.3 52.3			
110	36.2 35.2	48.5 47.2	40.6				
115 120	35.2 34.2	47.2 45.9	40.6 40.6	45.2 37.9			
125	33.3	45.9 44.7	40.6		37.9		
130	32.5	44.7	40.6		22.9		
130	32.5	43.6	40.6	22.9			



Project: Project No.: 185 Robinson St 2616-6994 
 Date:
 2024-01-16

 Revised:
 2024-08-16

 Designed By:
 AD

 Checked By:
 BP

### MODIFIED RATIONAL METHOD CALCULATIONS - 50 YEAR STORM EVENT

		CONTROLLED AREA			UNCONTROLLED AREA			
Rainfall Intensity	Equation:		Drainage Area ID = 201 Drainage Area = 0.67 ha Runoff Coefficient = 0.72		Drainage Area ID = Drainage Area = Runoff Coefficient =	n/a n/a n/a		
	(T+b) <sup>c</sup>	Controlled R	elease Rate at MH1 =	40.6 L/s	Target Site Release Rate =	40.6 L/s		
Town of A (50-Y a= b= c=	766.038 1.898 0.668		e Volume Required = e Volume Provided =	110.0 m3 130.0 m3	Controlled Release Rate at MH1 = Uncontrolled Release Rate = Total Site Release Rate =	40.6 L/s 0.0 L/s <b>40.6 L/s</b>		
Time	Rainfall Intensity	Q <sub>Runoff</sub>	Q <sub>Release</sub>		Storage Volume Required			
(minutes)	(mm/hr)	(L/s)	(L/s)		(m³)			
5	210.9	282.8	40.6		72.7			
10	146.5	196.5	40.6		93.5			
15	115.9	155.4	40.6		103.3			
20	97.5	130.7	40.6		108.1			
25	85.0	113.9	40.6		110.0			
30	75.8	101.7	40.6		109.9			
35	68.8	92.3	40.6		108.4			
40	63.2	84.7	40.6		105.9			
45	58.6	78.6	40.6		102.6			
50	54.8	73.5	40.6		98.5			
55	51.5	69.1	40.6		93.9			
60	48.7	65.3	40.6		88.9			
65	46.2	62.0	40.6		83.4			
70	44.1	59.1	40.6	·	77.6			
75	42.1	56.5	40.6		71.4			
80	40.4	54.2	40.6		65.0			
85	38.8	52.1	40.6		58.4			
90	37.4	50.1	40.6		51.5			
95	36.1	48.4	40.6	44.4				
100	34.9	46.8	40.6		37.1			
105	33.8	45.3	40.6		29.7			
110	32.8	44.0	40.6		22.1			
115	31.8	42.7	40.6		14.4			
120	31.0	41.5	40.6	6.5				
125	30.1	40.4	40.4		0.0			
130	29.4	39.4	39.4		0.0			



185 Robinson St 2616-6994 
 Date:
 2024-01-11

 Revised:
 2024-08-16

 Designed By:
 AD

 Checked By:
 BP

### MODIFIED RATIONAL METHOD CALCULATIONS - 25 YEAR STORM EVENT

			ONTROLLED AREA		UNCONTROLLED ARE	A
			Drainage Area ID =	201	Drainage Area ID =	n/a
			Drainage Area =	0.67 ha	Drainage Area =	n/a
Rainfall Intensity	Equation:		Runoff Coefficient =	0.72	Runoff Coefficient =	n/a
I =_	Α					
	(T+b) <sup>c</sup>	Controlled R	telease Rate at MH1 =	40.6 L/s	Target Site Release Rate =	40.6 L/s
Town of A	A!!! IDF					
	-			00.0	Controlled Balance Balanci Milli	40 ( ) (
(25-)			e Volume Required =	93.0 m3 130.0 m3	Controlled Release Rate at MH1 =	40.6 L/s
<u>a=</u>	721.533 2.253	Storag	e Volume Provided =	130.0 m3	Uncontrolled Release Rate =  Total Site Release Rate =	0.0 L/s <b>40.6 L/s</b>
C=	0.679				Total sile kelease kale –	40.0 L/S
	Rainfall					
Time	Intensity	Q <sub>Runoff</sub>	Q <sub>Release</sub>		Storage Volume Required	
(minutes)	(mm/hr)	(L/s)	(L/s)		(m <sup>3</sup> )	
5	187.9	252.0	40.6		63.4	
10	131.6	176.5	40.6		81.6	
15	104.3	139.9	40.6		89.4	
20	87.8	117.7	40.6		92.5	
25	76.5	102.6	40.6		93.0	
30	68.2	91.5	40.6		91.6	
35	61.9	83.0	40.6		89.0	
40	56.8	76.2	40.6		85.3	
45	52.6	70.6	40.6		81.0	
50	49.2	65.9	40.6		76.0	
55	46.2	62.0	40.6		70.5	
60	43.7	58.6	40.6		64.6	
65	41.4	55.6	40.6		58.3	
70	39.5	52.9	40.6		51.7	
75	37.7	50.6	40.6		44.8	
80	36.1	48.5	40.6		37.6	
85	34.7	46.6	40.6		30.3	
90	33.4	44.8	40.6		22.7	
95	32.2	43.2	40.6	15.0		
100	31.2	41.8	40.6		7.1	
105	30.2	40.5	40.5		0.0	
110	29.3	39.2	39.2		0.0	
115	28.4	38.1	38.1		0.0	
120	27.6	37.0	37.0		0.0	
125	26.9	36.0	36.0		0.0	
130	26.2	35.1	35.1		0.0	



185 Robinson St 2616-6994 
 Date:
 2024-01-11

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 2024-08-16

 Designed By:
 AD

 Checked By:
 BP

### MODIFIED RATIONAL METHOD CALCULATIONS - 10 YEAR STORM EVENT

		C	CONTROLLED AREA		UNCONTROLLED AREA		
Rainfall Intensity Equation: $I = A$		Drainage Area ID = 201		Drainage Area ID =	n/a n/a n/a <b>40.6 L/s</b>		
Town of A	(T+b) <sup>c</sup>	•		·		·	
10wn of A		Max. Storac	ge Volume Required =	72.2 m3	Controlled Release Rate at MH1 =	40.6 L/s	
a=	670.324	Storag	ge Volume Provided =	130.0 m3	Uncontrolled Release Rate =	0.0 L/s	
b=	3.007				Total Site Release Rate =	40.6 L/s	
C=	0.698 Rainfall				I		
Time	Intensity	Q <sub>Runoff</sub>	Q Release		Storage Volume Required		
(minutes)	(mm/hr)	(L/s)	(L/s)		(m³)		
5	156.9	210.5	40.6		51.0		
10	111.8	150.0	40.6		65.6		
15	89.1	119.5	40.6		71.0		
20	75.1	100.7	40.6		72.2		
25	65.5	87.8	40.6		70.8		
30	58.4	78.3	40.6		67.8		
35	52.9	71.0	40.6		63.7		
40	48.5	65.1	40.6		58.8		
45	45.0	60.3	40.6		53.1		
50	41.9	56.3	40.6		46.9		
55	39.4	52.8	40.6		40.3		
60	37.2	49.9	40.6		33.3		
65	35.3	47.3	40.6		26.0		
70	33.5	45.0	40.6		18.4		
75	32.0 30.7	43.0	40.6		10.6 2.5		
80 85	30.7 29.4	41.1 39.5	40.6 39.5		0.0		
90	29.4	39.5 38.0	39.5		0.0		
90	28.3	36.6	36.6		0.0		
100	26.4	35.4	35.4	0.0			
105	25.5	34.2	34.2		0.0		
110	24.7	33.2	33.2		0.0		
115	24.0	32.2	32.2		0.0		
120	23.3	31.3	31.3		0.0		
125	22.7	30.4	30.4		0.0		
130	22.1	29.6	29.6		0.0		



185 Robinson St 2616-6994 
 Date:
 2024-01-11

 Revised:
 2024-08-16

 Designed By:
 AD

 Checked By:
 BP

### MODIFIED RATIONAL METHOD CALCULATIONS - 5 YEAR STORM EVENT

	I					
		С	ONTROLLED AREA		UNCONTROLLED ARE	A
			Drainage Area ID =	201	Drainage Area ID =	n/a
			Drainage Area =	0.67 ha	Drainage Area =	n/a
Rainfall Intensity	Equation:		Runoff Coefficient =	0.72	Runoff Coefficient =	n/a
I =_	Α					
	(T+b) <sup>c</sup>	Controlled R	elease Rate at MH1 =	40.6 L/s	Target Site Release Rate =	40.6 L/s
Town of A	Aller IDF					
	-			5570	Controlled Balance Balanci Milli	40 ( ) (
(5-Y			e Volume Required =	55.7 m3	Controlled Release Rate at MH1 =	40.6 L/s
<u>a=</u> b=	583.017 3.007	Storag	e Volume Provided =	130.0 m3	Uncontrolled Release Rate =  Total Site Release Rate =	0.0 L/s <b>40.6 L/s</b>
D=	0.703				Total site kelease kate =	40.6 L/S
	0.703					
Time	Intensity	Q <sub>Runoff</sub>	Q Release		Storage Volume Required	
(minutes)	(mm/hr)	(L/s)	(L/s)		(m <sup>3</sup> )	
5	135.1	181.2	40.6		42.2	
10	96.0	128.8	40.6		52.9	
15	76.4	102.5	40.6		55.7	
20	64.3	86.3	40.6		54.8	
25	56.0	75.1	40.6		51.8	
30	49.9	66.9	40.6		47.4	
35	45.2	60.6	40.6		42.0	
40	41.4	55.6	40.6		35.9	
45	38.3	51.4	40.6		29.2	
50	35.8	48.0	40.6		22.1	
55	33.6	45.0	40.6		14.6	
60	31.7	42.5	40.6		6.7	
65	30.0	40.3	40.3		0.0	
70	28.6	38.3	38.3		0.0	
75	27.3	36.6	36.6		0.0	
80	26.1	35.0	35.0		0.0	
85	25.0	33.6	33.6		0.0	
90	24.1	32.3	32.3		0.0	
95	23.2	31.1	31.1		0.0	
100	22.4	30.1	30.1		0.0	
105	21.7	29.1	29.1		0.0	
110	21.0	28.2	28.2		0.0	
115	20.4	27.3	27.3		0.0	
120	19.8	26.5	26.5		0.0	
125	19.2	25.8	25.8		0.0	
130	18.7	25.1	25.1		0.0	



185 Robinson St

2616-6994

Date: 2024-01-11 2024-08-16 Revised: Designed By: ΑD Checked By: BP

### MODIFIED RATIONAL METHOD CALCULATIONS - 2 YEAR STORM EVENT

		С	ONTROLLED AREA		UNCONTROLLED ARE	A	
				001		,	
			Drainage Area ID =	201	Drainage Area ID =	n/a	
B. 1. 6. H. I. I			Drainage Area =	0.67 ha	Drainage Area =	n/a	
Rainfall Intensity	Equation:		Runoff Coefficient =	0.72	Runoff Coefficient =	n/a	
I =_	Α	Cambrallad D	elease Rate at MH1 =	40.6 L/s	Tayanat Sita Balanca Bata -	40 / 1 /2	
(	(T+b) <sup>c</sup>	Controlled K	elease kare ar Min i =	40.6 L/S	Target Site Release Rate = 40.6 L/s		
Town of I	Milton IDF						
	ear)	Max. Storage	e Volume Required =	33.8 m3	Controlled Release Rate at MH1 =	40.6 L/s	
g=	529.711		e Volume Provided =	130.0 m3	Uncontrolled Release Rate =	0.0 L/s	
b=	4.501	3101ag	2 : 2:3:::0 : :0 ::000		Total Site Release Rate =	40.6 L/s	
C=	0.745					• • • •	
Time	Rainfall	Q <sub>Runoff</sub>	Q Release		Storage Volume Required		
	Intensity				•		
(minutes)	(mm/hr)	(L/s)	(L/s)		(m³)		
5	99.0	132.8	40.6		27.6		
10	72.2	96.9	40.6		33.8		
15	57.9	77.7	40.6		33.4		
20	48.9	65.6	40.6		29.9		
25	42.6	57.1	40.6		24.7		
30	37.9	50.8	40.6		18.3		
35	34.2	45.9	40.6		11.2		
40	31.3	42.0	40.6		3.4		
45	28.9	38.8	38.8		0.0		
50	26.9	36.1	36.1		0.0		
55	25.2	33.8	33.8		0.0 0.0		
60	23.8	31.9	31.9				
65	22.5	30.1	30.1		0.0		
70 75	21.3	28.6	28.6		0.0		
75 80	20.3	27.3 26.1	27.3		0.0		
80 85	19.4	25.0	26.1 25.0		0.0		
90	17.9	25.0	25.0		0.0		
95	17.9	24.0	23.1				
100	16.6	22.2	22.2	0.0 0.0			
105	16.0	21.5	21.5	0.0			
110	15.5	20.8	20.8	0.0			
115	15.0	20.1	20.1	0.0			
120	14.6	19.5	19.5		0.0		
125	14.1	19.0	19.0		0.0		
130	13.7	18.4	18.4		0.0		
130	13./	18.4	18.4		0.0		



**Project:** 185 Robinson St

**Project No.:** 2616-6994

Created By: AD Checked By: BP

**Date:** 2021-07-26 **Updated:** 2024-08-16

### 120mm Dia. Orifice Tube Design Summary

		•
Orifice Type =	Orifice Tube	
Invert Elevation =	214.88	m
Diameter of Orifice =	120	mm
Area of Orifice (A) =	0.0113	sq.m
Orifice Coefficient (Cd) =	0.82	

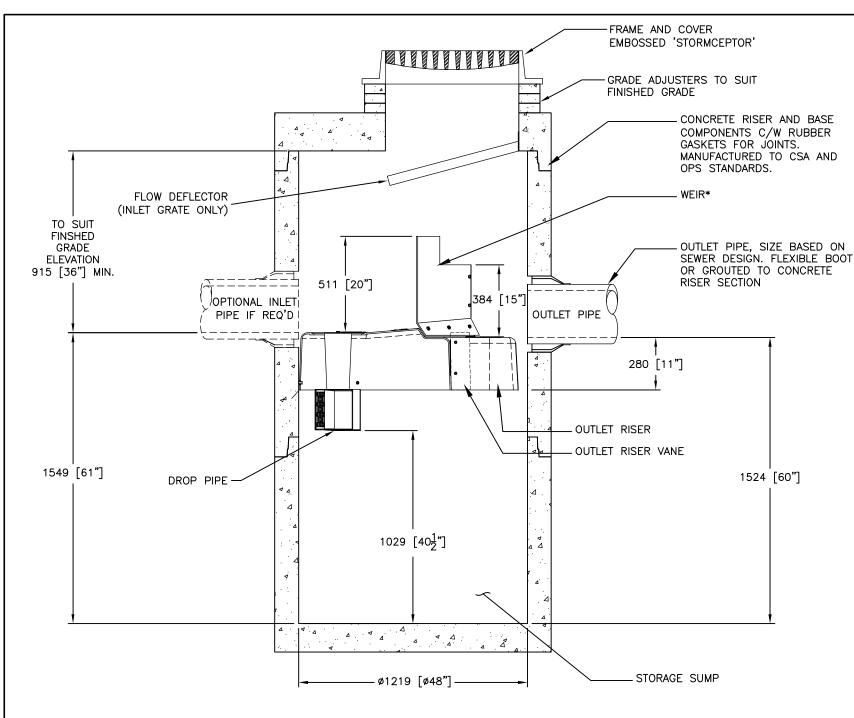
### **Calculation of Head**

Centroid Elevation =	214.94	m	
Water Elevation =	215.41	m	*Lowest CB Elevation
Upstream Head*, (h) =	0.47	m	

Qa =  $(Cd)(A)(2gh)^0.5$ Actual Controlled Discharge, Qa = 0.03 cms

28 L/s

<sup>\*</sup>Head is based upon orifice area @ orifice face not Vena Contracta



### SECTION VIEW

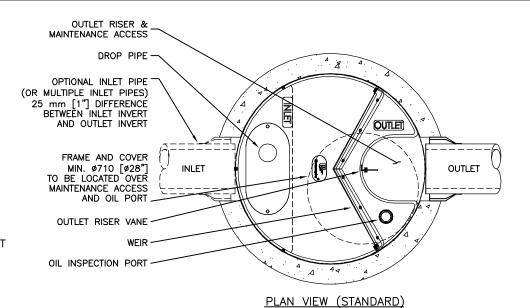
#### **GENERAL NOTES:**

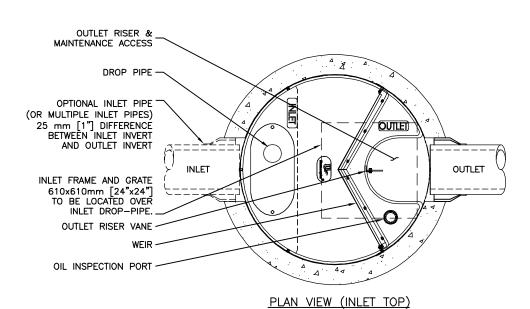
- \* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m² (27.9 gpm/ft²) FOR STORMCEPTOR EF4 AND 535 L/min/m² (13.1 gpm/ft²) FOR STORMCEPTOR EF04 (OIL CAPTURE CONFIGURATION). WEIR HEIGHT IS 150 mm (6 INCH) FOR EF04.
- ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
- STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
- 3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
- DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
- NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10
  DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF
  RECORD.

#### INSTALLATION NOTES

- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
- C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
- D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
- E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS

# STANDARD DETAIL NOT FOR CONSTRUCTION





FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL STORMCEPTOR REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE (IF REQUIRED).

STORMCEPTOR MODEL

PEAK FLOW RATE (L/s)

DRAINAGE AREA (HA)

WATER QUALITY FLOW RATE (L/s)

PIPE DATA: | I.E. | MAT'L |

PER ENGINEER OF RECORD

RETURN PERIOD OF PEAK FLOW (yrs)

DRAINAGE AREA IMPERVIOUSNESS (%)

STRUCTURE ID

INLET #1

INLET #2

OUTLET

SITE SPECIFIC DATA REQUIREMENTS

DIA

SLOPE %

HGL

The debign and information about on this part of the contract of the project owner and contract by the project owner and contract by the interior of the second was in special or the contract of the second in special part of the second in special or the second of the second in second in second of the second in melant, in second in second in melant, in second in second in second in second in second in second in melant, in second in se									
	####	####	####	JSK	JSK	BY			
	####	####	####	UPDATES	INITIAL RELEASE	REVISION DESCRIPTION			
	####	####	####	6/8/18	5/26/17	DATE			
	####	####	####	1	0	MARK			

s drawing is an engineer of 'Indiana'). ("Indiana"). of, may be of, may be one of the engineer of the engineer

**Storm**ceptor®



		L SS SA
_	DATE:	
	5/26/2017	
	DESIGNED:	DRAWN:
	JSK	JSK
_	CHECKED:	APPROVED:
	BSF	SP
	PROJECT No.:	SEQUENCE No.:
_	EF4	*
	SHEET:	

1 of 1





### Stormceptor EF Sizing Report

### Imbrium® Systems ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

08/01/2024

Province:	Ontario			
City:	Town of Simcoe			
Nearest Rainfall Station:	BRANTFORD MOE			
Climate Station Id:	6140954			
Years of Rainfall Data:	41			

Site Name:

% Imperviousness:

Drainage Area (ha): 0.67

Runoff Coefficient 'c': 0.73

72.00

Particle Size Distribution: Fine

Target TSS Removal (%): 80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	17.84
Oil / Fuel Spill Risk Site?	No
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	31.00
Peak Conveyance (maximum) Flow Rate (L/s):	172.00
Influent TSS Concentration (mg/L):	100
Estimated Average Annual Sediment Load (kg/yr):	284
Estimated Average Annual Sediment Volume (L/yr):	231

Project Name:	Robinson St			
Project Number:	65368			
Designer Name:	Daniel Caberlin			
Designer Company:	CF Crozier and Associates			
Designer Email:	dcaberlin@cfcrozier.ca			
Designer Phone:	905-864-3670			
EOR Name:				
EOR Company:				
EOR Email:				
EOR Phone:				

Net Annual Sediment (TSS) Load Reduction Sizing Summary				
Stormceptor Model	TSS Removal Provided (%)			
EF4	85			
EF6	92			
EF8	96			
EF10	98			
EF12	99			

Recommended Stormceptor EF Model:

EF4

Estimated Net Annual Sediment (TSS) Load Reduction (%):

85

Water Quality Runoff Volume Capture (%):

> 90





### Stormceptor EF Sizing Report

### THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor® EF and Stormceptor® EFO are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

### **PERFORMANCE**

▶ Stormceptor® EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

### PARTICLE SIZE DISTRIBUTION (PSD)

▶ The Canadian ETV PSD shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle	Percent Less	Particle Size	Percent	
Size (µm)	Than	Fraction (µm)		
1000 100		500-1000	5	
500	95	250-500	5	
250	90	150-250	15	
150	75	75 100-150		
100	60	75-100	10	
75	50	50-75	5	
50	45	20-50	10	
20	35	8-20	15	
8 20		5-8	10	
5 10		2-5	5	
2 5		<2	5	





### Stormceptor EF Sizing Report

### **Upstream Flow Controlled Results**

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	9.1	9.1	0.68	41.0	34.0	100	9.1	9.1
1.00	19.6	28.8	1.36	82.0	68.0	100	19.6	28.8
2.00	15.6	44.4	2.73	164.0	136.0	92	14.4	43.1
3.00	9.6	54.0	4.09	245.0	205.0	83	8.0	51.2
4.00	8.7	62.7	5.45	327.0	273.0	80	6.9	58.1
5.00	6.2	68.9	6.82	409.0	341.0	77	4.7	62.8
6.00	4.4	73.3	8.18	491.0	409.0	74	3.2	66.0
7.00	4.7	77.9	9.54	573.0	477.0	73	3.4	69.4
8.00	3.2	81.1	10.91	654.0	545.0	72	2.3	71.7
9.00	2.0	83.1	12.27	736.0	614.0	71	1.4	73.1
10.00	2.7	85.7	13.63	818.0	682.0	70	1.9	75.0
11.00	1.7	87.4	15.00	900.0	750.0	70	1.2	76.1
12.00	1.6	89.0	16.36	982.0	818.0	69	1.1	77.2
13.00	0.9	89.8	17.72	1063.0	886.0	69	0.6	77.8
14.00	2.0	91.8	19.09	1145.0	954.0	68	1.3	79.1
15.00	1.4	93.2	20.45	1227.0	1023.0	68	1.0	80.1
16.00	0.5	93.7	21.81	1309.0	1091.0	69	0.3	80.4
17.00	1.1	94.8	23.18	1391.0	1159.0	71	0.8	81.2
18.00	0.8	95.5	24.54	1472.0	1227.0	72	0.5	81.7
19.00	0.7	96.2	25.91	1554.0	1295.0	73	0.5	82.3
20.00	0.8	97.0	27.27	1636.0	1363.0	75	0.6	82.9
21.00	0.3	97.4	28.63	1718.0	1432.0	74	0.2	83.1
22.00	2.6	100.0	30.00	1800.0	1500.0	70	1.9	85.0
23.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
24.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
25.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
30.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
35.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
40.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
45.00	0.0	100.0	31.00	1860.0	1550.0	68	0.0	85.0
Estimated Net Annual Sediment (TSS) Load Reduction =						85 %		

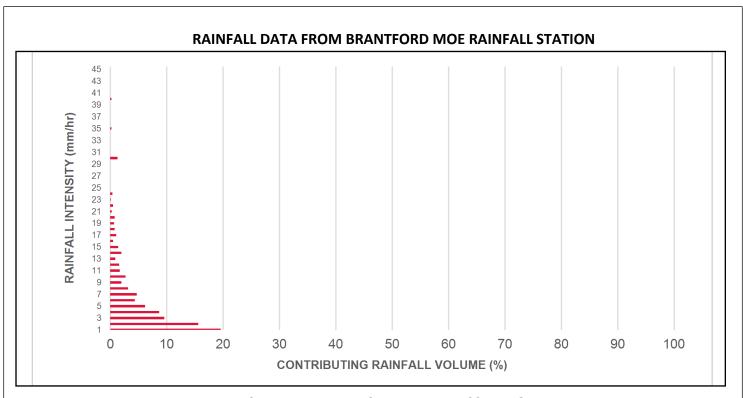
Climate Station ID: 6140954 Years of Rainfall Data: 41



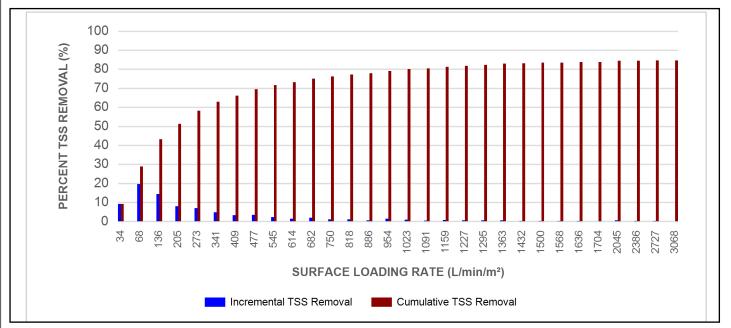




### Stormceptor EF Sizing Report



### INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL







### Stormceptor EF Sizing Report

### **Maximum Pipe Diameter / Peak Conveyance**

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Max Inlet Pipe Outlet Pipes Diameter		Max Outl	•	Peak Conveyance Flow Rate		
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

### SCOUR PREVENTION AND ONLINE CONFIGURATION

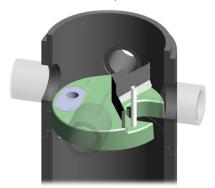
► Stormceptor® EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

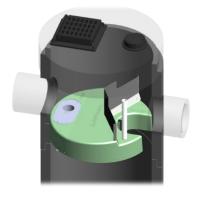
### **DESIGN FLEXIBILITY**

► Stormceptor® EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

### OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid reentrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.

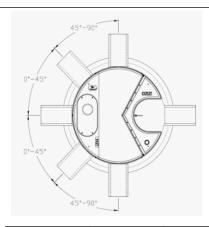








### Stormceptor EF Sizing Report



### **INLET-TO-OUTLET DROP**

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45°: The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90°: The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

### **HEAD LOSS**

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

### **Pollutant Capacity**

Stormceptor EF / EFO	Model Diameter Diameter Diameter Depth (Outle		vert to	Oil Volume						Oil Volume Sediment Se		Sediment Sediment Volume		Maxim Sediment	-
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)			
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250			
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375			
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750			
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500			
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875			

<sup>\*</sup>Increased sump depth may be added to increase sediment storage capacity

\*\* Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

### STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

### STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef



Feature Benefit Feature Appeals To Patent-pending enhanced flow treatment Superior, verified third-party Regulator, Specifying & Design Engineer and scour prevention technology performance Third-party verified light liquid capture Proven performance for fuel/oil hotspot Regulator, Specifying & Design Engineer, and retention for EFO version locations Site Owner Functions as bend, junction or inlet Design flexibility Specifying & Design Engineer structure Minimal drop between inlet and outlet Site installation ease Contractor Large diameter outlet riser for inspection Easy maintenance access from grade Maintenance Contractor & Site Owner and maintenance





### Stormceptor® EF Sizing Report

### STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

### **PART 1 – GENERAL**

### 1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

### 1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** 

### 1.3 SUBMITTALS

- 1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.
- 1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.
- 1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

### PART 2 - PRODUCTS

### 2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The <u>minimum</u> sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1 4 ft (1219 mm) Diameter OGS Units: 1.19 m³ sediment / 265 L oil 6 ft (1829 mm) Diameter OGS Units: 3.48 m³ sediment / 609 L oil 8 ft (2438 mm) Diameter OGS Units: 8.78 m³ sediment / 1,071 L oil 10 ft (3048 mm) Diameter OGS Units: 17.78 m³ sediment / 1,673 L oil 12 ft (3657 mm) Diameter OGS Units: 31.23 m³ sediment / 2,476 L oil

### **PART 3 - PERFORMANCE & DESIGN**

3.1 GENERAL







### Stormceptor® EF Sizing Report

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

### 3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

- 3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.
- 3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m<sup>2</sup> and 1400 L/min/m<sup>2</sup> shall be based on linear interpolation of data between consecutive tested surface loading rates.
- 3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².
- 3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

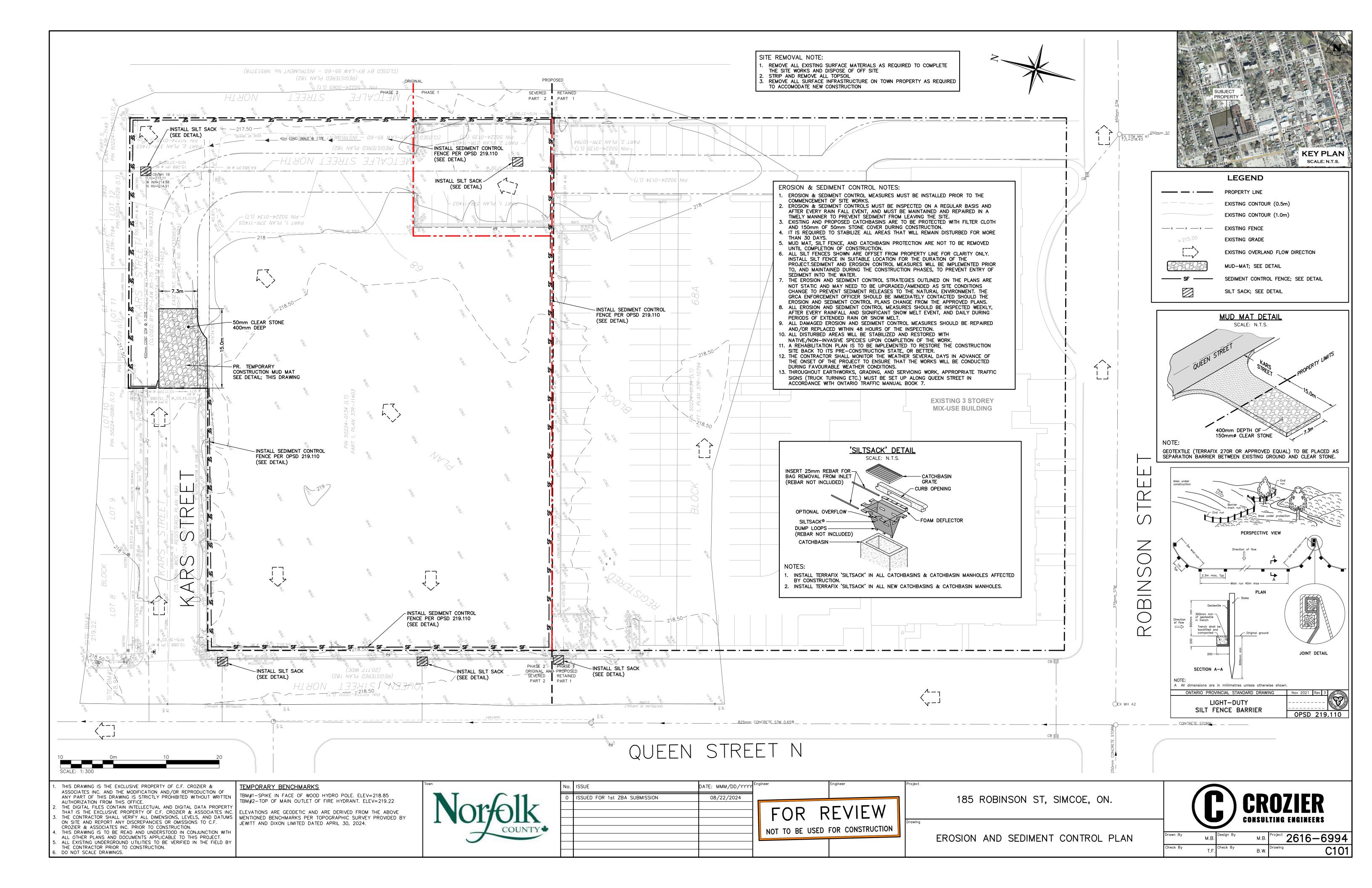
The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

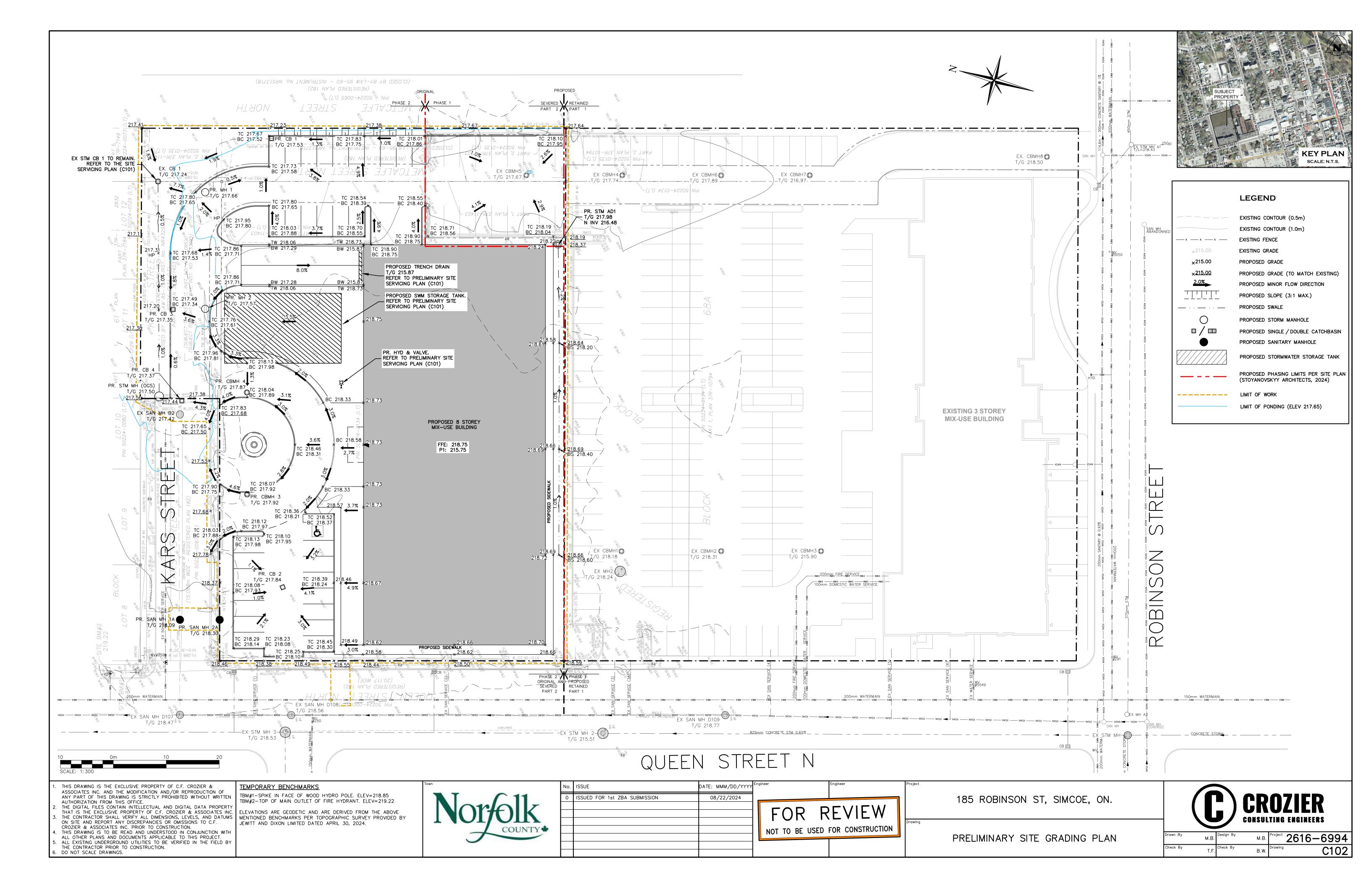
### 3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

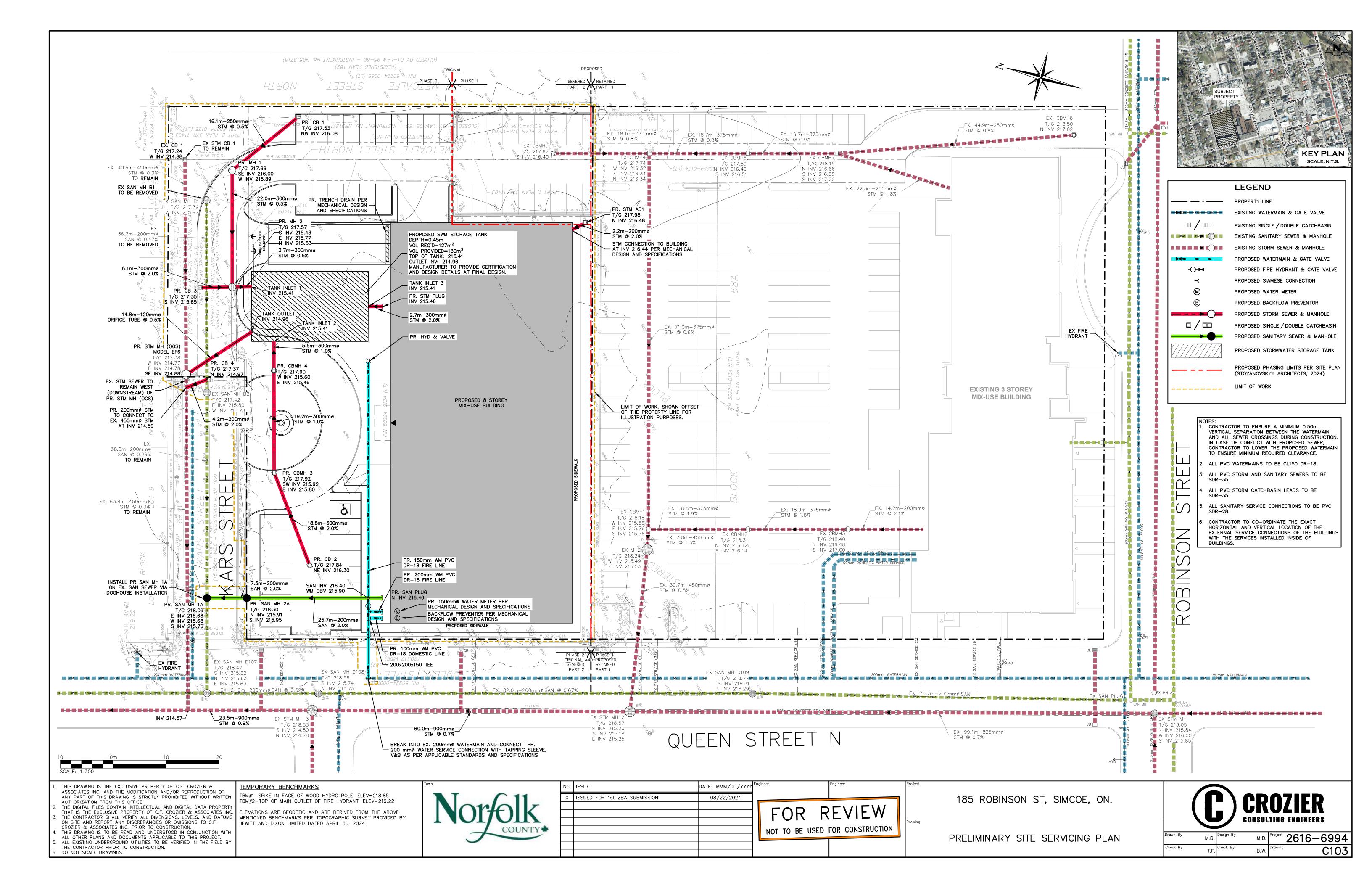
The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

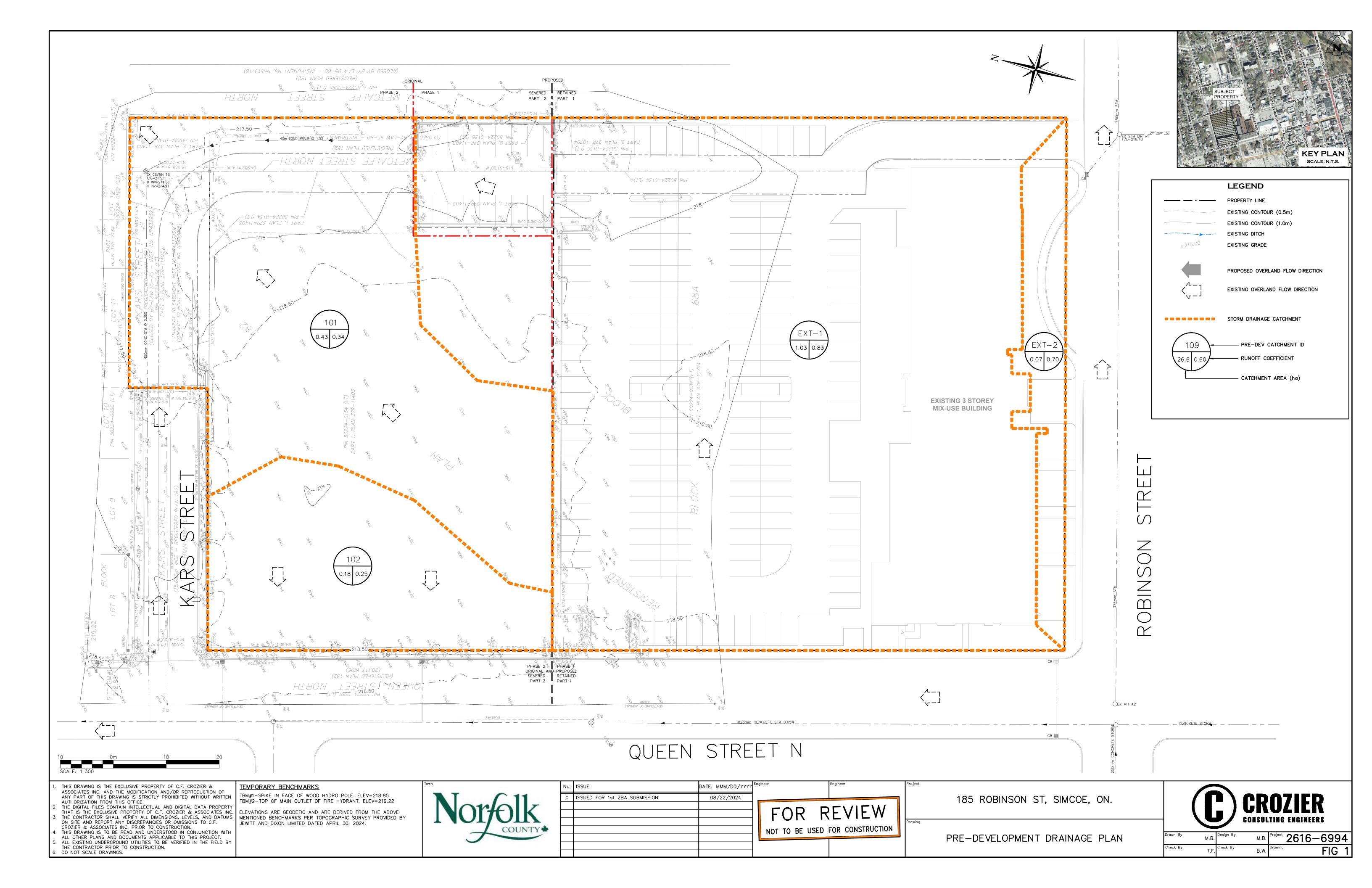
### **DRAWINGS**

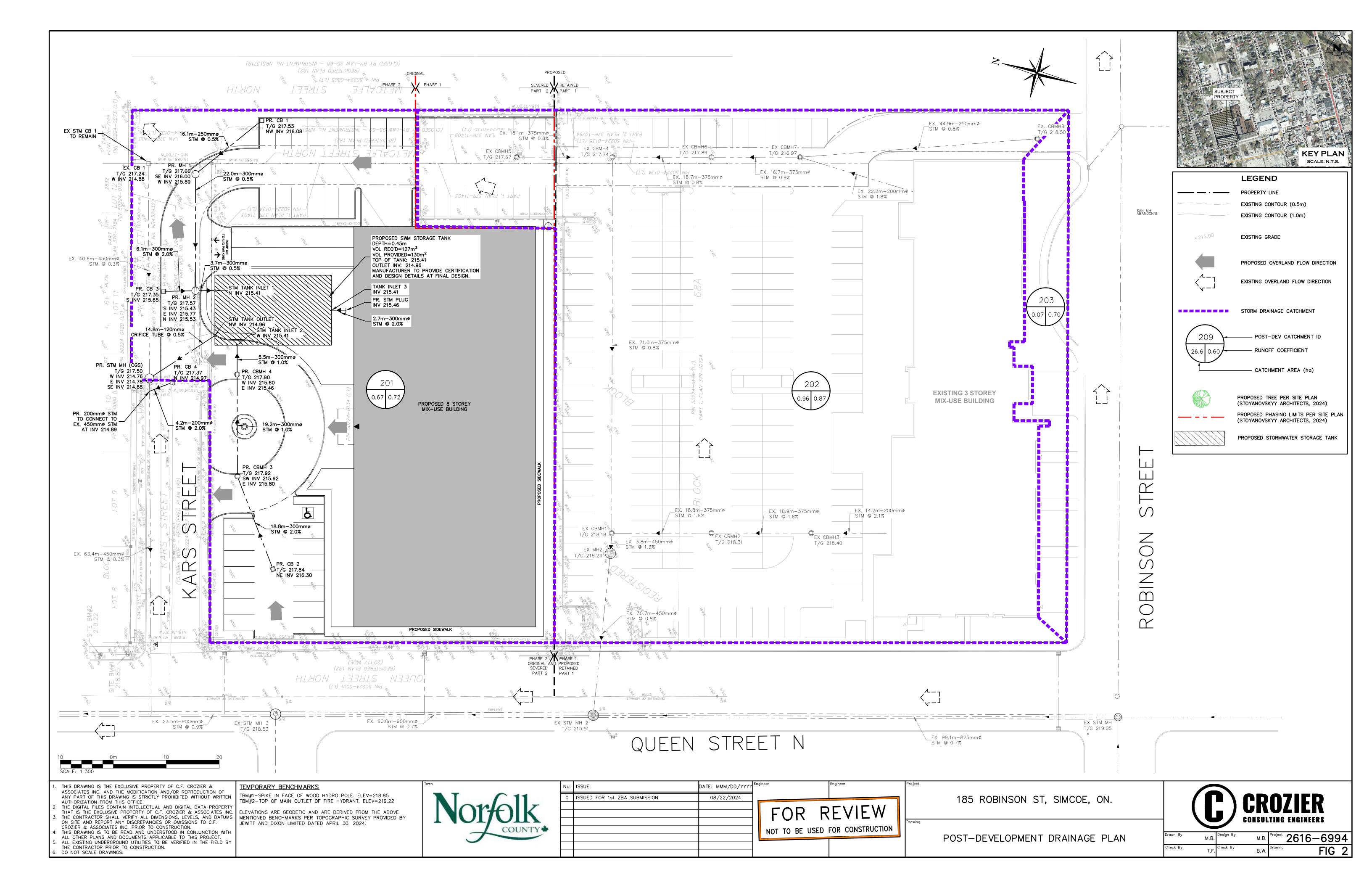






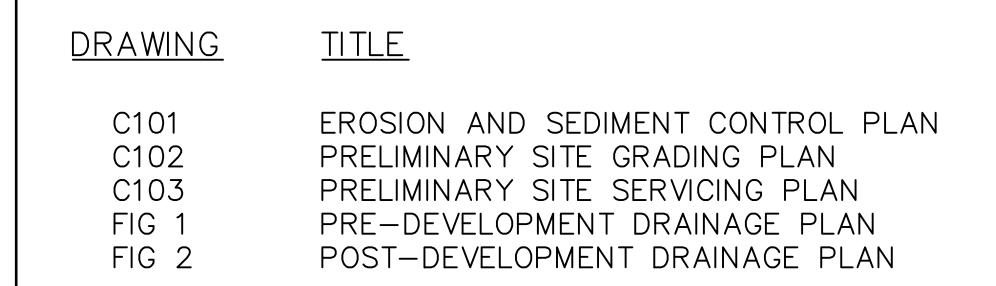
### **FIGURES**

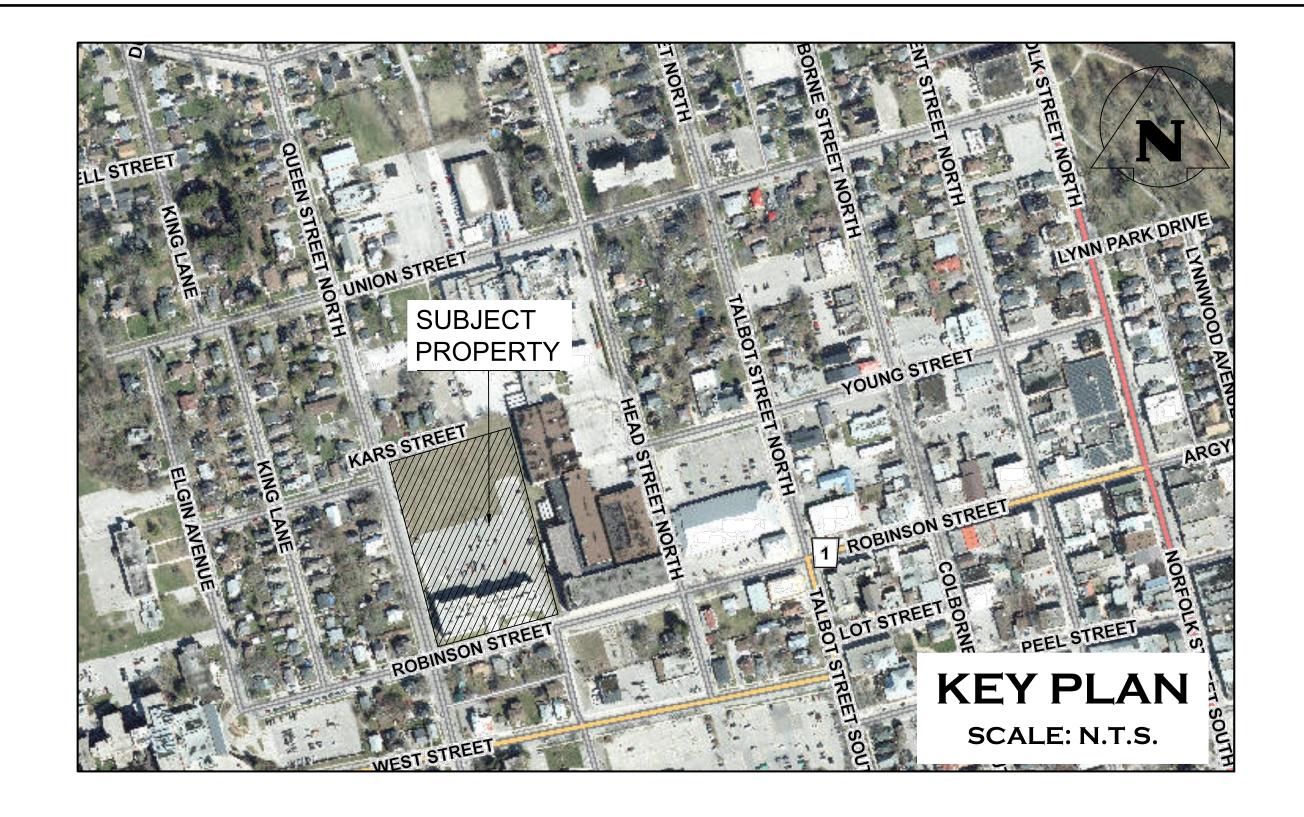




### 185 ROBINSON ST.

## SIMCOE, ONTARIO NORFOLK COUNTY





### **MUNICIPALITY**

NORFOLK COUNTY 50 COLBORNE STREET SOUTH SIMCOE, ONTARIO, N3Y 4H2

### **DEVELOPER**

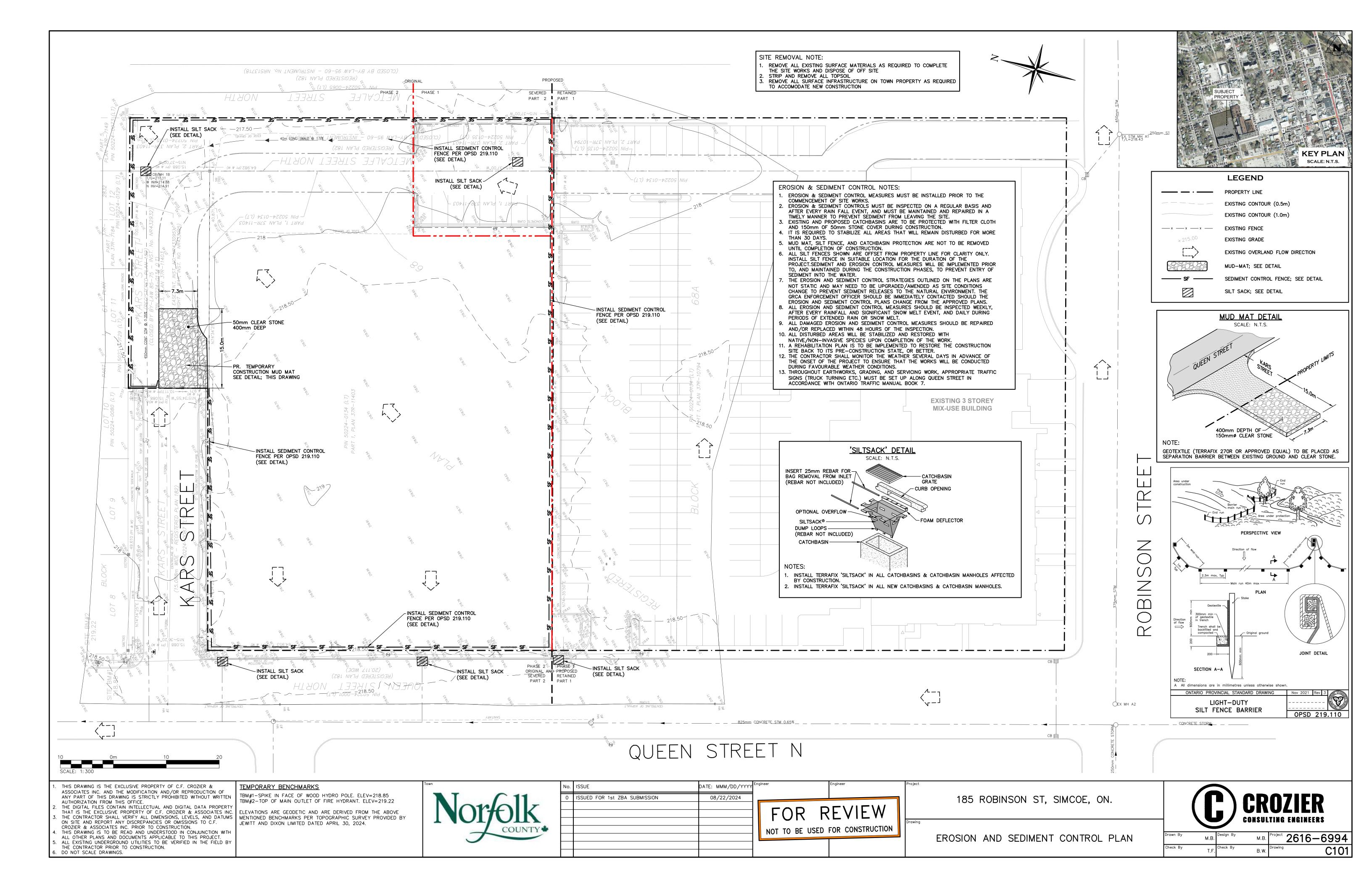
2273925 ONTARIO INC c/o DESIGN PLAN SERVICES INC. 185 ROBINSON STREET, SIMCOE, ON N3Y 5L6

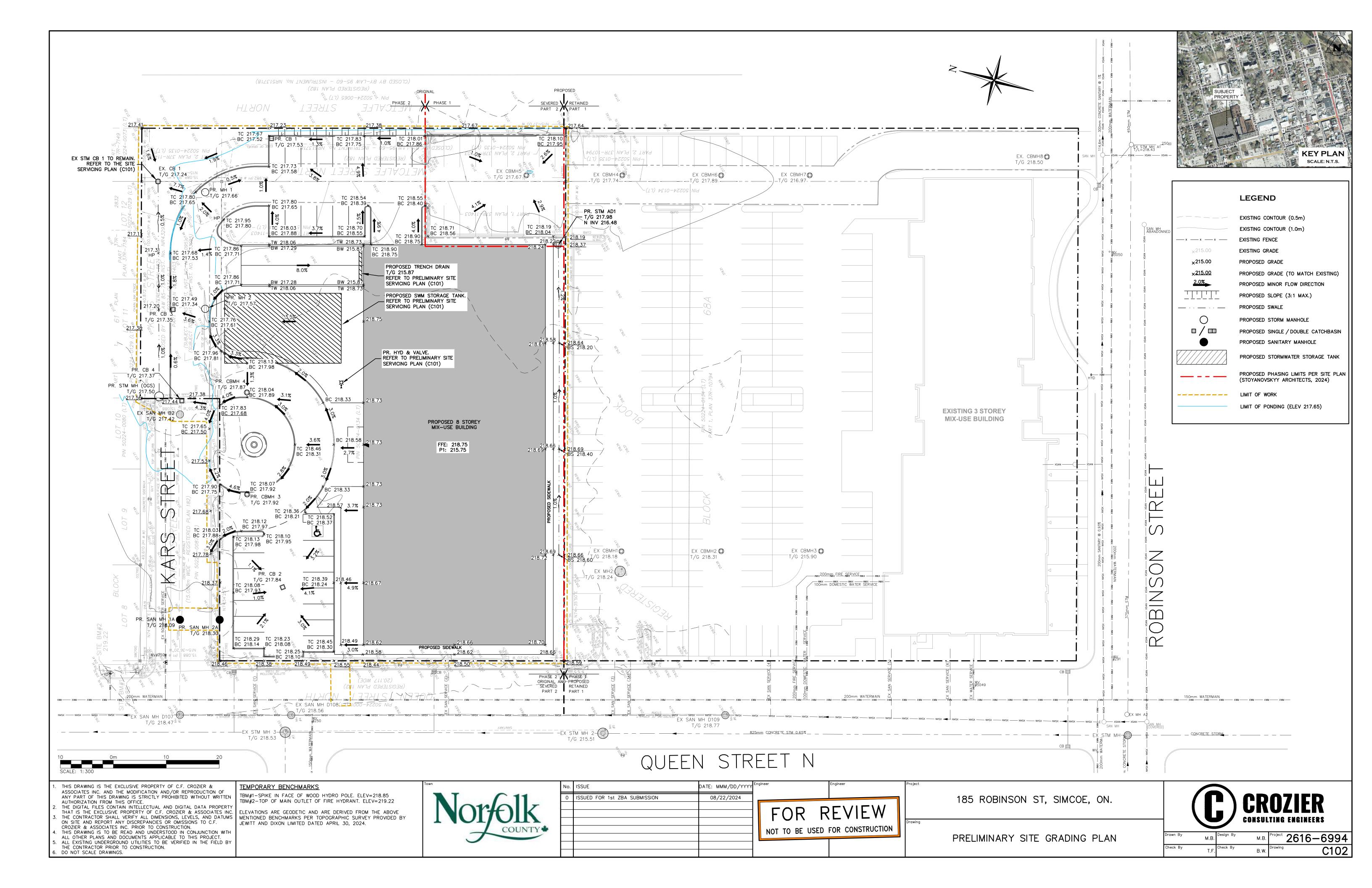
### DEVELOPER'S ENGINEER

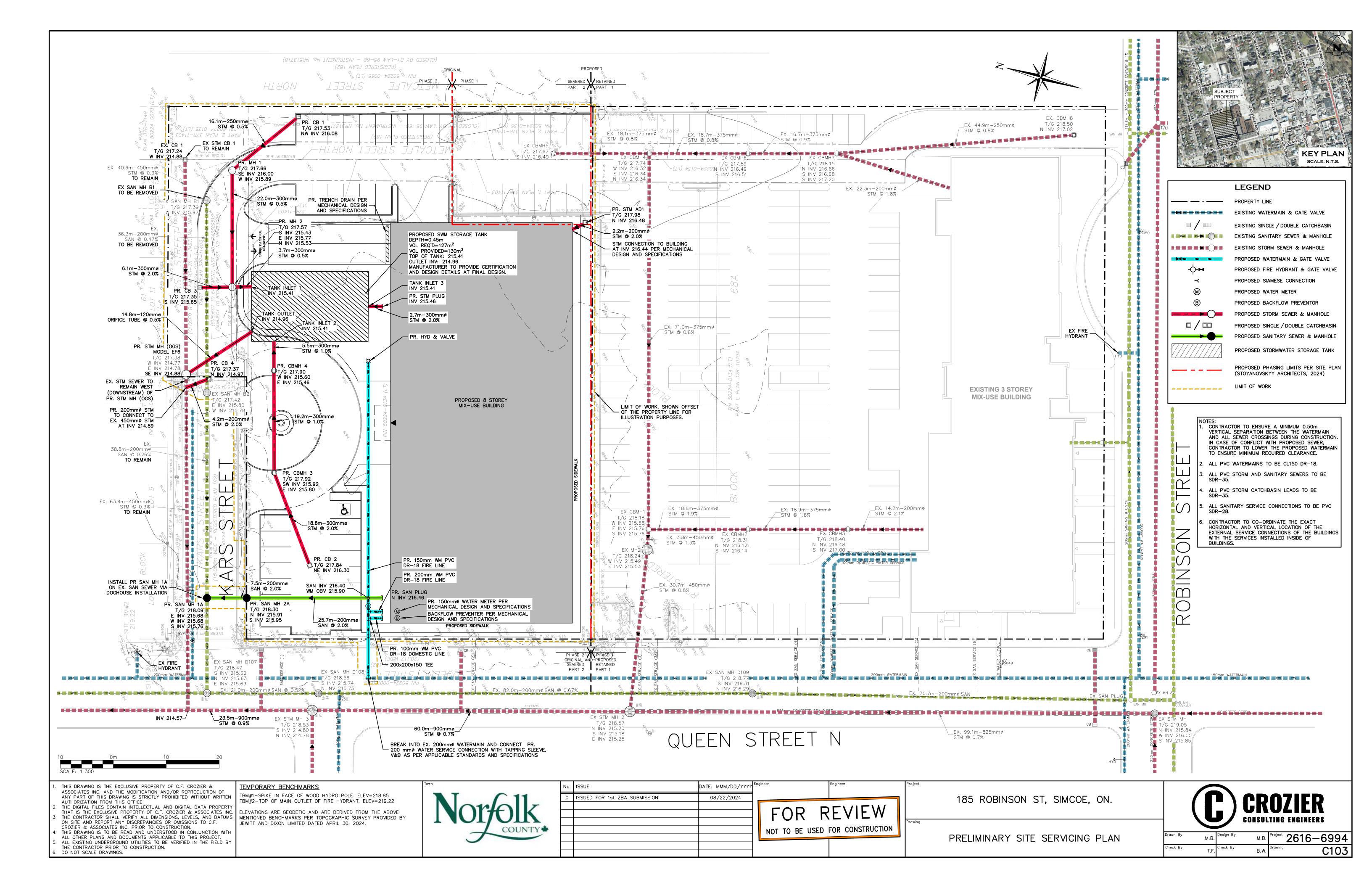


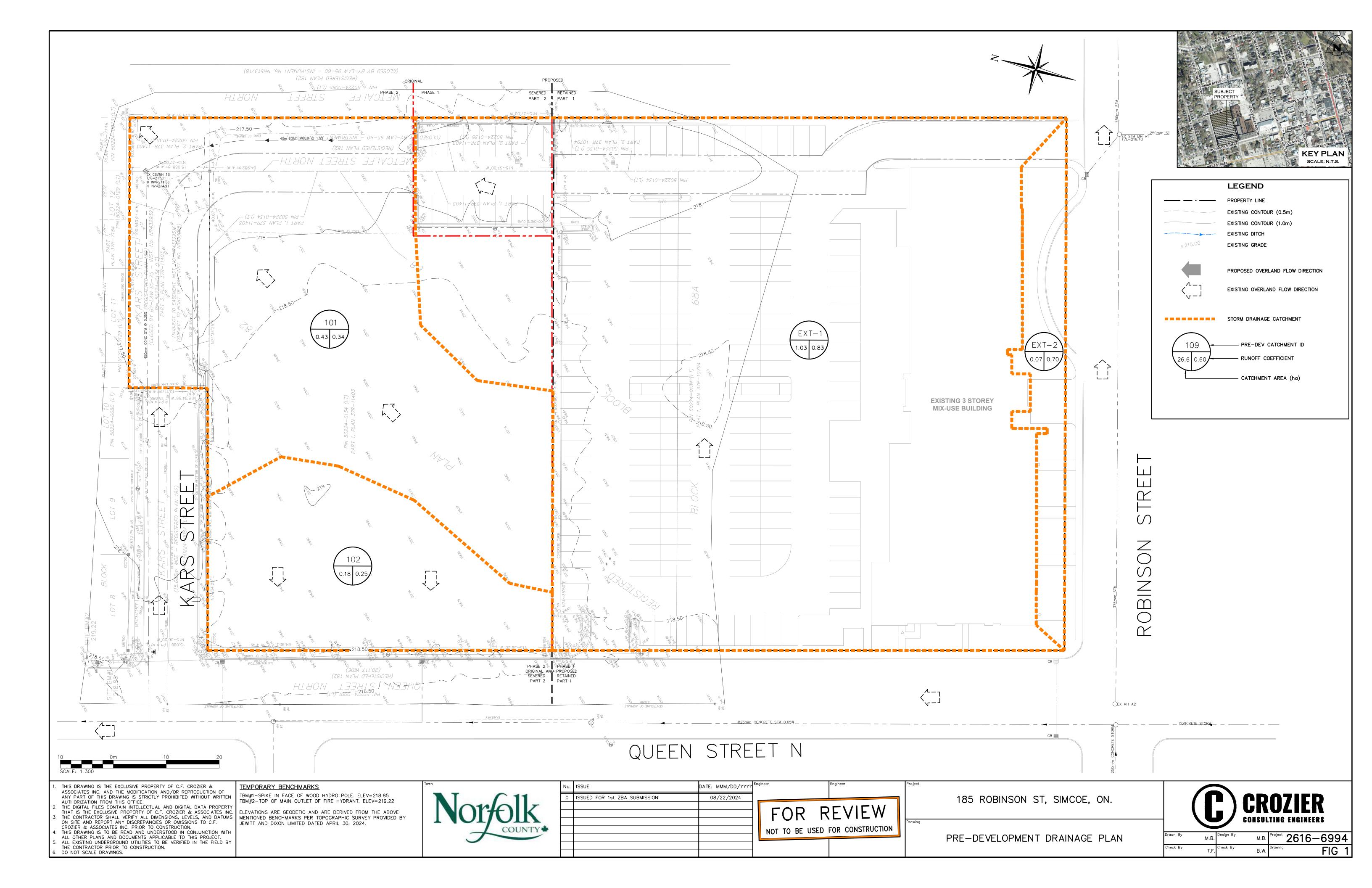
2800 HIGH POINT DRIVE SUITE 100 MILTON, ON, L9T 6P4 905-875-0026 T 905-875-4915 F www.cfcrozier.ca info@cfcrozier.ca

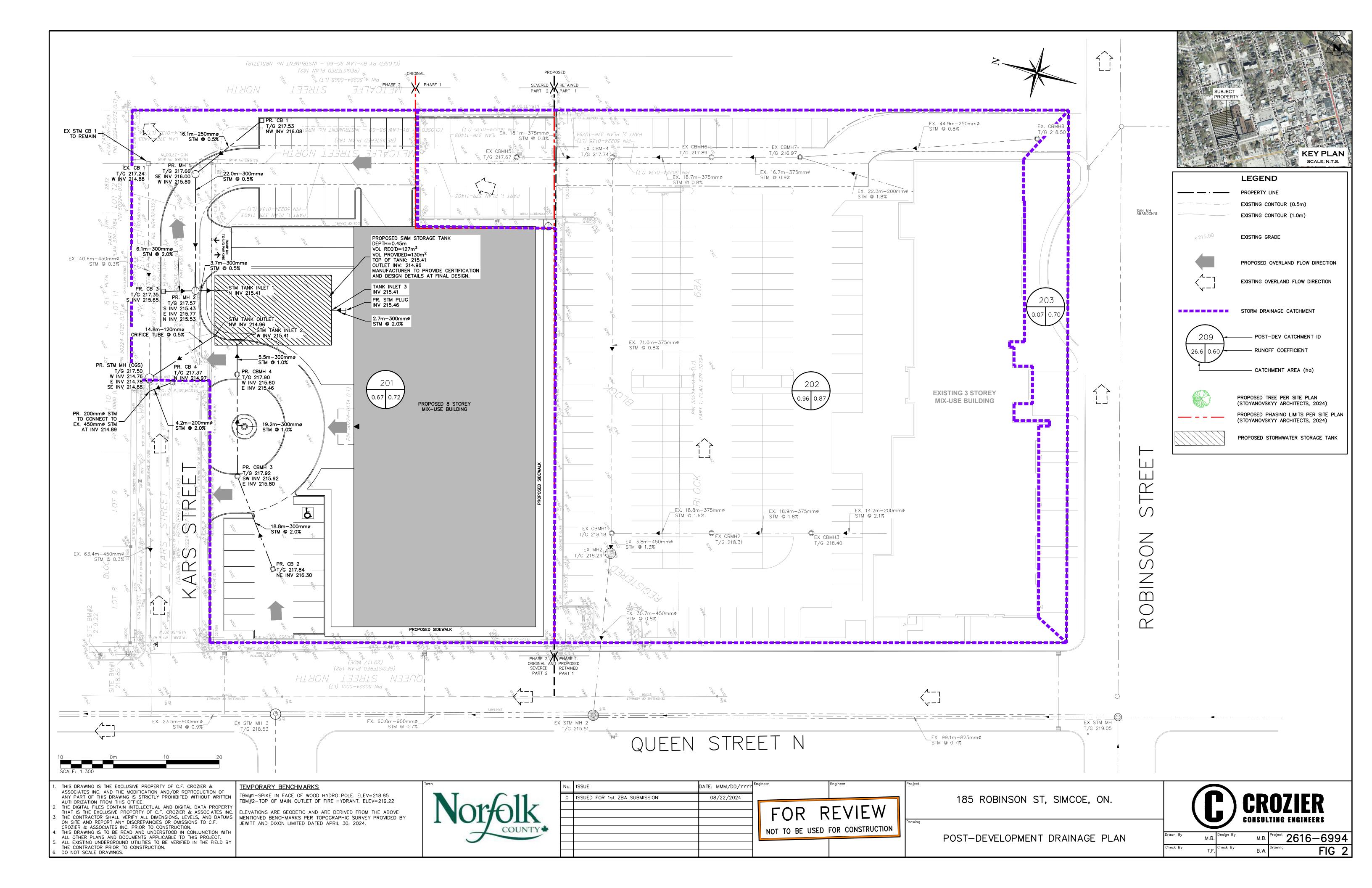
# PROJECT No.: 2616-6994 IST SUBMISSION ZBA

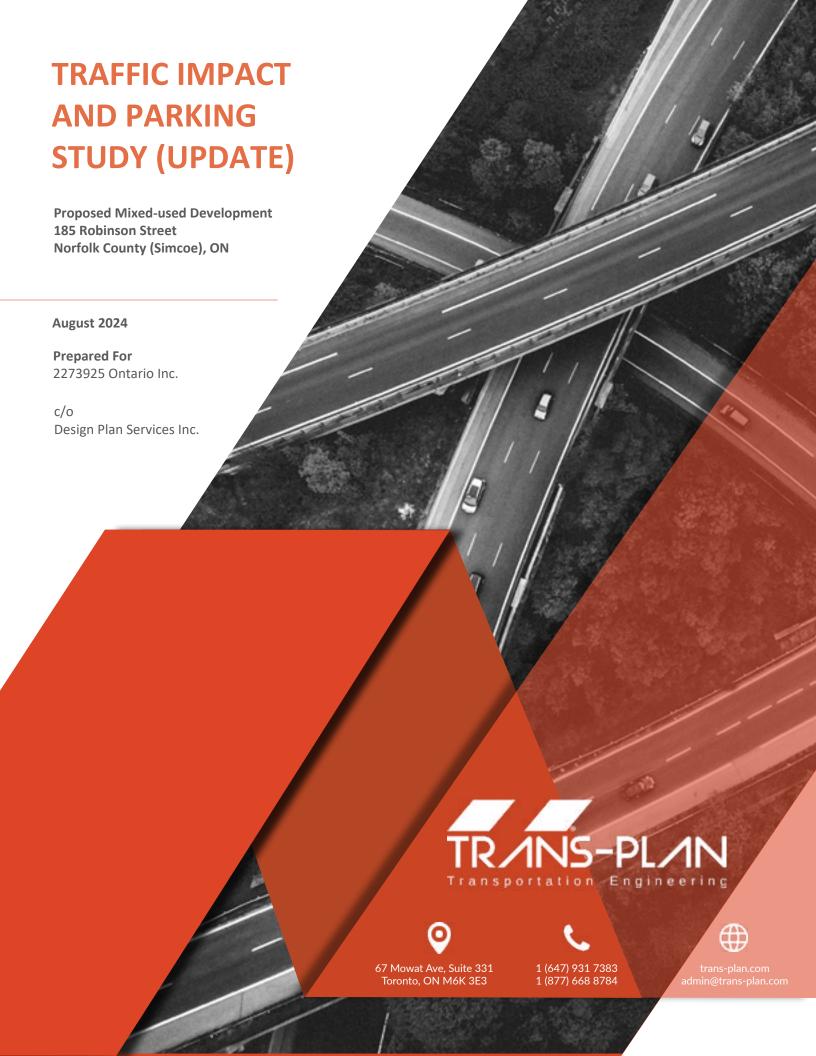






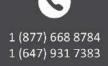














August 29, 2024

2273925 Ontario Inc. Client / Owner

c/o Mr. David Igelman, BURPL, MCIP, RPP Design Plan Services Inc. 900 The East Mall, Suite 300 Toronto, ON M9B 6K2

Re: <u>Proposed 8-Storey Mixed-Use Development, 185 Robinson Street, Norfolk County (Simcoe), ON</u>
<u>- Transportation Study</u>

Dear Mr. Igelman,

TRANS-PLAN is pleased to submit this Transportation Study for the proposed 8-storey mixed-use building. The site is located at 185 Robinson Street, on the southeast quadrant of Kars Street and Queen Street North in the Community of Simcoe, Norfolk County, Ontario.

Trans-Plan previously prepared a Traffic Impact Study, dated August 2020. This is a Traffic Impact Study and Parking Study Update to reflect current (and future background) traffic conditions and based on the latest site plan.

Our Traffic Impact Study indicates that the study area intersections are expected to operate acceptably and there would be no additional roadway improvements required to accommodate the proposed development.

Our parking study has reviewed the parking requirements outlined by the municipal Zoning By-law. The proposed site is in conformance with the Zoning By-Law requirements.

Sincerely,

Anil Seegobin, P.Eng. Partner, Engineer

Trans-Plan Transportation Inc.

Transportation Consultants



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### Transmittal Letter

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### 1. INTRODUCTION

Trans-Plan has been retained by 2273925 Ontario Inc. to complete a Transportation Study, which is comprised of a Traffic Impact Study and Parking Study Update for the proposed mixed-use apartment building development located at 185 Robinson Street in the community of Simcoe (Norfolk County), Ontario. Trans-Plan has previously prepared a Traffic Impact and Parking Study, dated August 2020. This Update reflects current (and future background) traffic conditions and is based on the latest site plan. This assessment includes the following components:

### **Traffic Impact Study**

- Review and assessment of the existing road network
- Assessment of future background conditions based on anticipated traffic growth, area developments, and planned transportation improvements in the study area
- Assessment of the impact of site-generated traffic on the adjacent roadway network under future total traffic conditions at full-build out including five and ten-year horizons
- Determination of roadway and intersection improvements, as required, to accommodate the proposed development

### **Parking Study**

Review of the site parking requirements for the proposed land use based on the County of Simcoe
 Zoning By-law in comparison to the parking supply on-site

This report follows the County's TIS Guidelines, dated September 2016, prepared by MMM Group Limited for Norfolk County.

### 2. SITE LOCATION

The site, shown in Figure 1, is on the southeast corner of the Queen Street North and Kars Street West intersection. The site is currently vacant, with predominantly residential uses surrounding the study area to the west. The downtown core of the community is located to the east of the site, while a commercial office building currently exists directly adjacent to the south of the subject site. The construction of the office building was part of the Phase 1 development of 185 Robinson Street and is currently used by the County as a tourism and development office.

### 3. PROPOSED DEVELOPMENT

The study area is proposed to be the future site of an 8-storey mixed-use apartment building for residential, commercial and office uses as part of the Phase 2 plan of the development at 185 Robinson Street.

The proposed site plan, prepared by Stoyanovskyy Architects Inc., is shown in Figure 2. The proposed development consists of an 8-storey mixed-use apartment building with the following uses:

- 143 residential dwelling unit
- 9,632 sq.ft (895 sq.m) of office GFA
- 3,229 sq.ft. (300 sq.m.) of commercial GFA



The development will consist of 143 total units for residential use and 6 units for retail and office use. Parking is provided via four levels of underground garage parking and at-grade parking, with 69 parking spaces on each underground level and 31 spaces at ground level. Access to the site is proposed via Kars Street and via the parking area of the existing development immediately to the south of the subject site on Robinson Street.

### 4. EXISTING CONDITIONS

### 4.1 Road Network

The study area roadway characteristics are shown in Figure 3. The boundary roadways located in the study area are described as follows:

**Queen Street North** is a roadway under the jurisdiction of Norfolk County that generally runs in a north-south direction. Queen Street North contains two travel lanes: one in each direction. Sidewalks are present on both sides of the street, with the posted speed limit on Queen Street North set at 40 km/h in the vicinity of the site.

**Kars Street** is a local roadway under the jurisdiction of Norfolk County that runs in an east-west direction. The roadway contains two travel lanes: one in each direction. The cul-de-sac currently provides homes fronting the street with a connection to Queen Street West and is also proposed to provide access to future development. A sidewalk facility is available on the north side of the roadway, allowing for connectivity to Queen Street West. The assumed speed limit on the roadway is 40 km/h.

**Marshall Lane** is a local roadway under the jurisdiction of Norfolk County that runs in an east-west direction. The roadway contains two travel lanes: one in each direction. The roadway provides the residential neighborhood with a connection to Queen Street West. The assumed speed limit on the roadway is 40 km/h.

**Metcalfe Street South** is a roadway under the jurisdiction of Norfolk County that runs in a north-south direction. The roadway contains two travel lanes: one in each direction. At West Street, Metcalfe Street becomes a southbound-only roadway. The assumed speed limit on the roadway is 50 km/h.

**Robinson Street** is a roadway under the jurisdiction of Norfolk County that runs in an east-west direction, connecting Queen Street West with the downtown area to the east. Robinson Street contains two travel lanes: one in each direction. Sidewalk connectivity exists on both sides of the roadway, with an assumed speed limit of 50 km/h.

**Union Street** is an east-west street under the jurisdiction of Norfolk County, providing residents with connections to various institutional and commercial uses. The assumed speed limit of the roadway is 40 km/h.

**West Street / Norfolk County Road 1** is a roadway under the jurisdiction of Norfolk County that connects the community of Simcoe to neighboring communities to the west. The assumed speed limit of the roadway is 50 km/h.



### 4.2 Transit Service

The study area is served by Ride Norfolk which serves the community of Simcoe and various other surrounding communities. Details of the Simcoe route serving the vicinity of the study area are provided below:

The bus service operates a Monday to Friday schedule which includes a daily route across Simcoe and occasional service to Brantford and other neighboring communities in the region. In Simcoe, the route provides connections to several amenities including the local hospital, library, and various retailers. The closest bus stop to the site is located approximately 450 meters away at Simcoe Library to the subject site's west. Further details for the transit route are shown in Table 1. Figure 4 provides a map of the local transit route.

Table 1 – Study Area Transit Service

Route	Nearest Bus Stop at Site	Approximate	Service Times	Approximate Peak Service Frequency (min)			
		Weekdays	Weekends	AM	PM	SAT	
Simcoe Schedule	Simcoe Library	08:00 – 17:45	No service	60	85	N/A	

Source: Norfolk County Open Data – Bus Stops

### 4.3 Site Visit and Traffic Counts

Turning movement counts (TMC) were conducted by Trans-Plan, as summarized in Table 2 since recent TMC data was unavailable from the County. Figure 5 show the balanced volumes for the weekday AM and PM peak hours, where the highest counted intersection volumes were used to be conservative and were balanced across the entire network. The raw count data and STP diagrams are provided in Appendix A.

Table 2 – Intersection Turning Movement Count Details

Intersection	Count Date	Peak Hours			
Intersection	Count Date	AM	PM		
Queen Street North at Union Street		8:30 – 9:30	4:00 – 5:00		
Queen Street North at Kars Street / Marshall Lane		8:30 – 9:30	4:00 – 5:00		
Queen Street North at Robinson Street	Tuesday, April	8:15 – 9:15	4:00 – 5:00		
Queen Street North at West Street	23, 2024	8:15 – 9:15	4:00 – 5:00		
Robinson Street at Metcalfe Street South		8:15 – 9:15	4:00 - 5:00		
West Street at Metcalfe Street South		8:30 - 9:30	4:00 - 5:00		



### 5. FUTURE BACKGROUND CONDITIONS

Future background traffic volumes were determined based on a review of planned developments and future traffic volume growth in the study area. Planned roadway improvements are also discussed in this section.

### 5.1 Horizon Years

For our traffic impact study, three horizon years were analyzed:

- Full build-out of the development: anticipated by the year 2026
- 5 years after full build-out: year 2031
- 10 years after full build-out: year 2036

### 5.2 Background Growth Rate

Traffic growth in the study area was determined through analysis of Annual Average Daily Traffic (AADT) volumes provided by Norfolk County between the years 2013 and 2016. The AADT growth calculations for Queen Street North and West Street are shown in Appendix B. The trend in traffic growth rate for Queen Street and West Street was not conclusive from our calculations (either the growth was too large or too minimal). To be conservative, a typical growth rate of 2 percent per annum was applied to the study area intersections.

### **5.3** Planned Background Developments

Based on correspondence with Norfolk County staff, there is no notable background development that is expected to be completed within the analysis horizon years located near the study area.

### 5.4 Planned Roadway and Transit Improvements

Based on a review of the Norfolk County Integrated Sustainable Master Plan (ISMP), dated September 2016, there are two road improvements proposed to be applied to some of the study area roadways. The summary of the road improvements is provided below:

- Robinson Street between Elgin Avenue and Talbot Avenue Proposed signed bike route to be completed within a 5-year timeframe.
- Queen Street between Maple Street and South Drive Proposed Bicycle Lane to be completed within a 5- to 10-year timeframe.

Based on the review of background conditions, future background traffic volumes for each study horizon year for the weekday AM and PM peak hours are shown in Figure 6, Figure 7, and Figure 8.

### 6. SITE TRAFFIC

### 6.1 Trip Generation

Trips for the proposed development were generated using the Institute of Transportation Engineers (ITE) Trip Generation manuals, 11<sup>th</sup> Edition. The ITE Land Use Code 221 for apartment units, ITE Land Use Code 710 for General Office Building, and ITE Land Use Code 822 for the commercial area were used to determine suitable trip rates. An additional reduction of 10 percent was applied to account for the internal interaction of uses between residential and non-residential uses. The site trip generation is shown in Table 3.



Table 3 – Site Trip Generation

Land Use	Size / Units	•		M Peak H	lour	PM Peak Hour			
			In	Out	Total	In	Out	Total	
Multifamily		Distribution	23%	77%	100%	61%	39%	100%	
Housing (Mid-Rise)	1.12	Equation	T =	0.44 (X) -	11.61	T =	0.39 (X)	+ 0.34	
LUC 221	143	Rate	0.08	0.28	0.36	0.24	0.15	0.39	
		Trips	12	40	52	34	22	56	
General Office		Distribution	88%	12%	100%	17%	83%	100%	
Building	0.62	Equation	Ln(T)	= 0.86Ln(	X) + 1.16	Ln(T) = 0.83Ln(X) + 1.29			
LUC 710	9.63	Rate	2.01	0.27	2.28	0.42	2.07	2.49	
		Trips	19	3	22	4	20	24	
Strip Retail Plaza	3.23	Distribution	60%	40%	100%	50%	50%	100%	
(<40k)	3.23	Average Rate	Ln(T) =	= 0.66 Ln(	X) + 1.84	Ln(T) =	= 0.71 Ln	(X) + 2.72	
LUC 822	sq.ft. of GFA	Rate	2.60	1.73	4.34	5.57	5.57	11.15	
		Trips	8	6	14	18	18	36	
		Total Trips	39	49	88	56	60	116	
Internal Trip Re	eduction	10%	4	5	9	6	6	12	
	T	otal New Trips	35	44	79	50	54	104	

The subject site is expected to generate approximately 79 and 104 new two-way trips in the weekday AM and PM peak hours respectively after applying the reduction resulting from the pass-by trips and internal trip reductions.

### 6.2 Trip Distribution and Assignment

Site trips were generally distributed and assigned to the major travel routes based on the existing local traffic patterns of the study area intersection. North of the site is Highway 3 a Ministry of Transportation Ontario (MTO) roadway and east of the site is County Road 24 a Norfolk County roadway. Site trips were distributed towards Highway 3 and County Road 24, which are major arterial roadways connecting to other major routes across the County and other neighboring municipalities. The site traffic assignment for the weekday AM and PM peak hours is shown in Figure 9.

### 7. FUTURE TOTAL TRAFFIC CONDITIONS

Site traffic volumes were added to the future year background traffic volumes to obtain the future year total traffic volumes for the weekday AM and PM peak hours for each study horizon. The total traffic volumes for the 2026, 2031, and 2036 horizon years are shown in Figure 10, Figure 11, and Figure 12, respectively.

### 7.1 Capacity and Vehicle Queueing Analysis

A capacity analysis was performed for the study area intersections and site driveways using Synchro and SimTraffic analysis software, version 11.0. The capacity analysis tables for existing conditions as well as the 2026, 2031, and 2036 horizon years are shown in Table 4, Table 5, Table 6, and Table 7. Capacity



Analysis sheets and Level of Service (LOS) Definitions are provided in Appendix C and Appendix D, respectively.

According to the County's Traffic Impact Study Guidelines, for signalized intersections, individual movements with a volume-to-capacity (v/c) ratio that is greater than 0.85 are generally considered to be "critical" and should be evaluated for possible operational improvement. This section summarizes the results of the capacity analysis for each intersection:

### Queen Street North & Union Street

Under existing conditions in the weekday AM and PM peak hour, all movements operate at an acceptable LOS of C or better with minimal delays.

Under the future and total condition of 2026, operates at a reasonable LOS of C with few minor delays.

Under the future and total condition of 2031, the westbound and eastbound at the intersection operate with delays up to 17-20 seconds at LOS of C and 20-26 seconds at LOS of D in the weekday AM and PM peak hours, respectively.

Under the future and total condition of 2036, the westbound and eastbound at the intersection operate with delays of up to 19-22 seconds at LOS of C and 19-30 seconds at LOS of D in the weekday AM and PM peak hours, respectively.

### Queen Street North & Marshall Lane / Site Access 3

Under existing conditions, the intersection is expected to operate at a good LOS of C or better during the weekday AM and PM peak hours.

Under 2036 Total Traffic conditions, the eastbound movement is expected to operate at a LOS of E with a maximum delay of 38 seconds during weekday PM peak hour. The delay is common for vehicles turning from the approach of minor roadways into major roadways. The increased delay is mainly due to background growth. The rest of the movements at the intersection are expected to operate at an acceptable LOS of C or better throughout the course of the day.

### Queen Street North & Site Access 2

Under existing conditions, the intersection operates at a good LOS of C or better during weekday AM and PM peak hours. Under future conditions, the intersection is expected to continue operating at an acceptable LOS of C or better.

### Queen Street North & Robinson Street

Under existing conditions, the intersection operates at an acceptable LOS of B or better during weekday AM and PM peak hours.

Under 2031 and 2036 future conditions, due to the delay experienced at the intersection, a scenario with traffic signal is included in our analysis. The cycle lengths are assumed to be 75 seconds to be consistent with the intersection of Queen Street South / Queen Street North & West Street. The signal timing plans and the capacity results are included in Appendix C. Under future and overall conditions, the intersection is expected to operate with a good LOS of C or better with minimal delays during weekday AM and PM peak hours.



### Metcalfe Street North / Site Access 1 & Robinson Street

Under existing conditions, the intersection operates at a good LOS of B or better with minimal delays during weekday AM and PM peak hours. Under future conditions, the intersection is expected to continue operating at a good LOS of B or better.

### Queen Street South / Queen Street North & West Street

Under existing conditions, the intersection operates with a v/c ratio of 0.44 or better with minimal delays during weekday AM and PM peak hours. Under future conditions, all movements at the intersection are expected to continue operating well with a LOS of B or better and an overall v/c ratio of 0.61 which is below the critical v/c ratio outlined by the County.

### Metcalfe Street South & West Street

Under existing conditions, the intersection operates at a good LOS of B during weekday AM and PM peak hours. Under future conditions, all movements at the intersection are expected to continue operating at acceptable levels.



Table 4 - Existing Conditions Capacity Analysis Results

Intersection		<b>Existing Traffic Conditions</b>				
Movement	A٨	∕l Peak H	our	PM Peak Hour		
	V/C	Delay	LOS	V/C	Delay	LOS
Queen Street North & Union Street		•				
Eastbound Left / Through / Right		15	В		16	С
Westbound Left / Through / Right		15	В		17	С
Northbound Left / Through / Right		0	Α		1	Α
Southbound Left / Through / Right		1	Α		1	Α
Queen Street North & Marshall Lane / Site Access 3						
Eastbound Left / Through / Right		15	В		18	С
Westbound Left / Through / Right		20	С		11	В
Northbound Left / Through / Right		1	Α		0	Α
Southbound Left / Through / Right		0	Α		0	Α
Queen Street North & Site Access 2						
Westbound Left / Right		11	В		17	С
Northbound Through / Right		0	Α		0	Α
Southbound Left / Through		0	Α		0	Α
Queen Street North & Robinson Street	0.41	7	Α	0.48	8	Α
Eastbound Left / Through / Right	0.11	16	В	0.12	14	В
Westbound Left / Through / Right	0.31	17	В	0.33	16	В
Northbound Left / Through / Right	0.43	5	Α	0.39	6	Α
Southbound Left / Through / Right	0.42	5	Α	0.52	7	Α
Metcalfe Street South / Site Access 1 & Robinson Street						
Eastbound Left / Through / Right		0	Α		0	Α
Westbound Left / Through/ Right		2	Α		2	Α
Northbound Left / Through / Right		10	Α		10	Α
Southbound Left / Through / RIght		12	В		12	В
Queen Street South / Queen Street North & West Street	0.41	13	В	0.44	15	В
Eastbound Left / Through / Right	0.43	18	В	0.31	18	В
Westbound Left / Through/ Right	0.11	17	В	0.18	17	В
Northbound Left	0.07	9	Α	0.15	13	В
Northbound Through / Right	0.36	11	В	0.40	15	В
Southbound Left	0.09	7	Α	0.09	9	Α
Southbound Through / RIght	0.35	9	Α	0.46	12	В
Metcalfe Street South & West Street						
Eastbound Left / Through / Right		1	Α		1	Α
Westbound Left / Through/ Right		1	Α		1	Α
Northbound Left / Through / RIght		0	Α		11	В
Southbound Left / Through / RIght		11	В		11	В



Table 5 - Future 2026 Capacity Analysis Results

Intersection	20	26 Back	ground	Traffic	Conditio	ons		2026 To	otal Tra	Traffic Conditions				
Movement	ΑN	1 Peak H	our	PM	l Peak H	our	ΑN	l Peak H	our	PM	l Peak Ho	our		
	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS		
Queen Street North & Union Street														
Eastbound Left / Through / Right	0.08	15	С	0.08	17	С	0.08	16	С	0.09	17	С		
Westbound Left / Through / Right	0.16	15	С	0.19	17	С	0.18	17	С	0.22	19	С		
Northbound Left / Through / Right	0.00	0	Α	0.02	1	Α	0.00	1	Α	0.02	1	Α		
Southbound Left / Through / Right	0.02	1	Α	0.02	1	Α	0.02	1	Α	0.02	1	Α		
Queen Street North & Marshall Lane / Kars														
Street														
Eastbound Left / Through / Right	0.31	15	С	0.23	19	С	0.35	18	С	0.27	23	С		
Westbound Left / Through / Right	0.02	21	С	0.00	11	В	0.21	19	С	0.19	17	С		
Northbound Left / Through / Right	0.02	1	Α	0.01	0	Α	0.02	1	Α	0.01	0	Α		
Southbound Left / Through / Right	0.00	0	Α	0.00	0	Α	0.02	1	Α	0.03	1	Α		
Queen Street North & Queen Street Site Access														
Westbound Left / Right	0.01	11	В	0.03	1	С	0.03	13	В	0.07	19	С		
Northbound Through / Right	0.24	0	Α	0.26	0	Α	0.25	0	Α	0.27	0	Α		
Southbound Left / Through	0.01	0	Α	0.01	0	Α	0.01	0	Α	0.01	0	Α		
Queen Street North & Robinson Street							0.39	67	Α	0.51	8	Α		
Eastbound Left / Through / Right	0.15	18	С	0.22	23	С	0.12	28	С	0.13	14	В		
Westbound Left / Through / Right	0.39	24	С	0.53	33	D	0.38	30	С	0.33	15	В		
Northbound Left / Through / Right	0.04	1	Α	0.02	1	Α	0.39	4	Α	0.43	5	Α		
Southbound Left / Through / Right	0.08	2	Α	0.07	2	Α	0.39	4	Α	0.56	7	Α		
Metcalfe Street South / Robinson Street Site														
Access & Robinson Street														
Eastbound Left / Through / Right	0.00	0	Α	0.00	0	Α	0.00	0	Α	0.00	0	Α		
Westbound Left / Through/ Right	0.02	2	Α	0.02	2	Α	0.02	2	Α	0.02	2	Α		
Northbound Left / Through / Right	0.07	10	Α	0.03	9	Α	0.07	10	Α	0.03	9	Α		
Southbound Left / Through / Right	0.00	12	В	0.01	12	В	0.03	12	В	0.06	12	В		
Queen Street South / Queen Street North &														
West Street	0.43	13	В	0.46	15	В	0.50	14	В	0.48	15	В		
Eastbound Left / Through / Right	0.44	18	В	0.33	18	В	0.50	18	В	0.35	18	В		
Westbound Left / Through/ Right	0.12	16	В	0.19	17	В	0.13	16	В	0.19	17	В		
Northbound Left	0.07	9	A	0.15	13	В	0.09	9	A	0.16	13	В		
Northbound Through / Right	0.39	12	В	0.42	15	В	0.44	11	В	0.43	15	В		
Southbound Left	0.09	7	Α	0.09	8	Α	0.52	7	Α	0.09	8	A		
Southbound Through / Right	0.37	9	A	0.48	12	В	0.52	8	A	0.50	13	В		
Metcalfe Street South & West Street					_						_			
Eastbound Left / Through / Right	0.01	1	A	0.01	1	A	0.01	1	A	0.01	1	A		
Westbound Left / Through/ Right	0.00	0	A	0.01	1	A	0.00	1	A	0.01	1	A		
Northbound Left / Through / Right	0.02	0	A	0.01	10	В	0.01	0	A	0.01	10	В		
Southbound Left / Through / Right	0.15	11	В	0.06	11	В	0.17	11	В	0.06	11	В		



Table 6 - Future 2031 Capacity Analysis Results

Intersection	2031 Background Traffic Conditions						2031 Total Traffic Conditions						
Movement	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	
Queen Street North & Union Street		'									'		
Eastbound Left / Through / Right	0.10	17	С	0.10	19	С	0.10	20	С	0.11	20	С	
Westbound Left / Through / Right	0.20	17	С	0.25	20	С	0.23	21	С	0.41	26	D	
Northbound Left / Through / Right	0.01	0	Α	0.02	1	Α	0.01	1	Α	0.02	1	Α	
Southbound Left / Through / Right	0.03	1	Α	0.02	1	Α	0.03	1	Α	0.02	1	Α	
Queen Street North & Marshall Lane / Kars													
Street													
Eastbound Left / Through / Right	0.38	18	С	0.28	22	С	0.43	20	С	0.40	33	D	
Westbound Left / Through / Right	0.02	24	С	0.00	11	В	0.27	21	С	0.32	22	С	
Northbound Left / Through / Right	0.02	1	Α	0.01	0	Α	0.02	1	Α	0.01	0	Α	
Southbound Left / Through / Right	0.00	0	Α	0.00	0	Α	0.02	1	Α	0.03	1	Α	
Queen Street North & Queen Street Site													
Access													
Westbound Left / Right	0.01	11	В	0.03	19	С	0.03	14	В	0.05	22	С	
Northbound Through / Right	0.27	0	Α	0.29	0	Α	0.27	0	Α	0.32	0	Α	
Southbound Left / Through	0.01	0	Α	0.01	0	Α	0.01	0	Α	0.01	0	Α	
Queen Street North & Robinson Street	0.42	8	Α	0.50	9	Α	0.43	8	Α	0.57	11	В	
Eastbound Left / Through / Right	0.14	28	С	0.16	27	С	0.14	28	С	0.16	26	С	
Westbound Left / Through / Right	0.40	30	С	0.48	30	С	0.40	29	С	0.57	30	С	
Northbound Left / Through / Right	0.42	4	Α	0.38	4	Α	0.43	3	Α	0.43	5	Α	
Southbound Left / Through / Right	0.42	4	Α	0.51	6	Α	0.43	3	Α	0.57	7	Α	
Metcalfe Street South / Robinson Street Site													
Access & Robinson Street													
Eastbound Left / Through / Right	0.00	0	Α	0.00	0	Α	0.00	0	Α	0.00	0	Α	
Westbound Left / Through/ Right	0.02	2	Α	0.02	2	Α	0.02	2	Α	0.03	2	Α	
Northbound Left / Through / Right	0.08	10	В	0.04	10	Α	0.08	10	В	0.07	10	Α	
Southbound Left / Through / Right	0.00	13	В	0.01	12	В	0.03	13	В	0.04	14	В	
Queen Street South / Queen Street North &													
West Street	0.48	13	В	0.51	15	В	0.50	14	В	0.61	14	В	
Eastbound Left / Through / Right	0.49	18	В	0.37	18	В	0.50	18	В	0.41	18	В	
Westbound Left / Through/ Right	0.13	16	В	0.21	17	В	0.13	16	В	0.23	17	В	
Northbound Left	0.09	10	Α	0.18	13	В	0.09	9	Α	0.21	11	В	
Northbound Through / Right	0.43	13	В	0.46	16	В	0.44	11	В	0.46	13	В	
Southbound Left	0.11	7	Α	0.11	7	Α	0.11	7	Α	0.12	7	Α	
Southbound Through / Right	0.41	10	Α	0.54	13	В	0.43	10	Α	0.63	13	В	
Metcalfe Street South & West Street													
Eastbound Left / Through / Right	0.01	1	Α	0.01	1	Α	0.01	1	Α	0.01	1	Α	
Westbound Left / Through/ Right	0.00	1	Α	0.01	1	Α	0.00	1	Α	0.01	1	Α	
Northbound Left / Through / Right	0.01	0	Α	0.01	11	В	0.01	0	Α	0.01	11	В	
Southbound Left / Through / Right	0.17	11	В	0.07	11	В	0.17	11	В	0.19	11	В	



Table 7 - Future 2036 Capacity Analysis Results

Intersection	2036 Background Traffic Conditions						2036 Total Traffic Conditions							
Movement	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour				
	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS		
Queen Street North & Union Street														
Eastbound Left / Through / Right	0.11	18	С	0.11	20	С	0.11	19	С	0.12	22	С		
Westbound Left / Through / Right	0.25	19	С	0.29	22	С	0.27	9	С	0.48	30	D		
Northbound Left / Through / Right	0.01	0	Α	0.02	1	Α	0.01	0	Α	0.02	1	Α		
Southbound Left / Through / Right	0.03	1	Α	0.03	1	Α	0.03	1	Α	0.03	1	Α		
Queen Street North & Marshall Lane /														
Kars Street														
Eastbound Left / Through / Right	0.42	16	В	0.30	24	С	0.47	20	С	0.44	38	Ε		
Westbound Left / Through / Right	0.02	1	Α	0.00	11	В	0.28	9	С	0.35	25	С		
Northbound Left / Through / Right	0.02	1	Α	0.01	0	Α	0.02	1	Α	0.01	0	Α		
Southbound Left / Through / Right	0.00	0	Α	0.00	0	Α	0.02	1	Α	0.03	1	Α		
Queen Street North & Queen Street Site														
Access														
Westbound Left / Right	0.01	11	В	0.03	20	В	0.03	15	С	0.06	24	С		
Northbound Through / Right	0.29	0	Α	0.31	0	Α	0.30	0	Α	0.35	0	Α		
Southbound Left / Through	0.01	0	Α	0.01	0	A	0.01	0	Α	0.01	0	Α		
Queen Street North & Robinson Street	0.47	8	Α	0.51	9	Α	0.48	8	Α	0.59	11	В		
Eastbound Left / Through / Right	0.13	28	С	0.15	27	С	0.13	28	С	0.15	25	С		
Westbound Left / Through / Right	0.43	28	С	0.51	30	С	0.43	30	С	0.61	32	С		
Northbound Left / Through / Right	0.47	3	Α	0.42	5	Α	0.48	5	Α	0.48	6	Α		
Southbound Left / Through / Right	0.48	3	Α	0.52	6	Α	0.49	5	Α	0.58	8	Α		
Metcalfe Street South / Robinson Street														
Site Access & Robinson Street														
Eastbound Left / Through / Right	0.00	0	Α	0.00	0	Α	0.00	0	Α	0.00	0	Α		
Westbound Left / Through/ Right	0.02	2	Α	0.02	2	Α	0.02	2	Α	0.03	2	Α		
Northbound Left / Through / Right	0.09	10	В	0.04	10	Α	0.09	10	В	0.08	10	Α		
Southbound Left / Through / Right	0.00	13	В	0.01	12	В	0.03	13	В	0.05	14	В		
Queen Street South / Queen Street North														
& West Street	0.51	14	В	0.51	14	В	0.53	14	В	0.61	14	В		
Eastbound Left / Through / Right	0.49	18	В	0.38	18	В	0.50	18	В	0.41	18	В		
Westbound Left / Through/ Right	0.14	16	В	0.23	17	В	0.14	16	В	0.25	17	В		
Northbound Left	0.10	10	Α	0.20	12	В	0.10	10	Α	0.24	10	В		
Northbound Through / Right	0.48	13	В	0.51	14	В	0.49	13	В	0.51	11	В		
Southbound Left	0.13	7	Α	0.12	9	Α	0.13	7	Α	0.13	7	Α		
Southbound Through / Right	0.45	10	В	0.54	11	В	0.47	10	В	0.63	10	В		
Metcalfe Street South & West Street														
Eastbound Left / Through / Right	0.01	1	Α	0.01	1	Α	0.01	1	Α	0.01	1	Α		
Westbound Left / Through/ Right	0.00	1	Α	0.01	1	Α	0.00	1	Α	0.01	1	Α		
Northbound Left / Through / Right	0.01	0	Α	0.01	11	В	0.01	0	Α	0.02	11	В		
Southbound Left / Through / Right	0.19	11	В	0.07	11	В	0.19	11	В	0.19	11	В		

Table 8 - Queue Analysis - Pre-road widening



Jac Na	kday PM Store	2026 Background Traffic Conditions	2031 Backgr	2031 Background Traffic Conditions	onditions	2036 Backg	2036 Background Traffic Conditions	nditions
Available Storage Length Peak Hour Peak Hour Taper] (m)			A. cella hila					Ī
ite 17.1 13.2 3 7 11.3 11.3 11.3 11.3 11.3 38.3 38.3 38.3		Weekday AM Weekday PM Peak Hour Peak Hour	Available Storage Length [Taper] (m)	Weekday AM Peak Hour	Weekday PM Peak Hour	Available Storage Length [Taper] (m)	Weekday AM Peak Hour	Weekday PM Peak Hour
17.1   13.2   3.3   3.4   3.4   3.5   3.								
13.2   3.3   3.4   3.5	12.6	11.5		14.1	12.9		12.7	12.3
15.7   3   3   3   3   3   3   3   3   3	15.5	13 15.6		15.4	18.8		13.7	18.7
15.7 3 11.3 11.3 11.3 11.3 11.3 11.3 11.3	13.7	80		4.9	8.2		3.7	16.1
15.7 3 3 11.3 11.3 11.3 11.3 11.3 11.3 11.	11.9	4.1 18.9		17.8	13.1		13.1	14.8
15.7 3 11.3 11.3 11.3 11.3 12.9 16.9 16.9 16.9 16.9 16.2 16.2 16.2 16.2 16.2 16.2 16.3 17.4 16.2 16.2 16.2 16.3 17.3 17.3 18.3 18.3 19.								
15.7 3 11.3 11.3 12.9 16.9 38.3 38.3 38.3 39.3 16.2 9.9 9.9 9.9 16.2 9.8 11.4 37.1 27 11.7 27 11.7 27 11.7 32.3								
11.3 11.3 3 3 16.9 38.3 38.3 38.3 38.3 39.3 16 16 16 16 16 27 11.4 37.1 27 11.4 37.1 27 11.4 37.1 27 11.5 32.9	13.2	14.2 13.1		14.6	12.3		17.8	11.7
11.3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	3.5	7.1 4.2		6.4	4.4		Э	2.8
4.7 3 12.9 16.9 38.3 38.3 38.3 39.3 16 16.2 9.8 23 11.4 37.1 27 11.4 37.1 27 11.4	10.4	11.7 4.4		7.9	8		16.2	7.3
4.7 3 3 10.9 16.9 38.3 38.3 35.3 39.3 16 16 16.2 9.8 27 11.4 37.1 27 11.4 37.1 27 11.4		ז					0,1	
4.7 3 12.9 16.9 38.3 38.3 38.3 39.3 16 16.2 9.9 9.9 9.9 11.4 37.1 27 11.4 37.1 27 11.5 32.9				ć	Ĺ		ć	1
12.9 16.9 38.3 35.3 35.3 16 6 6 9.9 9.9 11.4 37.1 27 11.4 37.1 27 11.4 37.1 27 11.7 32.9	6.1			8.7	5.3		5.2	9.7
12.9 16.9 38.3 35.3 35.3 16 9.9 16.2 9.8 23 11.4 37.1 27 15.7 32.9	10.5	10.7		6.1	10		6.1	4.3
12.9 16.9 38.3 35.3 35.3 16 16.2 9.8 23 11.4 37.1 27 15.7 32.9								
16.9 38.3 35.3 35.3 39.3 116 16.2 9.8 23 11.4 27 15.7 32.9	13	15.7 12.8		19	21.2		14.2	19.4
38.3 35.3 6 6 9.9 39.3 16.2 9.8 23 11.4 37.1 27 15.7 32.9	22.9	18.4 20.5		17.4	32.9		18.6	29.9
35.3 6 9.9 39.3 16.2 9.8 23 11.4 37.1 27 15.7 32.9	35.1	14.5 38.2		40.4	42.8		40.6	51.5
6 9.9 39.3 16.2 9.8 11.4 37.1 27 15.7 32.9	52.4	24.9 43.4		42.5	44.9		42.4	59.8
9.9 39.3 16.2 16.2 9.8 23 11.4 37.1 27 15.7 32.9								
9.9 9.9 16.2 16.2 9.8 11.4 37.1 27 15.7 32.9								
9.9 39.3 16.2 16.2 9.8 11.4 37.1 27 15.7 32.9	5.3			æ	6.9		6.3	11.5
9.9 39.3 16.2 9.8 23 11.4 37.1 27 15.7 32.9	9.2	9.4 10		10.6	10.8		9.3	10.6
39.3 16 16.2 9.8 23 11.4 37.1 27 15.7 32.9	5.4	2.9		2.9	2.6			
39.3 16.2 16.2 9.8 23 11.4 37.1 27 15.7 32.9								
16 16.2 9.8 9.8 11.4 37.1 27 15.7 32.9	41.9			45.1	47.3		56.9	40.4
16.2 9.8 11.4 37.1 27 15.7 32.9	13.4			18.8	14.1		29	15.1
9.8 11.4 37.1 27 15.7 32.9	22.7			16.3	22.4		17.9	22
23 11.4 37.1 27 15.7 32.9	17.1	11.4 19.5		10	16.8		13.2	20
37.1 27 15.7 32.9 2.8	16.3 23	9.6 14.3	23	15.7	19.1	23	12.9	14.6
27 15.7 32.9 32.9	40.7			42	46		49.6	57.6
32.9	20.9	11.3 17.3	27	13.1	25.3	27	15.4	25.4
2.8	54.3	36 51.4		52.5	58.4		48.8	56.4
2.8								
2.8	2.8	4.9 2.7		2.8	4			2.8
	4.2	12.3		4.1	5.1		2.8	2.6
	8.4	9.9			9.9			4.2
Southbound Left/Through/Right 11.5 11.6	11.6	11.4		11.1	12.6		11.8	11.7

Table 8 - Queue Analysis - Pre-road Table 8 - Queue Analysis - Pre-road widening



Intersection				95th Perc	95th Percentile Vehicle Queues	\u00e4ues			
	2026 To	2026 Total Traffic Conditions	itions	2031 To	2031 Total Traffic Conditions	itions	2036 To	2036 Total Traffic Conditions	itions
Movement	Available Storage Length [Taper] (m)	Weekday AM Peak Hour	Weekday PM Peak Hour	Available Storage Length [Taper] (m)	Weekday AM Peak Hour	Weekday PM Peak Hour	Available Storage Length [Taper] (m)	Weekday AM Peak Hour	Weekday PM Peak Hour
Queen Street North & Union Street									
Eastbound Left/Through/Right		13.1	11.9		15.5	11.2		12.8	12.4
Westbound Left/Through/Right		14.5	16.7		15.9	16.4		14.2	14.3
Northbound Left/Through/Right		3	16.1		3.6	12.3			13.4
Southbound Left/Through/Right		12.2	18.1		13.1	19.4		11.6	29.8
Queen Street North & Marshall Lane/Site									
Access 3									
Eastbound Left/Through/Right		14.2	13.2		15.1	13.8		14.9	12.7
Westbound Left/Through/Right		17.9	16.8		13.7	14.4		13.2	15.3
Northbound Left/Through/Right		7	5.4		13.7	11.9		15.2	7.2
Southbound Left/Through/Right		7.6	13		11.6	13.6		11.3	17
Queen Street North & Site Access 2									
Westbound Left/Right		8.8	8.4		6.1	9.3		8.6	7.5
Southbound Left/Through		3	32.2		8.3	15.1		17.1	3
Queen Street North & Robinson Street									
Eastbound Left/Through/Right		13.9	13.6		20.8	18.6		21.9	26.3
Westbound Left/Through/Right		16.9	22.1		21.1	26.4		20.1	28.8
Northbound Left/Through/Right		28.2	49.3		40.4	38.5		48.7	36.1
Southbound Left/Through/Right		46.8	70.6		44.6	55.6		46.5	61.8
Metcalfe Street South/Site Access 1 &									
Robinson Street									
Westbound Left/Through/Right		5.3	3		7.1	10.6		9.7	6.9
Northbound Left/Through/Right		12.4	7.7		7.7	9.3		9.6	9.3
Southbound Left/Through/Right		4.1	9.1		9.5	11.1		6.6	8.5
Queen Street North & West Street									
Eastbound Left/Through		20	37.8		54.6	40.6		45.6	38.9
Eastbound Through/Right		14.2	12.6		20.4	18.9		20	20.4
Westbound Left/Through		19.6	21.1		14.6	24.8		19.4	25
Westbound Through/Right		8.6	18		11.2	21		12.8	19.9
Northbound Left	23	13.1	13.9	23	13.1	17.9	23	13.1	19.1
Northbound Through/Right		37.1	44.5		43.2	40.4		54.8	45.1
Southbound Left	27	13	28.8	27	25.4	16.5	27	18.7	20.4
Southbound Through/Right		37.5	58.7		44.1	59.1		47.6	62.4
Metcalfe Street South & West Street									
Eastbound Left/Through/Right		2.7			2.8	4.3		3.3	2.8
Westbound Left/Through/Right		4				2.8		2.8	2.6
Northbound Left/Through/Right			7.9			5.2			9
Southbound Left/Through/Right		11.9	11.2		12.2	12.3		11.8	11.3



#### 8. PARKING STUDY

#### 8.1 Parking Supply

The site proposes 31 at-grade parking spaces and 4 underground parking levels containing 69 parking spaces each for a total of 307 parking spaces. The proposal indicates a plan to sever a segment of the existing parking lot currently occupied by the adjacent municipal building directly to the site's south.

#### 8.2 Parking Requirements

The parking requirements were reviewed based on the Norfolk County Zoning By-law 1-Z-2014. The source material is provided in Appendix E. A comparison of the proposed parking supply and requirements is shown in Table 9.

Table 9 – Site Parking Requirements, Norfolk County Zoning By-law

Land l	Jse	Units / GFA (sq.m.)	Minimum Parking Rate	Required Spaces	Proposed Spaces
Residential	Resident	143	1.5 spaces per unit	215	219
Residential	Visitor	145	1 space per 3 units	48	48
Reta	nil	299.6	1 space per 30 sq.m.	10	10
Offic	ce	894.8	1 space per 30 sq.m.	30	30
	Total I	Parking Requirer	nent	303	307

Source: Norfolk County Zoning By-Law Z-1-2014

The parking requirement is 303 spaces compared to the proposed parking supply of 307 spaces, resulting in a parking surplus of +4 spaces. Therefore, the proposed parking supply will be adequate to meet the future parking demands of the development.

#### 9. FINDINGS AND RECOMMENDATIONS

Our findings and recommendations of this Transportation Study, for the proposed mixed-use development at 185 Robinson Street in the community of Simcoe, are summarized as follows:

#### **Traffic Impact Study**

• The proposed development consists of a mixed-use development accommodating various uses including apartments, commercial, and office. Two site accesses – one connected to the existing parking lot to the south of the site and one proposed access via Kars Street – are proposed to provide connections with the surface parking area consisting of 158 parking spaces that will be maintained on the retained lot for the existing 3-storey building on the site, and there are 49 surface parking spaces for the severed lot where the new building is proposed. An additional 276 underground parking spaces are also proposed for a total of 307 parking spaces.



- Based on the ITE Trip Generation manual, the subject site is expected to generate 79 new two-way trips in the weekday AM peak hour and 104 new two-way trips in the weekday PM peak hour.
- The auto site trips were distributed to/from the surrounding road network based on the existing travel patterns in the surrounding area.
- The proposed development is acceptable for traffic operations with traffic signals at the
  intersections of Queen Street North and Robinson Street. No further roadway improvements
  would be required to support the development, aside from the construction of the proposed
  internal roadways and site accesses.
- Due to the similarities between the future background and total conditions, the subject site is expected to have minimal impact on the study area network.

#### Parking Study

- The proposed parking supply of 307 spaces is in conformance with the County's Zoning By-law and has a parking surplus of 4 spaces.
- The proposed parking supply will be adequate to meet the future parking demands of the development.

Respectfully submitted,

Anil Seegobin, P.Eng.

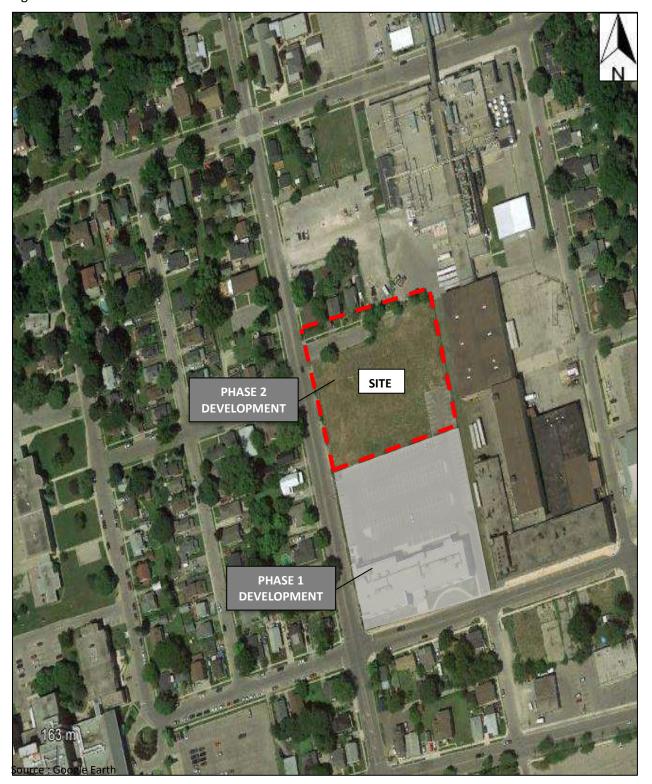
Partner, Engineer

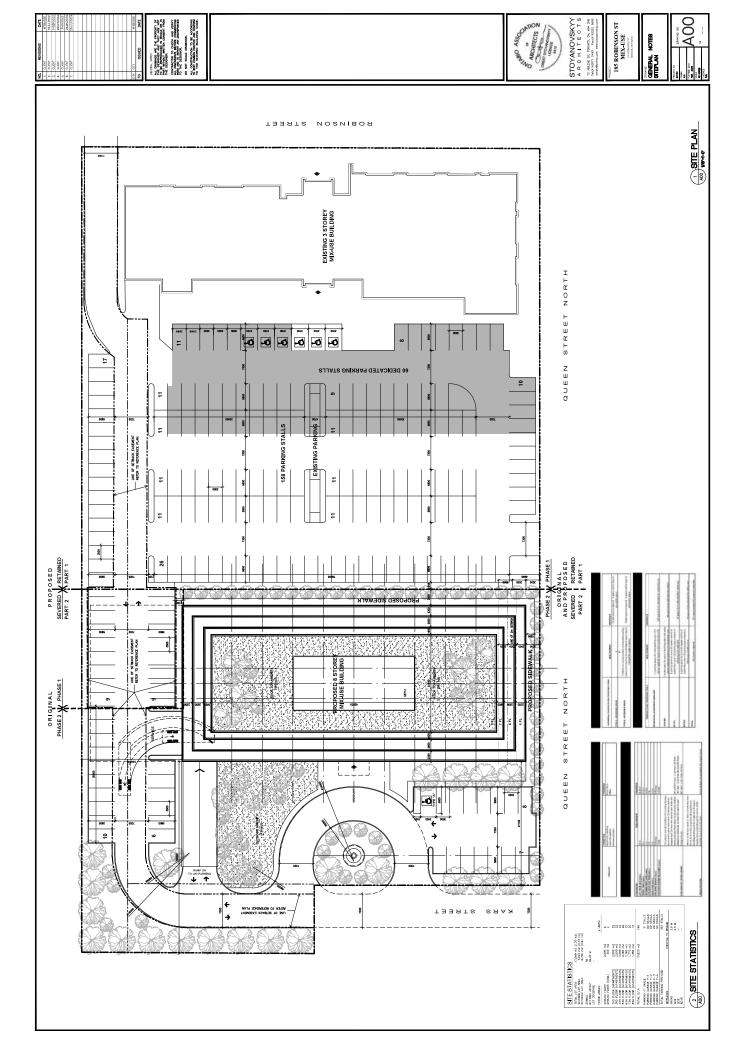
Trans-Plan Transportation Inc.

**Transportation Consultants** 



Figure 1 – Site Location







### **Traffic Impact Study**

Figure 3: Existing Study Area Roadway Characteristics



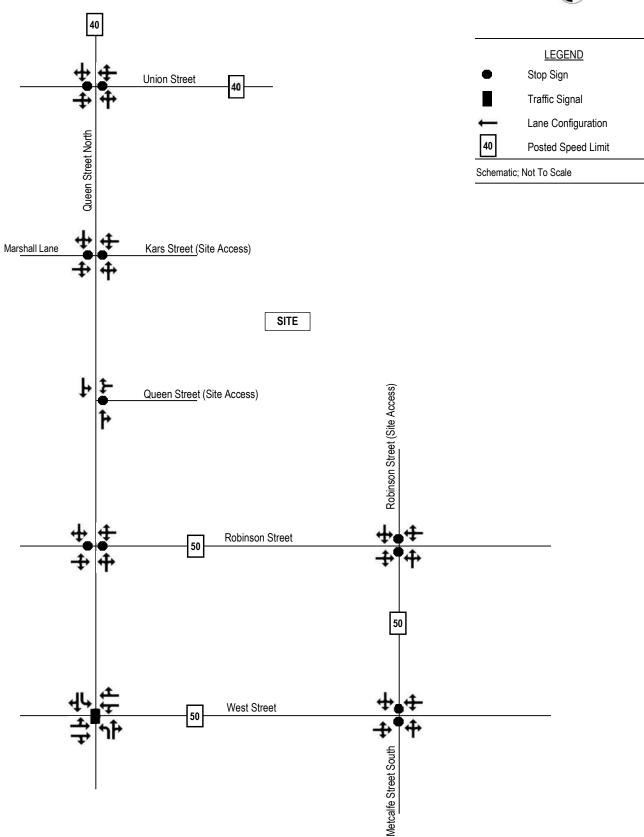
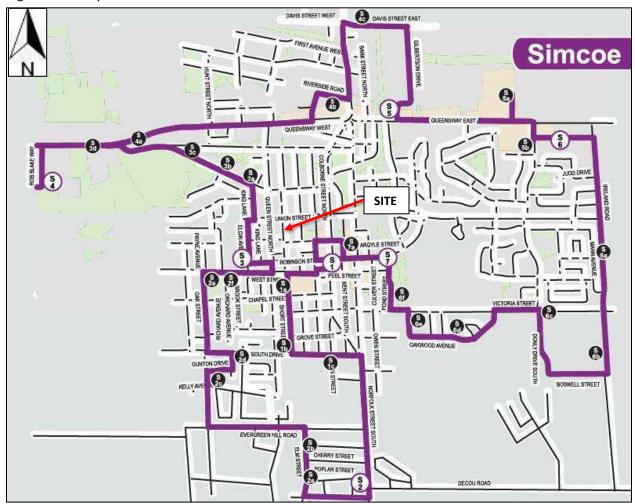




Figure 4 – Study Area Transit Service



Source: Ride Norfolk website



Figure 5: Existing Traffic Volumes, Weekday AM and PM Peak Hours



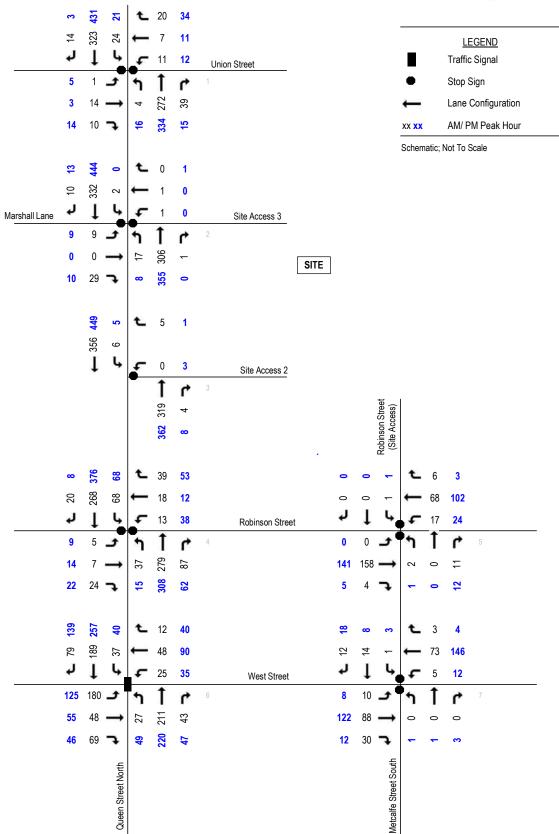




Figure 6: 2026 Background Traffic Volumes, Weekday AM and PM Peak Hours

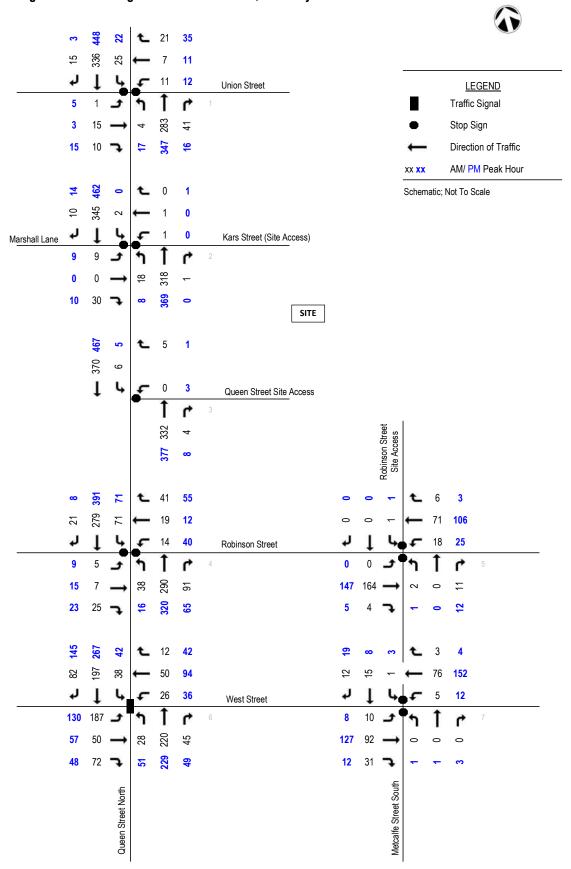




Figure 7: 2031 Background Traffic Volumes, Weekday AM and PM Peak Hours

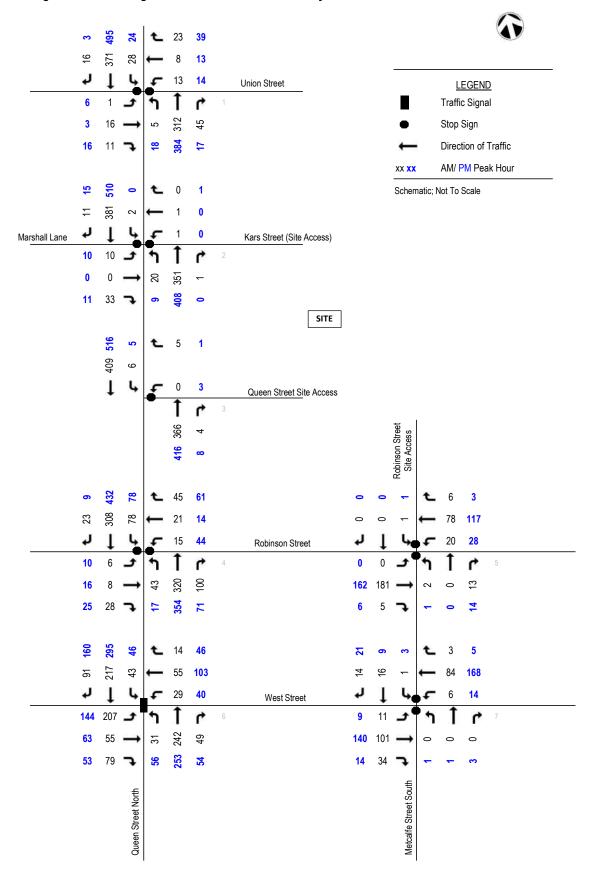




Figure 8: 2036 Background Traffic Volumes, Weekday AM and PM Peak Hours

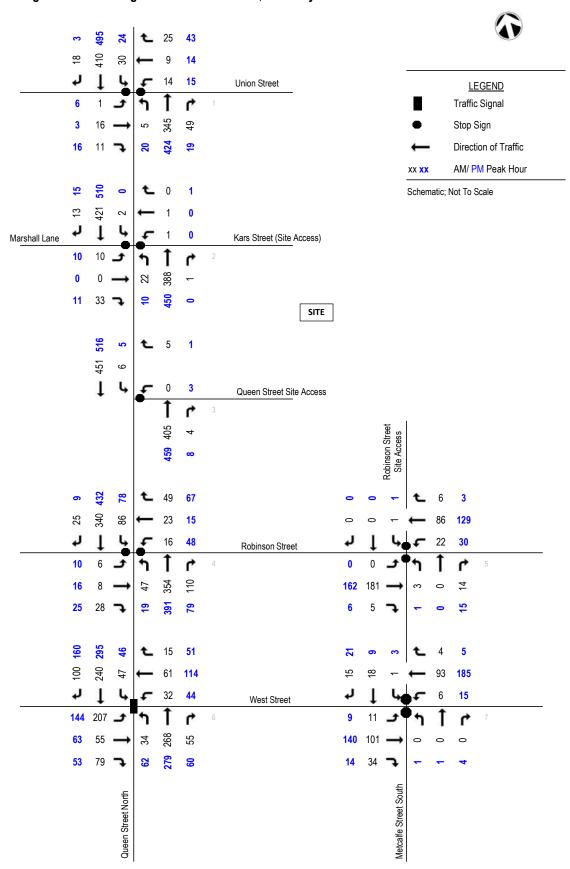
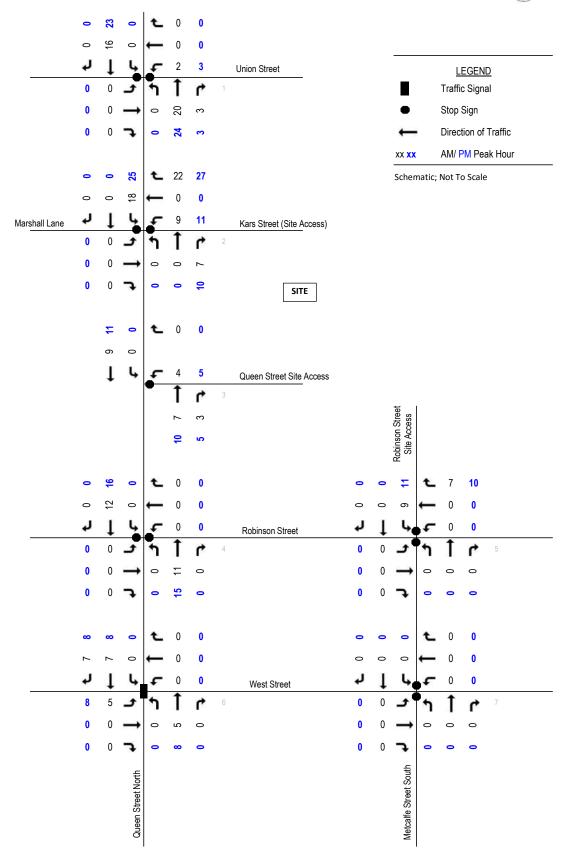




Figure 9: Site Traffic Assignment, Weekday AM and PM Peak Hours





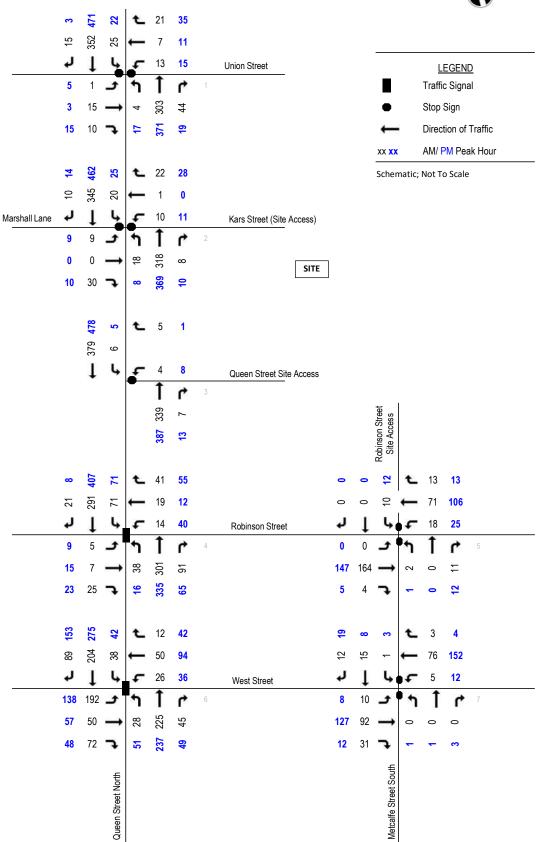


#### Proposed Mixed Use Development

185 Robinson Street, Simcoe (Norfolk County), ON

Figure 10: 2026 Total Conditions, Weekday AM and PM Peak Hours







Proposed Mixed Use Development

185 Robinson Street, Simcoe (Norfolk County), ON

Figure 11: 2031 Total Conditions, Weekday AM and PM Peak Hours

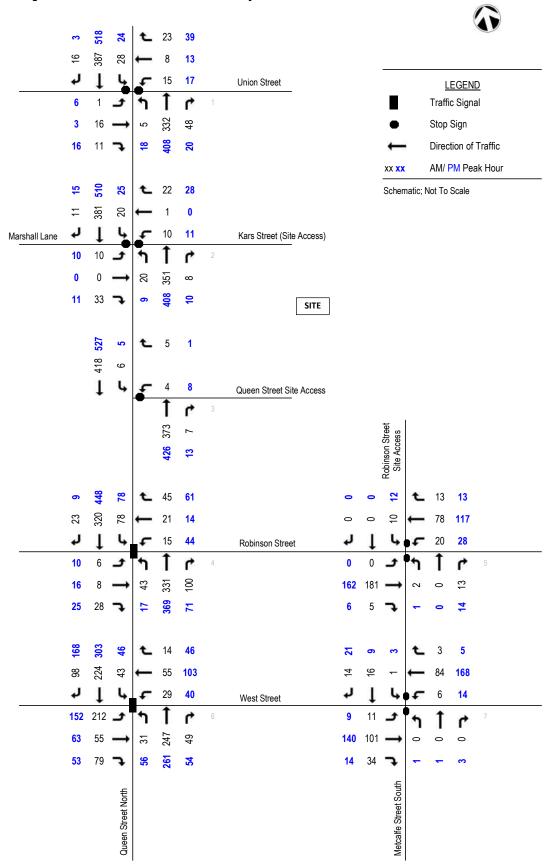
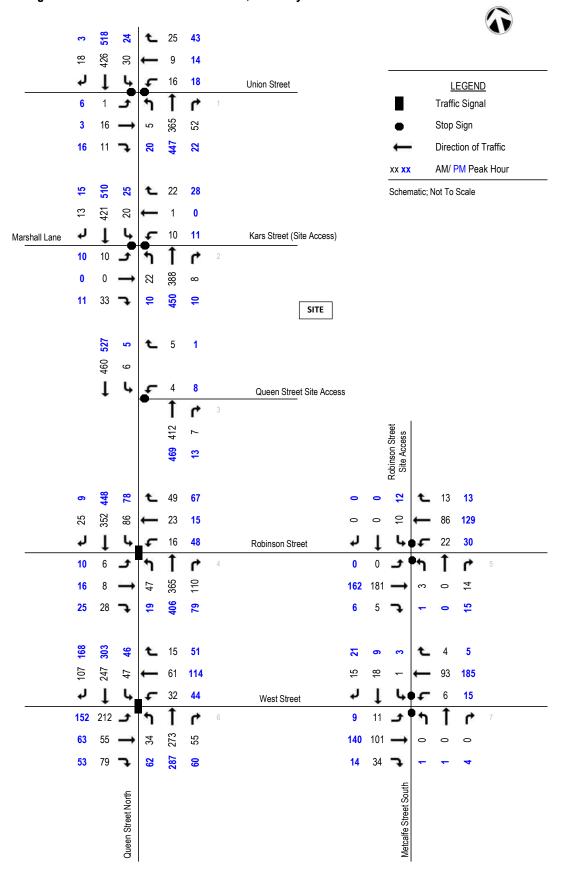




Figure 12: 2036 Total Future Conditions, Weekday AM and PM Peak Hours





#### **APPENDICES**

Appendix A – Turning Movement and Signal Timing Counts

Appendix B – Background Traffic Information

Appendix C – Capacity Analysis Sheets

Appendix D – Level of Service Definitions

Appendix E – Norfolk County and Comparable Municipalities' Zoning By-law, Excerpts



## **APPENDIX A**

Turning Movement and Signal Timing Counts

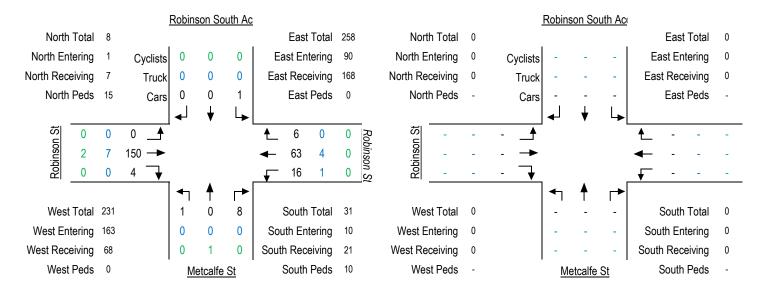


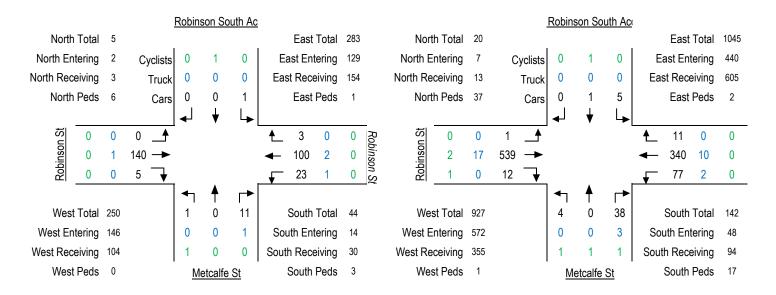


Intersection: Metcalfe Street / 185 Robinson South Access and Robinson Street Intersection ID:

Municipality: Simcoe, Ontario Date: Tuesday, April 23, 2024

AM Peak Hour: 8:15 to 9:15 MD Peak Hour: - to -









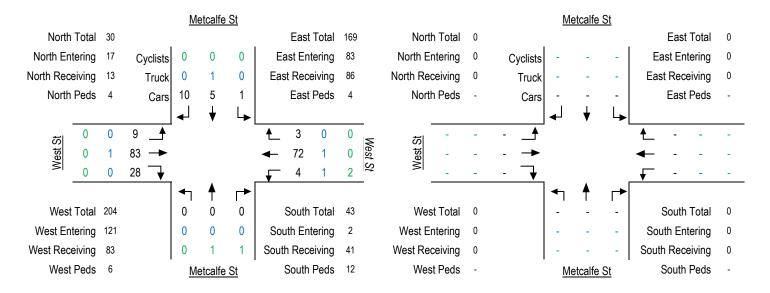
Intersection: Metcalfe Street and West Street

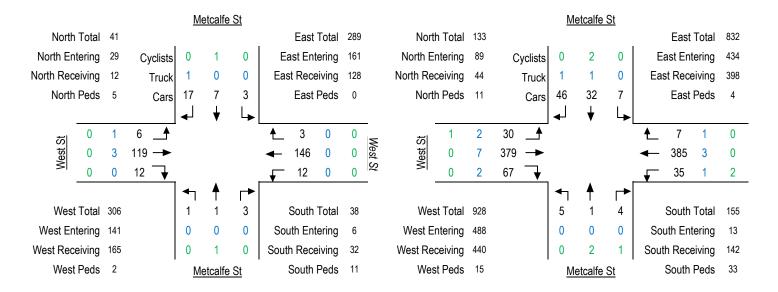
Municipality: Simcoe, Ontario

Intersection ID:

Date: Tuesday, April 23, 2024

AM Peak Hour: 8:30 to 9:30 MD Peak Hour: - to









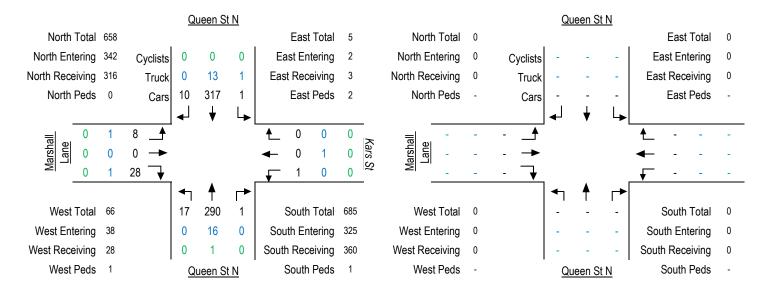
Intersection: Queen Street North and Kars Street / Marshall Lane

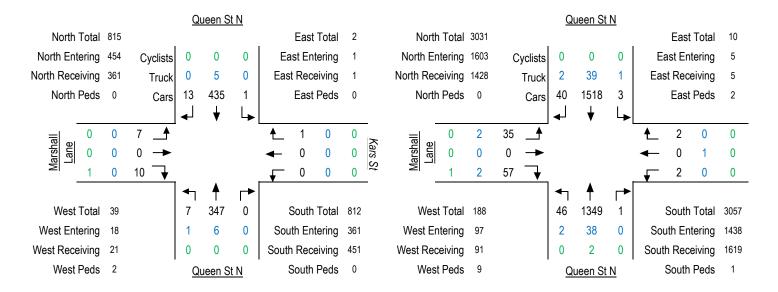
Municipality: Simcoe, Ontario

Intersection ID:

Date: Tuesday, April 23, 2024

AM Peak Hour: 8:30 to 9:30 MD Peak Hour: - to -









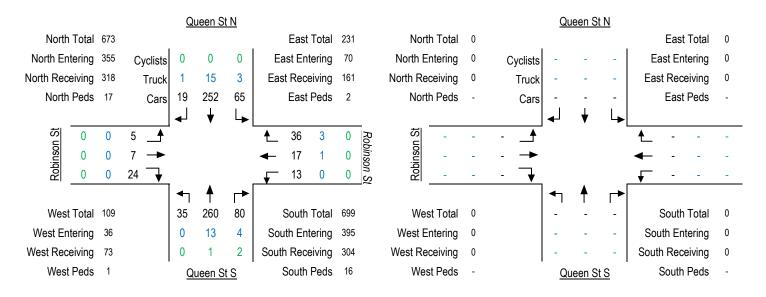
Intersection: Queen Street and Robinson Street

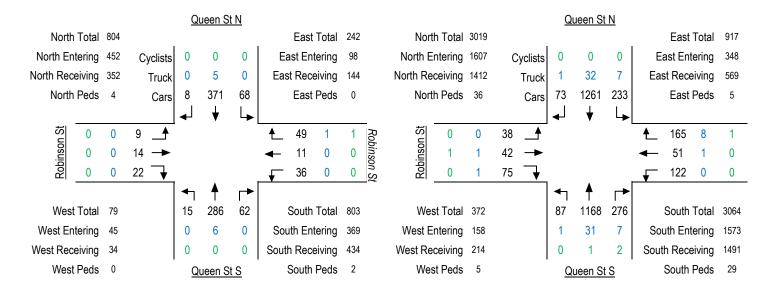
Municipality: Simcoe, Ontario

Intersection ID:

Date: Tuesday, April 23, 2024

AM Peak Hour: 8:15 to 9:15 MD Peak Hour: - to -









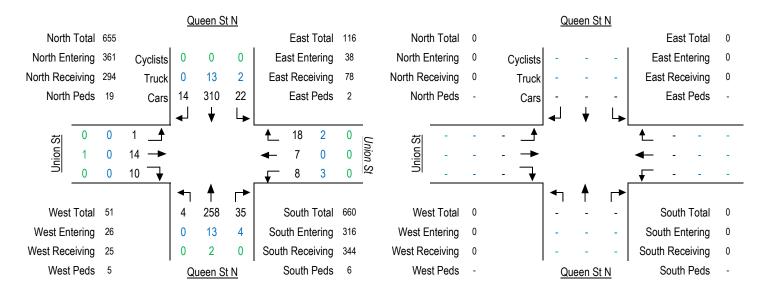
Intersection: Queen Street North and Union Street

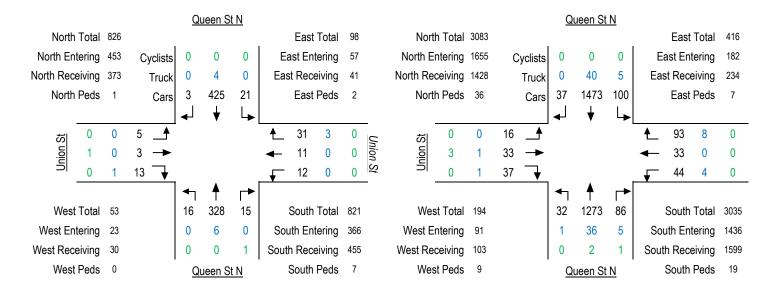
Municipality: Simcoe, Ontario

Intersection ID:

Date: Tuesday, April 23, 2024

AM Peak Hour: 8:30 to 9:30 MD Peak Hour: - to -









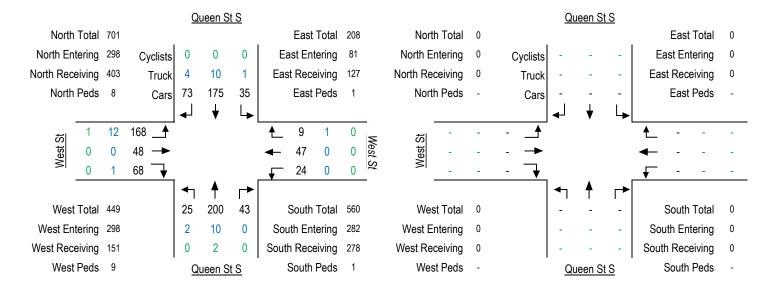
Intersection: Queen Street South and West Street

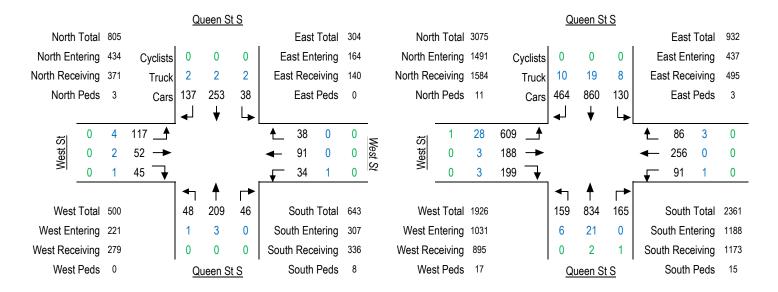
Municipality: Simcoe, Ontario

Intersection ID:

Date: Tuesday, April 23, 2024

AM Peak Hour: 8:15 to 9:15 MD Peak Hour: - to





## Signal Timing Recording

Wednesday July 8, 2020 Trans-Plan Date:

Surveyor: Time Period: AM Peak Hour

Queen Street North/Queen Street South at West Street Intersection:

		Eastb	ound	West	bound	North	bound	South	bound
		Record 1	Record 2						
Adv. Gre	en Arrow	10	10	0	0	0	0	6	6
Adv. Yello	ow Arrow	2	2	0	0	0	0	2	2
Green	Time	24	24	30	36	29	29	35	35
Yel	low	4	4	4	4	4	4	4	4
All F	Red	2	2	2	2	2	2	2	2
Walk Sig	nal(Man)	16	16	16	16	16	16	16	16
Flash Don't	Walk(Hand)	6	6	6	6	6	6	6	6
Longtho	Min.	40	40	28	28	28	28	36	36
Lengths	Max.	42	42	36	42	35	35	49	49

Cyclelengths:	
Scenario 1	77
Scenario 2	91
Scenario 3	77
Scenario 4	91
· · · · · · · · · · · · · · · · · · ·	

30

## Signal Timing Recording

Wednesday July 8, 2020 Trans-Plan Date:

Surveyor: Time Period: PM Peak Hour

Queen Street North/Queen Street South at West Street Intersection:

		Eastb	ound	West	bound	North	oound	South	bound
		Record 1	Record 2						
Adv. Gre	en Arrow	8	8	0	0	0	0	8	8
Adv. Yello	ow Arrow	2	2	0	0	0	0	2	2
Green	Time	37	37	29	29	30	30	38	38
Yel	low	4	4	4	4	4	4	4	4
All F	Red	2	2	2	2	2	2	2	2
Walk Sig	nal(Man)	16	16	16	16	16	16	16	16
Flash Don't	Walk(Hand)	6	6	6	6	6	6	6	6
Longtho	Min.	38	38	28	28	28	28	38	38
Lengths	Max.	53	53	35	35	36	36	54	54

Cyclelengths:	
Scenario 1	89
Scenario 2	107
Scenario 3	71
Scenario 4	89



Background Traffic Information

### **AADT Growth Calculation**

Review of Traffic Volume Growth on Queen Street, 0.1km South of Cedar Street

Year	AADT (vehicles)	ху	x^2	Growth by Linear Regressio	Annual Growth
				n	Rate
2013	8,416	16941408	4052169	7954	
2014	8,074	16261036	4056196	7246	
2015	3,496	7044440	4060225	6538	
2016	7,581	15283296	4064256	5829	
					-8.9%
8058	27567	55530180	16232846		

Source:

Norfolk County, AADT Listing 2013 to 2016

events 4 m -708.3 b 1433762.1

Review of Traffic Volume Growth on West Street, Between Queen Street and Head Street

Year	AADT (vehicles)	ху	x^2	Growth by Linear Regressio n	Annual Growth Rate
2013	4,155	8364015	4052169	4411	rato
2014	3,787	7627018	4056196	4636	
2015	7,329	14767935	4060225	4862	
2016	3,725	7509600	4064256	5087	
					5.1%
8058	18996	38268568	16232846		

Source:

Norfolk County, AADT Listing 2013 to 2016

events 4 m 225.2 b -448916.4



# **APPENDIX C**

Capacity & Queueing Analysis Sheets

HCM Unsignalized Intersection Capacity Analysis <Existing> Weekday AM Peak Hour 1: Queen Street North & Union Street

ane Configurations ane Configurations  Traffic Volume (veh/h)  Tuture Volume (Veh/h)  Sign Control  Sign Control		F	בכב	<u>-</u>	FO/M	0/41	- 2	- 101		ē	F	C
		H 4	器	WBL	MBI	WBK	NBI	NB	SE SE	SSE SSE	- SB	SBX
	_	<u>†</u>	9	Ξ	-	20	4	272	33	54	323	14
ò	_	14	10	1	7	70	4	272	39	54	323	14
70.0	(J)	Stop			Stop			Free			Free	
		%0	000		%0	0	000	%0	0		%0	3
		0.86	0.86	0.59	0.59	0.59	0.88	0.88	88:	0.91	0.91	0.91
Hourly flow rate (vph)	_	9	12	19	15	쫎	c)	308	4	56	322	15
								None			None	
								315				
X, platoon unblocked												
C. conflicting volume 796		778	362	9//	763	331	370			353		
962		778	362	9//	763	331	370			353		
. 7		6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5		4.0	33	3.5	4.0	33	2.2			2.2		
100		92	86	93	96	92	100			86		
27.		319	682	292	326	711	1189			1206		
EB 1		WB1	NB 1	SB 1								
25	6	65	358	396								
	_	19	2	56								
12		34	4	15								
40,		434	1189	1206								
0.0		0.15	0.00	0.02								
Queue Length 95th (m) 1.8		4.2	0.1	0.5								
14.5		4.8	0.2	0.7								
В		В	∢	∢								
14.5		14.8	0.2	0.7								
	ш	മ										
ntersection Summary												
			2.0									
ntersection Capacity Utilization		4	46.1%	<u>ವ</u>	CU Level of Service	f Service			⋖			
Analysis Period (min)			15									

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HCM Unsignalized Intersection Capacity Analysis <Existing> Weekday AM Peak Hour 2: Queen Street North & Marshall Lane/Site Access 3

	1	Ť	1	-	ţ	1	•	4-	•	۶	-	•
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	6	0	53	-	-	0	17	306	_	7	332	9
Future Volume (Veh/h)	တ	0	59	-	-	0	17	306	-	2	332	9
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.25	0.25	0.25	0.40	0.40	0.40	0.84	0.84	0.84	0.87	0.87	0.87
Hourly flow rate (vph)	36	0	116	2	2	0	70	364	-	2	382	#
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								177				
pX, platoon unblocked												
vC, conflicting volume	797	96/	388	912	802	364	393			365		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	797	962	388	912	805	364	393			365		
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	33	3.5	4.0	33	2.2			2.2		
p0 queue free %	88	100	85	66	66	100	86			100		
cM capacity (veh/h)	536	314	961	207	312	089	1166			1194		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	152	4	385	395								
Volume Left	36	7	20	7								
Volume Right	116	0	-	Ξ								
HS <sub>2</sub>	513	249	1166	1194								
Volume to Capacity	0.30	0.02	0.02	0.00								
Queue Length 95th (m)	9.8	0.4	0.4	0.0								
Control Delay (s)	14.9	19.7	9.0	0.1								
Lane LOS	മ	ပ	⋖	V								
Approach Delay (s)	14.9	19.7	9.0	0.1								
Approach LOS	В	ပ										
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization	_		38.1%	೨	U Level o	CU Level of Service			⋖			
Analysis Period (min)			15									

<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <Existing> Weekday AM Peak Hour 3: Queen Street North & Site Access 2 08-15-2024

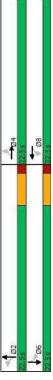
Movement of the configurations         WELL WIRR NBT NBT NBR SBL SBT           Movement of the configurations         MELL NB NBT NBR SBL SBT           Traffic Volume (Vehrh)         0         5         319         4         6         356           Fruith Volume (Vehrh)         0         5         319         4         6         356           Fruith Volume (Vehrh)         0         5         319         4         6         356           Grade Protections         Free         Free         Free         Free         Free           Grade Hourly flow rate (vph)         0         7         389         5         7         405           Pedestrians         Free         Rest Hour Factor         0.75         0.75         0.88         0.88           Pedestrians         Free         8         0.88         0.88         0.88           Pedestrians         1.05         0.7         3.89         5         7         4.05           Pedestrians         1.05         0.7         3.89         5         7         4.05           Median type         1.05         0.7         3.94         4.1         4.1         4.1           Median type         1.05         6.4 </th <th></th> <th>1</th> <th>1</th> <th>+</th> <th>•</th> <th>٠</th> <th><del></del></th> <th></th>		1	1	+	•	٠	<del></del>	
Maritation   Maritan   M	Movement	WBL	WBR	NBT	NBR	SBL	SBT	
hh) 0 5 319 4 6 356 hh) 0 5 319 4 6 356 hh) 0 5 319 4 6 356 hh) 0 7 319 4 6 356 hh) 0 7 389 5 7 405 h) 0 7 389 5 7 405 h) 0 7 389 5 7 405 h) 0 89 394 h) 0 89 394 h) 0 99 394 h) 0 99 394 h) 0 90 392 h) 0 90 0 99 h) 0 0 1 0 0 1 h) 0 0 0 0 1 h) 0 0 0 0 0 1 h) 0 0 0 0 0 1 h) 0 0 0 0 0 0 1 h) 0 0 0 0 0 0 1 h) 0 0 0 0 0 0 0 1 h) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lane Configurations	2		2,			**	
(m) 0.05 5.319 4 6.356 (1969)	Traffic Volume (veh/h)	0	2	319	4	9	356	
Stop Free 17ee 17ee 17ee 17ee 17ee 17ee 17ee 1	Future Volume (Veh/h)	0	2	319	4	9	356	
0.% 0.% 0.% 0.% 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8	Sign Control	Stop		Free			Free	
h) 0.75 0.78 0.88 0.88 0.88 0.88 0.88 0.88 0.88	Grade	%0		%0			%0	
h) 0 7 389 5 7 405  None None None  810 392 394  100 99 394  347 657 412  7 389 15 7 405  None None None  (m) 0.32 0.01  (m) 0.33 0.01  (m) 0.3 0.0 0.1  B A A 105  B A A 105  Number of the service of t	Peak Hour Factor	0.75	0.75	0.82	0.82	0.88	0.88	
None   None   None   None   None	Hourly flow rate (vph)	0	7	386	2	7	405	
None   None   None   None   None	Pedestrians							
None None None   None   None   None   None   None   None	Lane Width (m)							
None None None None (1) (1) (2) (3) (3) (3) (3) (3) (3) (4) (4) (5) (4) (5) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	Walking Speed (m/s)							
None   None   None     99	Percent Blockage							
None None None (1) 99 99 99 99 99 99 99 99 99 99 99 99 99	Right turn flare (veh)							
ed 810 392 394  ne 810 392 394  ld 810 392 394  ld 810 392 394  lt 6.4 6.2 4.1  lt 6.4 6.2 4.1  lt 6.9 99 99  lt 0 99 99  lt 6.7 67  lt 165  l	Median type			None			None	
ed 810 392 394  lol 810 394  lol 810 392 394  lol 810 392 394  lol 810 392 394  lol 810 392	Median storage veh)							
ed 810 392 394  ne 810 392 394  l 810 392 399  3.5 3.3 2.2  4.1 4.1  6.4 6.2 4.1  1.0 99 99  347 667 1165  WB 1 NB 1 SB 1  7 394 412  0 0 7  7 5 0 0  657 1700 1166  0.01 0.23 0.01  (m) 0.3 0.0 0.1  10.5 0.0 0.2  B A A  10.5 0.0 0.2	Upstream signal (m)			66				
810 392 394     1	pX, platoon unblocked							
Section   Sect	vC, conflicting volume	810	392			394		
810 392 394   394   41   64 6.2 4.1   41   64 6.2 4.1   41   64 6.2 4.1   41   64 6.2 4.1   65 6.2   65 7	vC1, stage 1 conf vol							
810 392 394 6.4 6.2 4.1 3.5 3.3 2.2 100 99 99 347 657 1165 7 39 412 7 5 0 7 657 1700 1165 0.01 0.23 0.01 10.5 0.0 0.2 B A A 10.	vC2, stage 2 conf vol							
8.4 6.2 4.1  3.5 3.3 2.2  100 99 99 99  347 667 1165  WB 1 NB 1 SB 1  7 394 412  0 0 7  7 5 0 7  687 1700 1165  0.01 0.23 0.01  10.5 0.0 0.2  B A A  10.5 0.0 0.2  B A  10.5	vCu, unblocked vol	810	392			394		
3.5 3.3 2.2 100 99 99 99 347 657 1165  WB 1 NB 1 SB 1 7 394 412 7 394 412 7 0 0 7 7 0 0 7 7 0 0 0 7 7 0 0 0 0 857 1700 1165 0.01 0.23 0.01 10.5 0.0 0.2 B A 10.	tC, single (s)	6.4	6.2			4.1		
3.5 3.3 2.2  3.6 99 99 99  347 687 1165  WB 1 NB 1 SB 1 1165  7 394 412  7 394 412  7 5 6 0  657 7700 1165  0.01 0.23 0.01  (m) 0.3 0.0 0.1  10.5 0.0 0.2  B A 10.5 0.0 0.2  B A 2 10.5 0.0 0.2  B A 3.5% ICU Level of Service  15 3.5% ICU Level of Service  16 0.0 0.2  17 0.2 0.0 0.2  18 A 10.5 0.0 0.2  19 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tC, 2 stage (s)							
100 99 99  347 657 1165  WB1 NB1 SB1 1165  7 39 412  0 0 7  657 1700 1165  0.01 0.23 0.01  10.5 0.0 0.2  B A A  10.5 0.0 0.2  B A A  10.5 0.0 0.2  B A A  10.5 0.0 0.2  10.5 0.0 0.2  10.5 1.05 0.0 1.2  10	tF (s)	3.5	33			2.2		
MB1 NB1 SB1 1165  WB1 NB1 SB1 1165  7 394 412  0 0 7  7 5 0 7  657 1700 1165  0.01 0.23 0.01  (m) 0.3 0.0 0.1  B A 10.5 0.0 0.2  B A 10.5	p0 queue free %	100	66			66		
tion, Lane #         WB 1         NB 1         SB 1           ne Total         7         394         412           ne Left         0         7         7           ne Right         7         5         0           ne to Capacity         0.01         0.23         0.01           ne to Capacity         0.01         0.2         0.02           LOS         10.5         0.0         0.2           LOS         B         A         A           aceton Delay (s)         10.5         0.0         0.2           aceton Delay (s)         10.5         0.0         0.2           aceton Delay (s)         10.5         0.0         0.2           aceton Capacity Utilization         33.5%         ICU Level of Service	cM capacity (veh/h)	347	657			1165		
ne Total 7 394 412  ne Left 0 0 7  ne Right 7 0 0 7  ne Right 7 0 0 7  ne to Capacity 0.01 0.23 0.01  ne to Capacity 0.01 0.23 0.01  ne to Capacity 0.01 0.2 0.0  LOS B A A  oach Delay (s) 10.5 0.0 0.2  and LOS B A A  section Summary 0.2  section Summary 0.2  section Summary 0.2  section Capacity Utilization 3.3.5% ICU Level of Service	Direction, Lane #	WB 1	NB 1	SB 1				
ne Left 0 0 7  ne Right 7 5 6  ne Right 657 7700 1165  ne to Capacity 0.01 0.23 0.01  ne Length 95th (m) 0.3 0.0 0.1  LOS 0.0 0.2  LOS B A  act Delay (s) 10.5 0.0 0.2  act LOS B  act LOS B  act LOS B  act Cos	Volume Total	7	394	412				
ne Right 67 15 0  65 1700 1165  ne to Capacity 0.01 0.23 0.01  ne Length 95th (m) 0.3 0.0 0.1  rol Delay (s) 10.5 0.0 0.2  and Delay (s) 10.5 0.0 0.2  and Delay (s) 10.5 0.0 0.2  and LOS B A  section Summary 0.2  section Summary 0.3  10.3 0.0 0.2  10.3 0.0 0.2  10.3 0.0 0.2  10.3 0.0 0.3  10.5 0	Volume Left	0	0	7				
657 1700 1165 ne to Capacity 0.01 0.23 0.01 ne Length 95th (m) 0.3 0.0 0.1 LOS 0.0 0.2 LOS B A A Asach Delay (s) 10.5 0.0 0.2 section Summary 0.2 section Summary 0.2 section Capacity Utilization 3.3.5% ICU Level of Service 15st Service 15s	Volume Right	7	2	0				
0.01 0.23 0.01 0.3 0.0 0.1 10.5 0.0 0.2 B A 10.5 0.0 0.2	SSH	657	1700	1165				
0.3 0.0 0.1 10.5 0.0 0.2 B A 10.5 0.0 0.2 B B 0.2 0.2 0.2 1.2 1.2 1.2 1.2 1.2 1.2 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	Volume to Capacity	0.01	0.23	0.01				
ay (s) 10.5 0.0 0.2  B A A  etay (s) 10.5 0.0 0.2  Summany 0.2  Each of Utilization 3.3.5% ICU Level of Service ind (min) 15	Queue Length 95th (m)	0.3	0.0	0.1				
B A A	Control Delay (s)	10.5	0.0	0.2				
elay (s) 10.5 0.0 0.2  OS B 0.0 0.2  Summary 0.2  Expectly Utilization 33.5% ICU Level of Service riod (min) 15	Lane LOS	В		∢				
# 0.2 CU Level of Service 15	Approach Delay (s)	10.5	0.0	0.2				
v 0.2 Utilization 33.5% ICU Level of Service 15	Approach LOS	В						
0.2 Utilization 33.5% ICU Level of Service 15	Intersection Summary							
Utilization 33.5% ICU Level of Service 15	Average Delay			0.2				
	Intersection Capacity Utilization			33.5%	<u>ರ</u>	Level of		
	Analysis Period (min)			15				

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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	1	Ť	-	ļ	1	•	۶	-	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		4	
Traffic Volume (vph)	5	7	13	92	37	279	89	268	
Future Volume (vph)	2	7	13	18	37	279	89	268	
Turn Type	Perm	¥	Perm	¥	Perm	¥	Perm	¥	
Protected Phases		4		∞		7		9	
Permitted Phases	4		∞		2		9		
Detector Phase	4	4	∞	∞	2	2	9	9	
Switch Phase									
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Minimum Split (s)	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	
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		4.5		4.5		4.5		4.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Мах	
Act Effct Green (s)		8.9		8.9		26.1		26.1	
Actuated g/C Ratio		0.19		0.19		0.72		0.72	
v/c Ratio		0.15		0.33		0.39		0.38	
Control Delay		9.7		9.1		5.4		5.8	
Queue Delay		0.0		0.0		0.2		0.0	
Total Delay		9.7		9.1		5.6		5.8	
SOT		٧		⋖		⋖		⋖	
Approach Delay		7.6		9.1		5.6		2.8	
Approach LOS		∢		∢		¥		4	
Intersection Summary									
Cycle Length: 45									
Actuated Cycle Length: 36.3									
Natural Cycle: 50									
Control Type: Semi Act-Uncoord	ord								
Maximum v/c Ratio: 0.39									
Intersection Signal Delay: 6.2	~			프	Intersection LOS: A	LOS: A			
Intersection Capacity Utilization 46.7%	ion 46.7%			೨	U Level o	CU Level of Service A	V.		
Analysis Period (min) 15									

Splits and Phases: 4: Queen Street North & Robinson Street



185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis 4: Queen Street North & Robinson Street

<e><Existing> Weekday AM Peak Hour
08-15-2024

HCM Unsignalized Intersection Capacity Analysis 5: Metcalfe Street South/Site Access 1 & Robinson Street

<Existing> Weekday AM Peak Hour \*

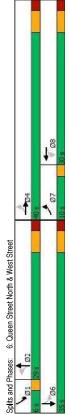
1900   1900	100   100	<b>\</b> i	† 1	<b>/</b>	<b>&gt;</b>	Į į	<b>4</b>	<b>√</b>	<b>-</b>	•	<u>*</u>	<b>→</b> !	<b>&gt;</b> 5
4.5         4.6 <td>4.5         4.6<td>EBL</td><td>EBT</td><td>EBK</td><td>WBL</td><td>WBT</td><td>WBR</td><td>NBL</td><td>NBT</td><td>NBR</td><td>SBL</td><td>SBT</td><td>SBR</td></td>	4.5         4.6 <td>EBL</td> <td>EBT</td> <td>EBK</td> <td>WBL</td> <td>WBT</td> <td>WBR</td> <td>NBL</td> <td>NBT</td> <td>NBR</td> <td>SBL</td> <td>SBT</td> <td>SBR</td>	EBL	EBT	EBK	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
7         24         13         18         39         37         279         87         68         268           4.5         13         18         39         37         279         87         68         268           4.5         130         1900         1000         <	7 7 24 13 18 39 37 279 87 68 268 445 100 1900 1900 1900 1900 1900 1900 1900					÷			÷			÷	
1907   130   18   39   37   279   87   68   268   145   14	1900   1900	2		54	13	9	33	37	279	87	89	268	20
4,5         4,5 <td>  1900  </td> <td>2</td> <td></td> <td>74</td> <td>73</td> <td>9</td> <td>99</td> <td>37</td> <td>279</td> <td>87</td> <td>89</td> <td>768</td> <td>20</td>	1900   1900	2		74	73	9	99	37	279	87	89	768	20
4.5         4.5 <td>4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5<td>1900</td><td></td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td></td>	4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5         4.4         4.5 <td>1900</td> <td></td> <td>1900</td>	1900		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
100 1,00 1,00 1,00 1,00 1,00 1,00 1,00	100 1,00 1,00 1,00 1,00 1,00 1,00 1,00		4.5			4.5			4.5			4.5	
0.91 0.93 0.97 0.99 0.99 1.09 0.99 0.99 0.99 1685 1707 1800 0.99 1686 0.92 0.94 0.94 0.88 1610 1.108 0.92 0.94 0.94 0.88 1610 33 22 30 65 44 332 104 82 323 0.73 0.60 0.60 0.84 0.84 0.83 0.83 0.73 0.73 0.60 0.65 0.44 0.84 0.83 0.83 0.74 0.75 0.60 0.60 0.84 0.84 0.83 0.83 0.75 0.70 0.60 0.84 0.84 0.88 0.83 0.75 0.70 0.60 0.84 0.84 0.83 0.83 0.75 0.70 0.60 0.84 0.84 0.83 0.83 0.75 0.70 0.60 0.84 0.84 0.83 0.83 0.75 0.70 0.60 0.84 0.84 0.83 0.83 0.75 0.70 0.60 0.84 0.84 0.83 0.83 0.75 0.75 0.60 0.84 0.84 0.88 0.83 0.75 0.75 0.60 0.84 0.84 0.83 0.83 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.71 0.72 0.72 0.64 0.64 0.64 0.71 0.72 0.72 0.64 0.64 0.74 0.72 0.72 0.74 0.74 0.73 0.73 0.74 0.75 0.75 0.75 0.75 0.75 0.74 0.75	0.91 0.93 0.97 0.99 0.99 1707 1800 0.99 1685 1707 1800 0.99 1610 1588 1707 1800 1831 0.73 0.73 0.60 0.60 0.84 0.84 0.83 0.83 0.73 0.73 0.60 0.60 0.84 0.84 0.83 0.83 0.73 0.73 0.60 0.60 0.84 0.84 0.83 0.83 0.29 0 0 57 0 0 13 0 0 3 0.21 0 0 57 0 0 477 0 42 0.12 0 0 57 0 0 477 0 42 0.13 0.13 0.13 0 0 33 0.14 4.7 4.7 4.7 24.4 24.4 24.4 0.12 0.12 0.12 0.64 0.64 0.64 0.10 0.10 0.31 0.03 1.0 0.10 0.31 0.043 0.042 0.11 0.031 0.043 0.043 0.01 0.031 0.043 0.043 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.041 0.042 0.041 0.041 0.041 0.041 0.041 0.043 0.041 0.041 0.041 0.041 0.041 0.044 0.041 0.041 0.041 0.041 0.041 0.044 0.041 0.041 0.041 0.041 0.041 0.044 0.041 0.041 0.041 0.041 0.041 0.041 0.044 0.041		9.			0.1			1.00			1.00	
1,00   0.99   0.99   1,00   0.99   1,00   0.99   0.99   1,00   1,00	100   0.99   0.99   1.00   1.00   1		0.91			0.93			0.97			0.99	
1685   1707   1800   1831   1610   1615   1610   1625   1706   1610   1616   1610   1616   1610   1616   1610   1616   1610	1685   1707   1800   1831   1685   1707   1800   1831   1616   1616   1628   1706   1616		0.99			0.99			1.00			0.99	
0.95   0.92   0.94   0.98	0.95   0.92   0.94   0.98   0.98   0.98   0.98   0.98   0.98   0.98   0.73   0.60   0.60   0.84   0.84   0.83   0.83   0.83   0.83   0.25   0.90   0.94   0.94   0.85   0.83   0.83   0.83   0.25   0.90   0.95   0.94   0.95		1685			1707			1800			1831	
1610   1588	1510   1588		0.95			0.92			0.94			98.0	
9         0.73         0.60         0.60         0.64         0.84         0.84         0.84         0.84         0.83         0.84         0.89         0.84         0.84         0.84         0.84         0.84         0.84         0.83         0.84         0.84         0.83         0.84         0.	9         0,73         0,60         0,60         0,60         0,84         0,84         0,84         0,83         0,83         23         37         10         32         32         33         104         82         33         33         104         82         33         33         104         82         33         33         104         82         32         33         33         104         82         32         33         33         33         33         33         33         33         33         33         33         34         426		1610			1588			1706			1588	
7         10         33         22         30         65         44         332         104         82         323           2         9         0         67         0         0         456         0         0         426           1         A         A         B         C         0         456         0         0         426           4         A         B         B         C         A46         B         B         A46         B         A46         A46 <td>10 33 22 30 65 44 332 104 82 323 2 30 2 2 9 0 0 67 0 0 13 0 0 2 3 3 2 2 3 0 65 44 332 104 82 323 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3</td> <td>0.73</td> <td></td> <td>0.73</td> <td>09.0</td> <td>09.0</td> <td>09.0</td> <td>0.84</td> <td>0.84</td> <td>0.84</td> <td>0.83</td> <td>0.83</td> <td>0.83</td>	10 33 22 30 65 44 332 104 82 323 2 30 2 2 9 0 0 67 0 0 13 0 0 2 3 3 2 2 3 0 65 44 332 104 82 323 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0.73		0.73	09.0	09.0	09.0	0.84	0.84	0.84	0.83	0.83	0.83
29 0 0 57 0 0 13 0 0  21 0 0 60 0 0 0 0 0  21 0 0 60 0 0 0 0 0 0  4 A Perm NA	29 0 0 57 0 0 13 0 0 21 0 0 60 0 0 467 0 0 31 0 0 60 0 0 60 0 4 4 8 8 2 2 6 4 4 4 7 4 7 244 3.0 4.5 4.5 8 B B A A 1.0 1.0 1.0 0.2 0.9 1.2 1.2 1.2 1.2 1.2 1.3 1.3 1.3 1.3 1.3 1.3 1.3 3.1 Sum of lost time (s) 4.7	7		33	22	30	92	4	332	104	82	323	54
21         0         60         0         467         0           1         NA         Perm         NA         Perm         O           4         4         8         2         6           4.7         4.7         2.44         5           4.7         4.7         2.44         5           0.12         0.12         0.64         5           4.5         4.5         4.5         4.5           3.0         3.0         3.0         3.0           1.98         1.95         1.092         1           0.01         0.02         0.03         1.00         1.00           0.1         0.00         1.00         1.00         1.00           0.2         0.9         1.2         A         A           1.5.1         16.1         4.6         A           B         B         A         A         A           1.5.1         1.01         A         A         A           1.5.1         1.5.1         4.6         A         A           1.5.1         1.00         1.00         A         A           1.5.1         1.01         A </td <td>21 0 60 0 467 0 0  1 NA Perm NA Perm NA Perm  4 A 8 8 2 2 6  4 7 4 7 244  4 1 0.12 0.12 0.64  4 5 3.0 3.0 3.0  198 152 34  1.00 0.01 0.004  0.01 0.004 0.027  0.01 0.004 0.027  0.01 0.004 1.00  0.2 0.09 1.00  1.2 0.01  1.2 0.04  1.5 1 16.1 4.6  B B B A A A A A A A A A A A A A A A A</td> <td>0</td> <td></td> <td>0</td> <td>0</td> <td>22</td> <td>0</td> <td>0</td> <td>13</td> <td>0</td> <td>0</td> <td>က</td> <td>0</td>	21 0 60 0 467 0 0  1 NA Perm NA Perm NA Perm  4 A 8 8 2 2 6  4 7 4 7 244  4 1 0.12 0.12 0.64  4 5 3.0 3.0 3.0  198 152 34  1.00 0.01 0.004  0.01 0.004 0.027  0.01 0.004 0.027  0.01 0.004 1.00  0.2 0.09 1.00  1.2 0.01  1.2 0.04  1.5 1 16.1 4.6  B B B A A A A A A A A A A A A A A A A	0		0	0	22	0	0	13	0	0	က	0
1         NA         Perm         NA         Perm           4         4         8         2         6           4         8         2         6         6           4         4.7         4.7         24.4         6         6           0.12         0.12         0.64         6         6         6           4.7         4.7         24.4         6         <	1         NA         Perm         NA         Perm           4         4         8         2         6           4         8         2         6         6           4         4         7         24.4         6           6.12         0.12         0.64         6         6           4.5         4.5         4.5         4.5         6           3.0         3.0         3.0         3.0         3.0           1.98         1.95         1.092         1         1           0.01         0.04         0.027         0.43         0.43         0.43           1.00         1.00         1.00         1.00         1.00         0.0         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.6         1.2         0.0	0		0	0	90	0	0	467	0	0	426	0
4         8         8         2         6           47         8         8         2         6           47         4.7         24.4         6           4.7         4.7         24.4         6           0.12         0.12         0.64         6           4.5         4.5         4.5         4.5           3.0         3.0         3.0         3.0           1.98         1.95         1.092         1           0.01         0.04         0.27         0           0.1         0.31         0.43         1.00           1.00         0.3         1.00         1.00           0.2         0.9         1.2         1.0           1.5.1         16.1         4.6         A           1.5.1         16.1         4.6         A           1.5.1         16.1         4.6         A           1.5.1         1.00         1.00         1.00           0.2         0.9         1.2         1.2           1.5.1         1.6.1         4.6         A           6.4         HCM 2000 Level of Service         A         A           1.5	4 8 8 2 2 6 4 4 7 4.7 24.4 4.7 4.7 24.4 6.12 0.12 0.64 6.13 0.01 0.02 0.64 6.01 0.004 0.027 6.01 0.031 0.43 14.8 15.2 3.4 10.0 0.9 1.0 6.2 0.9 1.2 15.1 16.1 4.6 B B A A 15.1 16.1 A 16	Perm			Perm	NA		Perm	NA		Perm	NA	
4         8         2         6           47         47         24.4         6           47         4,7         24.4         6           0.12         0.12         0.64         6           4.5         4.5         4.5         6           4.5         4.5         4.5         6           3.0         3.0         3.0         3.0           198         195         1092         1           0.01         0.031         0.43         6           1.00         0.31         0.43         1           1.00         1.00         1.00         1.00           0.2         0.9         1.2         8           1.5.1         16.1         4.6         8           1.5.1         16.1         4.6         8           1.5.1         16.1         4.6         8           1.5.1         18.1         A         A           6.4         HCM 2000 Level of Service         A         A           8.3         1.0         1.0         0.0           1.5         1.0         1.0         0.0           1.5         1.0         1.0	47         8         2         6           47         47         24.4         6           47         47         24.4         6           0.12         0.12         24.4         6           4.5         4.5         24.4         6           4.5         4.5         24.4         6           4.5         4.5         24.4         6           3.0         3.0         3.0         6           198         195         1092         1           0.01         0.04         1092         1           0.01         0.027         0.43         1           0.02         0.03         1.0         1.00           0.2         0.9         1.2         1           1.0         1.00         1.00         1.00           0.2         1.6.1         4.6         A           B         B         A         A           6.4         HCM 2000 Level of Service         A           6.4         HCM 2000 Level of Service         A           6.4         HCM 2000 Level of Service         A		4			∞			7			9	
4.7 4.7 244 4.7 244 4.7 244 6.4 4.5 244 6.4 4.5 24.4 6.4 4.5 24.4 6.4 4.5 24.4 6.4 4.5 24.4 6.4 4.5 24.4 6.4 1.00 6.2 6.04 6.9 1.00 6.2 6.9 1.2 6.4 16.1 6.1 6.4 16.1 6.1 6.4 16.1 0.3 1 6.1 0.3 1 6	4.7 4.7 244 4.7 244 4.7 244 4.7 244 4.5 0.12 0.044 4.5 4.5 4.5 4.5 3.0 3.0 3.0 198 195 1092 11 0.01 0.0.04 0.0.27 0.01 0.0.04 152 3.4 1.00 0.9 1.2 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 4.6 15.1 16.1 16.1 4.6 15.1 16.1 16.1 4.6 15.1 16.1 16.1 4.6 15.1 16.1 16.1 4.6 15.1 16.1 16.1 16.1 16.1 16.1 16.1 16.1	4			∞			2			9		
4,7 4,7 24,4 4,5 4,7 24,4 4,5 4,5 4,5 3.0 3.0 3.0 198 195 1092 1 198 15,2 1092 1 14,8 15,2 3,4 1,0 0,3 1,0 0,0 0,2 0,9 1,2 15,1 16,1 4,6 15,1 16,1 4,6 15,1 16,1 4,6 15,1 16,1 4,6 15,1 16,1 1,0 10,1 10,0 10,2 0,9 1,2 15,1 16,1 4,6 15,1 16,1 4,6 15,1 16,1 4,6 15,1 16,1 4,6 16,1 16,1 4,6 16,1 16,1 16,1 4,6 16,1 16,1 16,1 4,6 16,1 16,1 16,1 4,6 17,8 10,0 Level of Service A 15,7% ICU Level of Service A	4.7 4.7 244 6.12 0.12 0.64 6.4 4.5 4.5 6.01 0.004 0.027 6.01 0.004 0.027 6.01 0.031 0.043 6.0 1.00 1.00 6.2 0.9 1.2 6.4 HCM 2001 Level of Service  6.5 15.1 8 B A A A A A A A A A A A A A A A A A A		4.7			4.7			24.4			24.4	
0.12 0.04  4.5 4.5 4.5 0.04  4.5 3.0 3.0 3.0  1.98 195 1092 11  0.01 0.031 0.43  14.8 15.2 3.4  1.00 0.3 3.4  1.00 0.9 1.2  15.1 16.1 4.6  B B A A  15.1 16.1 4.6  B B A A  15.1 Sum of lost time (s) 9.0  46.7% I/U Level of Service A  15.1 Sum of lost time (s) 9.0	0.12 0.04 4.5 4.5 4.5 3.0 3.0 3.0 1.98 195 1092 11 0.01 0.004 0.027 0.11 0.31 0.43 14.8 15.2 3.4 1.00 1.00 1.00 0.2 0.9 1.2 15.1 16.1 4.6 B B A A B B A A B B A A B B A A B B A A B B A A B B A A B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B A A B B B B A A B B B A A B B B A A B B B A A B B B B A A B B B B A A B B B B A A B B B B A A B B B B A A B B B B A A B B B B A A B B B B B A A B B B B B B A A B B B B B B A B B B B B B B A B		4.7			4.7			24.4			24.4	
4.5     4.5     4.5       3.0     3.0     3.0       198     195     1092       101     0.004     0.027       0.01     0.004     0.027       0.11     0.031     0.43       1.00     1.00     1.00       0.2     0.9     1.2       15.1     16.1     4.6       B     B     A       15.1     16.1     4.6       B     A     A       6.4     HCM 2000 Level of Service     A       0.41     Sum of lost time (s)     9.0       46.7%     ICU Level of Service     A       46.7%     ICU Level of Service     A	4.5     4.5     4.5       3.0     3.0     3.0       198     195     1092       10.1     0.04     0.027       0.11     0.03     0.043       1.00     0.03     0.043       1.00     1.00     1.00       0.2     0.09     1.2       15.1     16.1     4.6       B     B     A       15.1     16.1     4.6       B     A     A       15.1     16.1     4.6       B     A     A       6.4     HCM 2000 Level of Service     A       6.5     10.1 Level of Service     A       46.7%     10.1 Level of Service     A		0.12			0.12			0.64			0.64	
3.0 3.0 3.0 3.0 3.0 198 198 1995 1092 11 1092 11 1002 11 1002 11 1003	3.0 3.0 3.0 3.0 3.0 198 198 198 198 1992 11 1092 1 1 1092 1 1 1092 1 1 1 1092 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		4.5			4.5			4.5			4.5	
198 195 1092 11 0.01	0.01		3.0			3.0			3.0			3.0	
0.01	0.01		198			195			1092			1016	
0.01 0.004 0.027 0.01 0.0004 0.027 14.8 15.2 3.4 0.43 1.00 1.00 1.00 0.2 0.9 1.2 15.1 16.1 4.6 B A A B 6.4 HCM 2000 Level of Service A 0.41 Sum of lost time (s) 9.0 46.7% ICU Level of Service A 15.7% ICU Level of Service A	0.01 0.004 0.027 14.8 15.2 3.4 0.43 1.00 1.00 1.00 1.00 0.2 0.9 1.2 15.1 16.1 4.6 B B A A 15.1 A.6 15.1 16.1 A.6 15.1 16.1 A.6 B A A 15.1 A.6 B A 1												
0.11 0.31 0.43 0.44 0.43 0.44 0.44 0.44 0.44 0.44	0.11 0.31 0.43 1.44 1.48 1.52 3.44 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1		0.01			c0.04			c0.27			0.27	
14.8 15.2 3.4 1.00 1.00 1.00 0.2 0.9 1.2 15.1 16.1 4.6 15.1 16.1 4.6 16.4 HCM 2000 Level of Service A 15.1 Sum of lost time (s) 9.0 15.2 0.41 15.1 Sum of lost time (s) 9.0 15.2 0.41 15.3 I Sum of lost time (s) 9.0	14.8 15.2 3.4 1.00 1.00 1.00 0.2 0.9 1.2 15.1 16.1 4.6 B A A 16.1 A 4.6 B B A A A A A A A A A A A A A A A A A A		0.11			0.31			0.43			0.42	
1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		14.8			15.2			3.4			3.4	
0.2 0.9 1.2 15.1 16.1 4.6 B B A A 15.1 16.1 4.6 B A A 15.1 16.1 4.6 B A A A A A A A A A A A A A A A	15.1 16.1 4.6 B H A A B A A B A B A A B A B A B A B B B A A B		1.00			1.00			1.00			1.00	
15.1 16.1 4.6 B A A A A B A A A B A A A A A A A A A A	15.1 16.1 4.6 B A A A A B A A B A A A B A A B A B A A B A B A B A A B A B A A B A B A A B		0.7			6.0			1.2			1.3	
B	S		12.1			16.1			4.6			4.6	
15.1 16.1 4.6 B A A  6.4 HCM 2000 Level of Service A  0.41 Sum of lost time (s) 9.0 46.7% ICU Level of Service A  15.7 15.0 Level of Service A  15.7 15.0 Level of Service A  16.7 15.0 Level of Service A  17.0 Level of Service A	15.1 16.1 4.6 B A A 6.4 HCM 2000 Level of Service A 0.41 Sum of lost time (s) 9.0 46.7% ICU Level of Service A 15		മ			മ			⋖			⋖	
B B A 6.4 HCM 2000 Level of Service A 0.41 Sum of lost time (s) 9.0 46.7% ICU Level of Service A 15	6.4 HCM 2000 Level of Service A 6.4 hCm 2000 Level of Service A 38.1 Sum of lost time (s) 9.0 46.7% ICU Level of Service A 15		12.1			16.1			4.6			4.6	
6.4 HCM 2000 Level of Service 0.41 Sum of lost time (s) 46.7% ICU Level of Service 15	6.4 HCM 2000 Level of Service 0.41 Sum of lost time (s) 46.7% ICU Level of Service 15		В			В			∢			A	
6.4 HCM 2000 Level of Service 0.41 Sum of lost time (s) 46.7% ICU Level of Service 15	6.4 HCM 2000 Level of Service 0.41 Sum of lost time (s) 46.7% ICU Level of Service 15												
0.41 Sum of lost time (s) 38.1 Sum of lost time (s) 46.7% ICU Level of Service 15	0.41 Sum of lost time (s) 38.1 Sum of Level of Service 15			6.4	\( \)	CM 2000 L	evel of S	ervice		∢			
38.1 Sum of lost time (s) 46.7% ICU Level of Service 15	38.1 Sum of lost time (s) 48.7% ICU Level of Service 15	city ratio		0.41									
46.7% ICU Level of Service 15	46.7% ICU Level of Service 15			38.1	nS.	ım of lost	time (s)			9.0			
15	15	ation		46.7%	೨	U Level of	Service			¥			
				15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.
185 Robinson Street, C Trans-Plan Inc.

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Movement	EB	EBT	EB	WBL	WBT	WBR	图	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	0	158	4	17	89	9	2	0	Ξ	-	0	0
Future Volume (Veh/h)	0	158	4	17	89	9	7	0	Ξ	-	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.25	0.25	0.25	0.62	0.62	0.62
Hourly flow rate (vph)	0	190	2	23	92	∞	8	0	44	2	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)		107										
pX, platoon unblocked												
vC, conflicting volume	100			195			334	338	192	378	337	96
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	9			195			334	338	192	378	337	96
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	33	3.5	4.0	3.3
p0 queue free %	100			86			66	100	92	100	100	100
cM capacity (veh/h)	1493			1378			611	573	849	545	574	096
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	195	123	52	2								
Volume Left	0	23	∞	2								
Volume Right	2	∞	4	0								
SSH	1493	1378	801	542								
Volume to Capacity	0.00	0.02	90.0	0.00								
Queue Length 95th (m)	0.0	0.4	1.7	0.1								
Control Delay (s)	0.0	1.5	9.8	11.7								
Lane LOS		∢	∢	ω								
Approach Delay (s)	0.0	1.5	9.8	11.7								
Approach LOS			∢	В								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization	tion		26.8%	೨	U Level o	ICU Level of Service			¥			
Analysis Period (min)			15									

Timings <Existing> Weekday AM Peak Hour 6: Queen Street North & West Street 08-15-2024

<b>†</b>	SBT	£3	189	189	¥	9		9		29.0	35.0	35.0	9.7%	4.0	2.0	0.0	0.9			Max	29.0	0.52	0.37	9.6	1.6	10.2	മ	9.6	A									
٠	SBL	¥	37	37	pm+pt	-	9	-			0.9			2.0	0.0	0.0	2.0	Lead	Yes	None	33.0	0.59	0.07	5.2	0.0	5.2	⋖										<b></b>	
	NBT	42	211	211	¥	7		7		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Max	26.6	0.48	0.36	11.2	0.0	11.2	ш	1.1	В							LOS: B	ICU Level of Service B	
•	NBL	K	27	27	Perm		2	7		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Max	56.6	0.48	0.07	10.0	0.0	10.0	⋖									Intersection LOS: B	U Level o	
Ţ	WBT	AT.	48	48	ž	∞		∞		15.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	None	15.0	0.27	0.12	14.3	0.0	14.3	Ω	14.3	Ф							드	೨	
-	WBL		52	52	Perm		∞	∞		15.0	30.0	30.0	40.0%	4.0	2.0			Lag	Yes	None																		
Ť	EBT	A.D.	48	48	¥	4		4		15.0	28.0	40.0	53.3%	4.0	2.0	0.0	0.9			None	15.0	0.27	0.45	15.8	0.0	15.8	В	15.8	В									
1	EB		180	180	pm+pt	7	4	7		5.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None														ord		7	on 57.4%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 56	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.45	Intersection Signal Delay: 12.2	Intersection Capacity Utilization 57.4%	Analysis Period (min) 15



<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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Synchro 11 Report Page 7

HCM Signalized Intersection Capacity Analysis <a href="#"><Existing> Weekday AM Peak Hour 6: Queen Street North & West Street</a>

Movement         EBI         EBI         WBI         WBI         MBI         NBI         NBI         NBI         NBI         NBI         NBI         SBI         SBI         SBI         SBI         TBI         TB			¥2	ŝ					-	0			
figurations         4Th         6Th         4Th         4Th <th< td=""><td>Movement</td><td>EBF</td><td>EBT</td><td>EBR</td><td>WBL</td><td>WBT</td><td>WBR</td><td>NBL</td><td>NBT</td><td>NBR</td><td>SBL</td><td>SBT</td><td>SBR</td></th<>	Movement	EBF	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lime (vph)         180         48         69         25         48         12         27         211         43         37         189           Lime (vph)         180         48         69         25         48         12         27         211         43         37         189           Lime (sh)         180         180         1900 </td <td>Lane Configurations</td> <td></td> <td>AT.</td> <td></td> <td></td> <td>AT.</td> <td></td> <td>*</td> <td>43</td> <td></td> <td>je.</td> <td>43</td> <td></td>	Lane Configurations		AT.			AT.		*	43		je.	43	
Name (wph)   180   48   69   25   48   12   27   211   43   37   189	Traffic Volume (vph)	180	48	69	52	48	12	27	211	43	37	189	79
(yph)         1900 <t< td=""><td>Future Volume (vph)</td><td>180</td><td>48</td><td>69</td><td>22</td><td>48</td><td>12</td><td>27</td><td>211</td><td>43</td><td>37</td><td>189</td><td>79</td></t<>	Future Volume (vph)	180	48	69	22	48	12	27	211	43	37	189	79
time (s)         6.0         6	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         0.95         0.05         1.00         <	Total Lost time (s)		0.0			0.9		0.9	0.9		2.0	0.9	
ted (197) (198) (198) (199) (197) (199) (1	Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
ted         0.97         0.99         0.95         1.00         0.95         1.00           ted         0.77         3414         177         1816         177         1816         1770         1816         1770         1816         1780           ted         0.78         0.78         0.25         1.00         0.53         1.00         0.53         1.00           ted         0.78         0.28         0.88         0.88         0.82         0.82         0.82         0.82         0.87         1.780           (vph)         0.0         50         0.0         1.0         0.0         7         0         0.78         1.780           up Flow (vph)         0.0         50         0.0         1.0         0.0         7         0         0.78	Ŧ		0.97			0.98		1.00	0.97		1.00	96.0	
V(pot)         3316         3414         1770         1816         1770         1780           V(pem)         2758         0.75         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.081         0.082         0.082         0.082         0.082         0.082         0.082         0.082         0.082         0.078         0.778 <td>Fit Protected</td> <td></td> <td>0.97</td> <td></td> <td></td> <td>0.99</td> <td></td> <td>0.95</td> <td>1.00</td> <td></td> <td>0.95</td> <td>0.</td> <td></td>	Fit Protected		0.97			0.99		0.95	1.00		0.95	0.	
ted         0,76         0,81         0,65         1,00         0,63         1,00           Ve/permil         2,865         2782         1032         1033         1816         979         1780           Ve/permil         2,056         365         78         27         202         0.82         0.82         0.78         0.7         0.82         0.7         0.7         0         0         17         0 <td< td=""><td>Satd. Flow (prot)</td><td></td><td>3316</td><td></td><td></td><td>3414</td><td></td><td>1770</td><td>1816</td><td></td><td>1770</td><td>1780</td><td></td></td<>	Satd. Flow (prot)		3316			3414		1770	1816		1770	1780	
V(perm)         2585         2792         1033         1816         979         1780           reador, PHF         0.88         0.88         0.89         0.92         0.92         0.92         0.92         0.82         0.82         0.78         0.78         27         242         242         4         242         4         242         4         242         4         242         4         242         4         242         4         7         24         242         4         7         24         242<	Fit Permitted		0.76			0.81		0.55	1.00		0.53	1.00	
reactor, PHF         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.82         0.82         0.82         0.78	Satd. Flow (perm)		2585			2792		1033	1816		979	1780	
(vph)         205         55         78         27         52         47         242           up.Flow (vph)         0         56         0         10         0         7         0         16           up.Flow (vph)         0         288         0         17         0         0         16           p. Phases         p. Phases         4         Perm         NA         Perm         NA         pm-pt         NA         Perm         NA         pm-pt         NA         Perm         NA         NA         Perm         NA         Perm         NA         Perm         NA         NA <t< td=""><td>Peak-hour factor, PHF</td><td>0.88</td><td>0.88</td><td>0.88</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.82</td><td>0.82</td><td>0.82</td><td>0.78</td><td>0.78</td><td>0.78</td></t<>	Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.78	0.78	0.78
duction (vph)         0         50         0         10         0         7         0         0           up Flow (vph)         0         288         0         0         82         0         33         302         0         47           Phases         7         A         Perm         NA         Perm         NA         Perm	Adj. Flow (vph)	202	22	28	27	25	13	33	257	25	47	242	5
up Flow (vph)         0         288         0         0         82         0         33         302         0         47           Phases         7         4         Perm         NA         Perm         NA         pm-rpt           Phases         7         4         8         8         2         6         6           Green, C(s)         15.0         15.0         15.0         25.6         25.6         30.2           Green, C(s)         15.0         15.0         15.0         25.0         26.6         26.6         30.2           Green, C(s)         6.0         6.0         6.0         6.0         6.0         6.0         30.2           Strine (s)         6.0         6.0         6.0         6.0         6.0         6.0         30.2           Attension (s)         3.0         6.0 <t< td=""><td>RTOR Reduction (vph)</td><td>0</td><td>20</td><td>0</td><td>0</td><td>9</td><td>0</td><td>0</td><td>7</td><td>0</td><td>0</td><td>16</td><td>J</td></t<>	RTOR Reduction (vph)	0	20	0	0	9	0	0	7	0	0	16	J
Phases         pm-pt         NA         Perm         NA         Perm         Phases         1         Phases         1         Phases         1         Phases         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         2         2         2         2         6         7	Lane Group Flow (vph)	0	288	0	0	82	0	33	302	0	47	327	C
Phases         7         4         8         2         1           Phases         4         8         2         2         1           Phases         4         150         150         266         266         302           Green, g(s)         150         150         266         266         302         302           Green, g(s)         150         150         260         266         266         302         302           3 Final         30         6.0         6.0         6.0         6.0         6.0         2.0         302         302           A Final         6.7         7.32         480         844         5.39         2.0 <td>Turn Type</td> <td>pm+pt</td> <td>NA</td> <td></td> <td>Perm</td> <td>NA</td> <td></td> <td>Perm</td> <td>N</td> <td></td> <td>pm+pt</td> <td>ΑN</td> <td></td>	Turn Type	pm+pt	NA		Perm	NA		Perm	N		pm+pt	ΑN	
Phases   4   8   8   6   6     Clear (5(s)   15.0   15.0   26.6   26.6   26.5     Clear (5(s)   15.0   15.0   26.6   26.6   30.2     Clear (5(s)   15.0   15.0   26.6   26.6   30.2     Clear (5(s)   16.0   16.0   16.0   10.0     Clear (4(s)   16.0   10.0   10.0   10.0     Clear (4(s)   16.0   16.0   10.0   10.0     Clear (4(s)   16.0   16.1   10.0   10.0   10.0     Clear (5(s)   16.0   16.1   10.0   10.0   10.0     Clear (5(s)   16.0   16.1   10.0   10.0   10.0     Clear (5(s)   16.1   10.0   10.0   10.0   10.0     Clear (6(s)   16.1   10.0   10.0   10.0   10.0   10.0   10.0     Clear (6(s)   16.1   10.0	Protected Phases	7	4			∞			7		<b>—</b>	9	
Green, G (s)         15.0         15.0         15.0         26.5         26.5         30.2           Steen, g (s)         15.0         15.0         26.6         26.6         30.2           Stem (s)         6.0         6.0         6.0         6.0         6.0         5.0           Attension (s)         6.0         6.0         6.0         6.0         6.0         2.0           Attension (s)         6.0         6.0         6.0         6.0         6.0         5.0           Attension (s)         6.0         6.0         6.0         6.0         6.0         5.0           Attension (s)         6.7         7.32         4.80         8.44         5.39           Proof         6.0         6.0         6.0         6.0         6.0         6.0           Perm         6.1         7.32         4.80         8.4         8.3         8.6         6.0           Perm         6.1         6.0<	Permitted Phases	4			∞			2			9		
State (s)         (15.0)         (15.0)         (26.5)         (26.5)         (26.5)         (26.5)         (26.5)         (26.5)         (27.	Actuated Green, G (s)		15.0			15.0		56.6	26.6		30.2	30.2	
g/C Ratio         0.26         0.26         0.47         0.47         0.43           s I Time (s)         6.0         6.0         6.0         6.0         2.0           Cap (vph)         6.7         7.32         480         844         5.39           Prot         7.2         480         844         5.39         0.04           Prot         7.3         7.3         8.4         5.39         0.04         0.04         0.07         0.04 <td>Effective Green, g (s)</td> <td></td> <td>15.0</td> <td></td> <td></td> <td>15.0</td> <td></td> <td>56.6</td> <td>26.6</td> <td></td> <td>30.2</td> <td>30.2</td> <td></td>	Effective Green, g (s)		15.0			15.0		56.6	26.6		30.2	30.2	
Time (s)         6.0         6.0         6.0         5.0           Atension (s)         3.0         3.0         3.0         3.0           Atension (s)         6.7         7.32         4.80         6.7         3.0           Cage (vph)         67.7         7.32         4.80         6.17         0.00         0.0           Prof.         0.11         0.03         0.03         0.03         0.04         0.00         0.00           Perm         0.13         0.03         0.03         0.03         0.04         0.00         0.00           Peley, d.1         17.5         16.0         1.00         1.00         1.00         1.00         1.00           An Edy, d.1         1.00         1.00         1.00         1.00         1.00         1.00         1.00           An Edy, d.1         1.00	Actuated g/C Ratio		0.26			0.26		0.47	0.47		0.53	0.53	
Attension (s)         3.0         5.3         4.0         0.0         <	Clearance Time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
Cap (vph)         677         732         480         844         539           Proft         Cot         0.11         0.03         0.00         0.	Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Prot Prot Capacity ratio 0.011 0.029 0.03 0.017 0.00 0.04  Perm 0.0.11 0.007 0.036 0.004  Out 0.013 0.017 0.036 0.009  Out 0.014 0.07 0.35 0.009  Interview 0.014 0.01 1.00 1.00 1.00  Interview 0.014 0.03 1.2 0.01  Early (s) 18.0 16.1 8.7 11.0 6.7  Early (s) 18.0 16.0 16.1 16.0 16.1 6.7  Early (s) 18.0 16.1 16.0 16.0	Lane Grp Cap (vph)		229			732		480	844		539	939	
Perm         c0.11         0.03         0.03         0.04           Pelay, d1         7.5         0.11         0.07         0.36         0.09           No Factor         1.00         1.00         1.00         1.00         1.00         1.00           Isabelay, d2         0.4         0.1         0.1         0.1         0.1         0.1           Renvies         B         B         A         B         A           Delay (s)         18.0         16.1         A         B         A           LOS         B         A         B         A         A           Delay (s)         B         B         A         B         A           Delay (s)         B         Control Delay         B         B         A           A control Delay         12.5         HCM 2000 Level of Service         B         B           Ovole Length (s)         57.2         Sum of lost time (s)         B         B           A control Capacity Utilization         57.4         ICU Level of Service         B         B	v/s Ratio Prot								0.17		0.00	c0.18	
17.5   17.7	v/s Ratio Perm		00.11			0.03		0.03			0.04		
17.5   16.0   8.5   9.8   6.6     17.5   16.0   8.5   9.8   6.6     18.0   1.00   1.00   1.00   1.00     18.0   18.0   16.1   8.7   11.0   6.7     18.0   18.0   16.1   8.7   11.0   6.7     18.0   18.0   16.1   8.7   11.0   6.7     18.0   18.0   16.1   8.7   11.0   6.7     18.0   18.0   16.1   8.8   8   8     18.0   18.0   16.1   10.8     18.0   18.0   18.0     18.0   18.0   18.0     18.0   18.0   18.0     18.0   18.0   18.0     18.0   18.0	v/c Ratio		0.43			0.11		0.07	0.36		0.09	0.35	
on Factor         1,00         1,00         1,00         1,00           lat Delay, d2         0,4         0,1         0,1         0,0         1,00           envice         B         B         B         A         B         A           Delay (s)         18.0         16.1         8.7         11.0         6.7           LOS         B         A         B         A         B         A           LOS         B         B         A         B         A         B         A           LOS         B         B         B         B         B         B         B           Ovelume to Capacity ratio         0.41         LOU Level of Service         B         B         B           Ovele Length (s)         57.2         Sum of lost time (s)         16.0         B           An Capacity Utilization         57.4%         ICU Level of Service         B	Uniform Delay, d1		17.5			16.0		8.5	8.6		9.9	7.8	
Isin Delay, d2	Progression Factor		9			1.00		90	1.00		1.00	00.	
18.0   16.1   18.7   11.0   6.7	Incremental Delay, d2		0.4			0.1		0.3	1.2		0.1	1.0	
18.0 16.1 10.8 A B A B A B B A B B B B B B B B B B B	Delay (s)		18.0			16.1		8.7	11.0		6.7	8.8	
18.0 16.1 10.8 B 12.5 HCM 2000 Level of Service B 57.2 Sum of lost time (s) 16.0 57.4% ICU Level of Service B 57.4% ICU Level of Ser	Level of Service		മ			а		⋖	В		⋖	∢	
12.5 HCM 2000 Level of Service 0.41 57.2 Sum of lost time (s) 57.4% ICU Level of Service 157.4%	Approach Delay (s)		18.0			16.1			10.8			9.8	
12.5 HCM 2000 Level of Service 0.41 57.2 Sum of lost time (s) 57.4% ICU Level of Service 15	Approach LOS		മ			В			В			∢	
12.5 HCM 2000 Level of Service 0.41 57.2 Sum of lost time (s) 57.4% ICU Level of Service 15	Intersection Summary												
0.41 57.2 Sum of lost time (s) 57.4% ICU Level of Service 15	HCM 2000 Control Delay			12.5	Н	3M 2000	Level of S	ervice		В			
57.2 Sum of bost time (s) 57.4% ICU Level of Service 15	HCM 2000 Volume to Capa	acity ratio		0.41									
57.4% ICU Level of Service 15	Actuated Cycle Length (s)			57.2	જ	ım of lost	time (s)			16.0			
Analysis Period (min) 15	Intersection Capacity Utiliza	ation		57.4%	೨	U Level o	of Service			В			
	Analysis Period (min)			4									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <Existing> Weekday AM Peak Hour 7: Metcalfe Street South & West Street

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Movement	EBF	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	9	88	30	2	73	က	0	0	0	-	14	12
Future Volume (Veh/h)	10	88	30	2	73	က	0	0	0	1	14	12
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
Hourly flow rate (vph)	12	106	36	2	74	က	0	0	0	4	26	48
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	11			142			310	235	124	234	252	9/
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			142			310	235	124	234	252	9/
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	66			100			100	100	100	66	91	95
cM capacity (veh/h)	1522			1441			299	658	927	715	644	986
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	154	82	0	108								
Volume Left	12	2	0	4								
Volume Right	36	က	0	48								
CSH	1522	1441	1700	765								
Volume to Capacity	0.01	0.00	0.01	0.14								
Queue Length 95th (m)	0.2	0.1	0.0	3.9								
Control Delay (s)	9.0	0.5	0.0	10.5								
Lane LOS	∢	∢	∢	മ								
Approach Delay (s)	9.0	0.5	0.0	10.5								
Approach LOS			⋖	Ф								
Intersection Summary												
Average Delay			3.7	2								
Intersection Capacity Utilization			19.6%	<u> </u>	CU Level of Service	Service			⋖			
Analysis Period (min)			ဂ									

185 Robinson Street, Community of Simcoe (Norfolk County), ON
Trans-Plan Inc.
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<Existing> Weekday PM Peak Hour 08-15-2024 HCM Unsignalized Intersection Capacity Analysis 1: Queen Street North & Union Street

Wovenent EBL anne Configurations Traffic Volume (vehrln) 5 Sign Control 5 Sign Control 6 Sign Control 6 Sign Control 7 Sign Control 8 Sign Sign Control 8 Sign Sign Sign Sign Sign Sign Sign Sign	36. 98.	11 EBR 3 14 14 17 EBR 4 4 17 4 4 17 4 4 17 8 18 492	WBL 12 12 12	WBT 11	WBR	NBL	NBT 334	NBR	SBL	SBT <del>4</del>	SBR
0.8			12 12	<b>⇔</b> =			334			4	
8.0			12 12	Ξ			334				
8.0			12		8	16		15	21	431	3
			d	1	8	16	334	15	21	431	က
				Stop			Free			Free	
			0	%0			%0			%0	
			0.82	0.82	0.82	0.91	0.91	0.91	0.88	0.88	0.88
ans thr (m) Speed (m/s) Slockage In flare (veh) Free Totage veh)			15	13	41	9	367	16	74	490	က
tth (m) Speed (m/s) Slockage n flare (veh) ype torage veh)											
Speed (m/s) Blockage n flare (veh) ype storage veh)											
Blockage n flare (veh) ype storage veh)											
n flare (veh) ype storage veh)											
ype storage veh)											
storage veh)							None			None	
Jpstream signal (m)							315				
AC, conflicting volume 998			920	952	375	493			383		
/C1, stage 1 conf vol											
AC2, stage 2 conf vol											
/Cu, unblocked vol 998	8 958	8 492	970	952	375	493			383		
			7.1	6.5	6.2	4.1			4.1		
C, 2 stage (s)											
			3.5	4.0	3.3	2.2			2.2		
of queue free % 97	2 98	8 97	83	92	8	86			86		
oM capacity (veh/h) 19:			217	250	671	1071			1175		
Direction, Lane # EB 1	1 WB1	1 NB1	SB 1								
/olume Total 2		9 401	517								
	6 15		54								
Volume Right 17			က								
			1175								
	8 0.18	8 0.02	0.02								
Queue Length 95th (m) 2.1			0.5								
ay (s)			9.0								
Lane LOS C		V C	⋖								
Approach Delay (s) 16.0	0 16.6		9.0								
Approach LOS (	ပ ပ	O									
ntersection Summary											
Average Delay		2.1									
ntersection Capacity Utilization		41.5%	<u> </u>	ICU Level of Service	f Service			⋖			
Analysis Period (min)		15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

n Capacity Analysis	/ Anal	ysis		<exis< th=""><th><existing> Weekday PM Peak Hour</existing></th><th>eekday</th><th>PM Pea</th><th>ık Hour</th></exis<>	<existing> Weekday PM Peak Hour</existing>	eekday	PM Pea	ık Hour
hall Lane/Site Access	Site A	ssess	က				0	08-15-2024
1	١	ţ	*	4	+		زا	7

Movement         EBI         EBI         EBI         WBI         WBI         NBI         NBI         NBI         NBI         SBI         SBI         SBI         SBI         SBI         SBI         LBI         Table         Add         Add </th <th></th> <th>1</th> <th>Ť</th> <th>1</th> <th>-</th> <th>ţ</th> <th>1</th> <th>•</th> <th></th> <th>•</th> <th>٠</th> <th>-</th> <th>*</th>		1	Ť	1	-	ţ	1	•		•	٠	-	*
1	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
9 0 10 0 444  Shop	Lane Configurations		4			4			4			4	
918 91 0 10 0 0 1 8 355 0 0 444    Sop	Traffic Volume (veh/h)	6	0	10	0	0	-	∞	322	0	0	444	13
Stop   Stop   Stop   Free	Future Volume (Veh/h)	6	0	10	0	0	-	∞	355	0	0	444	13
0.25 0.25 0.25 0.26 0.56 0.96 0.92 0.92 0.92 0.88 0.88 0.88 0.88 0.88 0.88 0.88 0.8	Sign Control		Stop			Stop			Free			Free	
918 916 512 956 924 386 520	Grade		%0			%0			%0			%0	
36 0 40 0 2 9 386 0 0 505  None  None  177  177  918 916 512 956 924 386 520 386  7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  250 270 562 219 267 682 1046  180 10.0 93 100 100 100 99 1100  250 270 562 219 267 662 1046  180 0.22 0.00 15 0.0  C B A OLLEVEL of Service  180 10.5 0.3 0.0  C B A OLLEVEL of Service  180 10.5 0.3 0.0  180 10.5 0.3 0.0  C B A OLLEVEL of Service  180 10.5 0.3 0.0  180 10.5 0.3 0.0  180 10.5 0.3 0.0  180 10.5 0.3 0.0  180 10.5 0.3 0.0  180 10.5 0.3 0.0	Peak Hour Factor	0.25	0.25	0.25	0.56	0.56	0.56	0.92	0.92	0.92	0.88	0.88	0.88
918 916 512 956 924 386 520 386 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 2.2 86 70 6.92 19 267 662 1046 1172 76 2 395 520 76 2 395 520 76 2 395 520 77 6 2 395 520 78 662 1046 1172 78 6.2 1046 1172 79 70 15 70 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Hourly flow rate (vph)	36	0	40	0	0	2	6	386	0	0	505	15
918 916 512 956 924 386 520 386 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1 3.5 4.0 33 3.5 4.0 33 2.2 2.2 86 100 93 100 100 100 99 1100 250 250 271 6.5 6.2 1046 1172 1172 1180 10.5 0.0 0.0 0.0 1 6.4 0.1 0.2 0.0 1 6.4 0.1 0.2 0.0 1 6.4 0.1 0.2 0.0 1 6.4 0.1 0.2 0.0 1 6.4 0.1 0.2 0.0 1 6.4 0.1 0.3 0.0 1 780 10.5 0.3 0.0 1 8 180 10.5 0.3 0.0 1 9 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0 1 180 10.5 0.3 0.0	Pedestrians												
None  918 916 512 956 924 386 520 386  7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2 2.2  86 100 93 100 100 100 99 100  250 270 562 219 267 662 1046 1172  76 2 99 0  76 39 520  77 6 90 0 15 00  86 4 0.1 0.2 0.0  C B 15  180 10.5 0.3 0.0  C B 15  115  116 10.5 0.3 0.0  C B 15  117  118 10.5 0.3 0.0  C B 15  118 10.5 0.3 0.0	Lane Width (m)												
918 916 512 956 924 386 520 386 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 93 100 100 100 99 110 250 270 562 219 267 662 1046 1172 88 100 9 0 15 88 100 9 0 0 15 88 100 0.001 0.00 180 10.5 0.3 0.0 C B A A ISB A A ISB A A ISB A IS	Walking Speed (m/s)												
918 916 512 956 924 386 520 386 7.1 6.5 6.2 17.1 6.2 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	Percent Blockage												
Mone   177	Right turn flare (veh)												
918 916 512 956 924 386 520 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 93 100 100 100 99 250 270 562 219 267 662 1046 10 2 395 520 36 0 9 0 40 2 0 15 36 0 9 0 64 0.1 0.2 0.00 64 0.1 0.2 0.00 C B A 158 11.5 11.5  11.5 11.5 11.5  11.77	Median type								None			None	
918 916 512 956 924 386 520  918 916 512 956 924 386 520  7.1 6.5 6.2 7.1 6.5 6.2 4.1  3.5 4.0 3.3 3.5 4.0 33 2.2  8 6 70 93 100 100 99  250 270 562 1046  16 2 395 520  7 6 2 395 520  7 7 6 2 395 520  8 6 2 1046  1 7 7 6 2 395 520  9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Median storage veh)												
918 916 512 956 924 386 520 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 93 100 100 100 99 250 70 562 219 267 662 1046 11 84 0.1 0.2 0.0 1 84 0.1 0.2 0.0 1 85 0.3 0.0 1 86 0.0 1 0.0 1 86 0.0 1 0.0 1 86 0.0 1 0.0 1 87 0.0 1 0.0 1 88 0.0 0.0 1 1 80 0.0 1 0.0 1	Upstream signal (m)								177				
918 916 512 956 924 386 520  7.1 6.5 6.2 7.1 6.5 6.2 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2  86 100 99 100 100 99  250 270 562 219 267 662 1046  1 7.1 8.5 6.2 19.5 6.2 4.1  2 86 100 99 100 100 99  2 80 2 10 100 100 99  3 80 9 0 0  4 0 2 395 520  3 80 0 0 15  3 80 0 0 0  4 0 0.1 0.2 0.00  5 8 0 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 8 0 0 0  5 9 0 0  5	pX, platoon unblocked												
918 916 512 956 924 386 520 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 93 100 100 99 250 270 562 219 267 662 1046  EB1 WB1 NB1 SB1 76 2 395 520 40 2 9 0 40 2 0 115 6.4 0.1 0.00 6.4 0.1 0.2 0.0 7 6 B A 18.0 10.5 0.3 0.0 C B A 18.0 10.5 0.3 0.0	vC, conflicting volume	918	916	512	926	924	386	250			386		
918 916 512 956 924 386 520 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 99 100 99 250 270 562 219 267 662 1046 11 8B 1 18B 1 76 2 395 520 36 0 9 0 15 38 62 1046 1172 10.22 0.00 0.01 0.00 11 0.2 0.0 0.01 0.00 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0 120 10.5 0.3 0.0	vC1, stage 1 conf vol												
918 916 512 956 924 386 520 7:1 6.5 6.2 7:1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 93 100 100 99 250 270 562 219 267 662 1046 76 80 9 0 0 100 100 36 0 9 0 0 15 40 2 106 1172 70 6.4 0.1 0.2 0.0 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 10.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0 70 18.0 19.5 0.3 0.0	vC2, stage 2 conf vol												
7.1 6.5 6.2 7.1 6.5 6.2 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2  8.6 100 9.3 100 100 9.9  250 270 562 219 267 662 1046 1  EB1 WB1 NB1 SB1  40 2 99 0.0  40 9 0 15  383 662 1046 1172  0.22 0.00 0.01 0.00  (m) 6.4 0.1 0.2 0.0  18.0 10.5 0.3 0.0  C B A  18.0 10.5 0.3 0.0  18.0 10.5 0.3 0.0  18.0 10.5 0.3 0.0  18.0 10.5 0.3 0.0  18.0 10.5 0.3 0.0  18.0 10.5 0.3 0.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 0.3 10.0  18.0 10.5 10.5 10.0  18.0 10.5 10.5 10.0  18.0 10.5 10.5 10.0  18.0 10.0  18.0	vCu, unblocked vol	918	916	512	926	924	386	520			386		
3.5 4.0 3.3 3.5 4.0 3.3 2.2 86 100 93 100 100 99 250 270 562 219 267 662 1046 11  EB1 WB1 NB1 SB1 76 2 395 520 40 0 16 333 662 1046 1172 333 662 1046 1172 6.4 0.1 0.00 6.4 0.1 0.2 0.0 6.4 0.1 0.2 0.0 6.4 0.1 0.2 0.0 7.5 0.3 0.0 7.5 0.3 0.0 7.6 B A 18.0 10.5 0.3 0.0 7.7 C B A 15 7.8 A 15 7.9 Ulization 15 7.1 S 15 7.1	tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5 4.0 3.3 3.5 4.0 3.3 2.2 8.6 100 93 100 100 100 99 8.50 270 562 219 267 662 1046 11  EB1 WB1 NB1 SB1 76 2 395 520 36 0 9 0 15 353 662 1046 115 353 662 0.00 0.01 0.00 (m) 6.4 0.1 0.2 0.00 1.0 0.01 0.00 1.0 0.3 0.0 1.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	tC, 2 stage (s)												
86 100 93 100 100 99 100 250 250 270 562 1046 11	tF(s)	3.5	4.0	3.3	3.5	4.0	33	2.2			2.2		
250 270 562 219 267 662 1046  EB 1 WB 1 NB 1 SB 1  76 2 385 520  40 2 0 9 0  40 2 0 1172  522 0.00 0.01 0.00  (m) 64 0.1 0.2 0.0  C B A  18.0 10.5 0.3 10.0  1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	p0 queue free %	98	100	93	100	100	100	66			100		
EB1 WB1 NB1 SB1  76 2 395 520  40 9 0  40 15  353 662 1046 1172  0.22 0.00 0.01 0.00  C B A  18.0 10.5 0.3 0.0  C B A  18.0 10.5 0.3 0.0  C B A  18.0 10.5 0.3 0.0  18.0 10.5 0.3 0.0  18.0 10.5 10.5 0.3 0.0  18.0 10.5 10.5 0.3 0.0  1.5 1.5 ICU Level of Service  1.5 1.5 ICU Level of Service	cM capacity (veh/h)	250	270	295	219	267	662	1046			1172		
76 2 395 520 40 9 0 40 15 333 682 1046 1172 0.22 0.00 0.01 0.00 (m) 6.4 0.1 0.2 0.0 C B A 18.0 10.5 0.3 0.0 C B A 18.0 10.5 0.3 0.0 C B A 18.0 10.5 0.3 0.0 1.5 ICU Level of Service	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
36 0 9 0 363 62 1046 1772 0.22 0.00 0.01 0.00 (m) 6.4 0.1 0.2 0.0 18.0 10.5 0.3 0.0 C B A A 18.0 10.5 0.3 0.0 C B A A 18.0 10.5 0.3 0.0 C B A A 18.0 10.5 0.3 0.0 1.5 ICU Level of Service	Volume Total	9/	2	395	520								
40 2 1046 1172 0.22 0.00 0.011 0.00 (m) 6.4 0.1 0.2 0.0 18.0 10.5 0.3 0.0 C B A A 18.0 10.5 0.3 0.0 C B A I.5  by Utilization 39.6% ICU Level of Service	Volume Left	36	0	6	0								
383 662 1046 1172 (m) 6.42 0.00 0.01 0.00 (m) 18.0 10.2 0.0 (m) 6.44 0.1 0.2 0.0 (m) 6.45 0.1 0.2 0.0 (m) 6.5 0.3 0.0 (m) 6.5 0.3 0.0 (m) 6.5 0.3 0.0 (m) 7.5 0.3 0.0	Volume Right	40	2	0	15								
(m) 6.4 0.1 0.00 6.4 0.1 0.2 0.0 C B A 18.0 10.5 0.3 0.0 C B A 18.0 10.5 0.3 0.0 The service of Service	CSH	353	662	1046	1172								
(m) 6.4 0.1 0.2 0.0 18.0 10.5 0.3 0.0 C B 0.3 0.0 C B 0.3 0.0 T B 0.0 N Utilization 38.6% ICU Level of Service	Volume to Capacity	0.22	0.00	0.01	0.00								
18.0 10.5 0.3 0.0 C B A 18.0 10.5 0.3 0.0 C B  any 1.5 I Ulization 10.5 I 1.5 I U Level of Service	Queue Length 95th (m)	6.4	0.1	0.2	0.0								
18.0 10.5 0.3 0.0 C B A 1.5 Bry 11.5 CU Level of Service 1)	Control Delay (s)	18.0	10.5	0.3	0.0								
18.0 10.5 0.3 0.0 C B	Lane LOS	ပ	ω :	∢ ;									
C B 1.5 1.5 1.6 1.7 1.7 1.7 1.8 1.8 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9	Approach Delay (s)	18.0	10.5	0.3	0.0								
1.5 1.5 Pacity Utilization 39.6% ICU Level of Service ((min) 15	Approach LOS	ပ	В										
1.5 pacity Utilization 39.6% ICU Level of Service ((min) 15	Intersection Summary												
39.6% ICU Level of Service 15	Average Delay			1.5									
	Intersection Capacity Utilization	=		39.6%	೦	U Level o	f Service			∢			
	Analysis Period (min)			15									

<Existing> Weekday PM Peak Hour 08-15-2024 HCM Unsignalized Intersection Capacity Analysis 3: Queen Street North & Site Access 2

MBR NBT NBR SBL  1 362 8 5 1 362 8 5 1 782 8 5 1 862 8 6 2 421 9 6 2 421 9 6 374 430 370 374 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 4.1 6.2 6 6.9 6 6.0 0.1 0.0 0.2 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0.0 0.3 0		<b>/</b>	1	+	•	٠		
Stop Free S 449  Stop Free S 449  Stop O'% 0'% 0'% 0'% 0'% 0'%  0.50 0.50 0.86 0.86 0.88 0.88  0.50 0.50 0.86 0.86 0.88  0.98 0.95 0.95  948 426 430  919 370 374  6.4 6.2 421 9 6 510  8 426 430  99 99  28 643 1100 0.2  8 430 516  6 0 0 6  8 430 516  6 0 0 6  7 1126  1126  1127  1127  1128  112		WBL	WBR	NBT	NBR	SBL	SBT	
3 1 362 8 5 449  Stop Free Co.	urations	N.		Ţ			4	
Stop Free Free  0% 0.50 0.56 0.86 0.88 0.88 6 2 421 9 6 510  0.50 0.50 0.86 0.88 0.88 6 2 421 9 6 510  0.95 0.95 0.95 0.95 919 370 374 6.4 6.2 4.1  8.4 6.2 4.1  8.4 6.2 4.1  8.4 6.2 4.1  8.9 0.95 286 643 3.3  2.2  8.8 100 99 286 643 1126  0.05 0.01  16.0 0.0 0.1  16.1 0.0 0.2  C A  16.1 0.0 0.2  C A  16.1 0.0 0.2  C A  16.1 0.0 0.2  C A  16.1 0.0 0.2  C C A  16.1 0.0 0.2  C C A  16.1 0.0 0.2	ne (veh/h)	က	<del>-</del>	362	8	2	449	
0.95 0.56 0.86 0.88 0.88 0.88 0.88 0.88 0.88 0.8	ne (Veh/h)		-	362 Free	∞	2	449 Free	
0.50 0.50 0.86 0.88 0.88 0.88 0.88 0.88 0.88 0.8		80		%			%J	
6 2 421 9 6 510  None None 99  0.95 948 426 430  919 370 374  6.4 6.2 411  2.85 643 1126  WB 1 NB 1 SB 1 1126  WB 28 60 6 6  6 0 6 6  0 0 6 6  32 1 70 126  0.02 0.1  16.1 0.0 0.2  C A A I A A A I A A A A A A A A A A A A	actor	0.50	0.50	0.86	0.86	0.88	0.88	
None None None 99  0.95  9.94  4.26  9.48  4.26  4.1  6.4  6.4  6.2  9.9  2.85  9.9  2.8	ate (vph)	9	7	421	6	9	510	
None None None None 10.95 9.9 0.95 9.48 4.26 4.30 9.95 9.99 9.99 9.10 9.10 9.10 9.10 9.10 9.10								
None None 99 0.95 0.95 99 0.95 0.95 430 919 370 374 6.4 6.2 4.1 3.5 3.3 2.2 38 100 99 286 643 1126 8 4 0 6 6 0 6 6 0 6 331 1.00 1126 0.02 0.02 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 C C 16.1 0.0 0.2 C A 16.1 0.0 0.2	(m							
None   None   None   None	ed (m/s)							
None None None 99 0.95 948 426 948 426 430 84 41 64 6.2 41 8 410 8 430 99 285 99 285 60 0 331 126 0 0 331 126 0 0 331 126 0 0 331 126 0 0 331 136 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	kage							
None None 99 0.95 0.95 99 0.95 0.95 948 426 430 84 426 430 84 6.2 44.1 8.4 6.2 44.1 8.5 3.3 2.2 88 100 99 286 643 1126 8 6 0 6 8 1 0 0 6 9 31 170 1126 0.02 0.01 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C C A A 16.1	re (veh)							
99 0.95 948 426 430 949 426 430 919 370 374 6.4 6.2 4.1 3.5 3.3 2.2 98 100 99 285 643 1126 6 0 6 6 6 0 6 6 31 1700 1126 0.02 0.01 16.1 0.0 0.2 C A 16.1 0.0 0.2				None			None	
99 948 426 948 426 430 948 426 430 919 370 374 6.4 6.2 4.1 6.4 6.2 4.1 6.4 6.2 4.1 6.4 6.2 4.1 6.4 6.2 6.0 6.0 6.0 331 70 70 70 70 70 70 70 70 70 70 70 70 70	age veh)							
0.95 0.95 0.95 948 426 430 918 370 374 6.4 6.2 4.1 3.5 3.3 2.2 98 100 99 286 643 1126  WB 1 NB 1 SB 1 126 6 0 6 6 6 0 6 6 0.02 1126 0.02 0.1 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C C A A 16.1 0.0 0.2 C C A A 16.1 0.0 0.2 C C A 16.1 0.0 0.2	anal (m)			66				
948 426 430  919 370 374  6.4 6.2 4.1  3.5 3.3 2.2  98 100 99  288 643 1126  WB 1 NB 1 SB 1  8 430  99  28 60 0  8 430  1126  0 0 6  0 0 6  31 1700 1126  0.02 0.01  16.1 0.0 0.2  C A  16.1 0.0 0.2  A  16.1 0.0 0.2  C A  16.1 0.0 0.2	unblocked	0.95	0.95			0.95		
919 370 374 6.4 6.2 4.1 3.5 3.3 2.2 98 643 1126 99 285 643 1126  WB 1 NB 1 SB 1 8 430 516 6 0 6 2 9 0 331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 A 16.1	ig volume	948	426			430		
919 370 374 6.4 6.2 4.1 6.4 6.2 4.1 3.5 3.3 2.2 98 643 1126  WB 1 NB 1 SB 1 8 430 516 6 0 6 2 9 0 331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 1 16.1 0.0 0.2	conf vo							
919 370 374 6.4 6.2 4.1 3.5 3.3 2.2 3.8 100 99 286 643 1126 8 40 6 8 0 6 9 31 126 0.02 0.2 0.1 16.1 0.0 0.2 C A A Idization 37,6% ICU Level of Service	conf vo							
6.4     6.2     4.1       3.5     3.3     2.2       98     100     99       285     64.3     1126       WB 1     NB 1     SB 1       MB 2     516     6       6     0     6       331     1700     1126       0.02     0.01     1126       0.02     0.0     0.1       16.1     0.0     0.2       C     A       16.1     0.0     0.2       C     A       16.1     0.0     0.2       C     A       16.1     0.0     0.2       C     A     A       16.1     0.0     0.2       0.0     0.2     0.0       16.1     0.0     0.2       16.1     0.0     0.2       16.1     0.0     0.2       16.1     0.0     0.2       16.1     0.0     0.0       16.1     0.0     0.0       16.1     0.0     0.0       16.1     0.0     0.0       16.1     0.0     0.0       16.1     0.0     0.0       16.1     0.0     0.0       16.1     0.0 <td< td=""><td>lov bay</td><td>919</td><td>370</td><td></td><td></td><td>374</td><td></td><td></td></td<>	lov bay	919	370			374		
3.5 3.3 2.2 98 100 99 285 643 1126  WB 1 NB 1 SB 1 8 430 516 6 0 6 2 9 0 331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 A 16.1 0.0 0.2 A 16.1 1.0 0.2 A 16.1		6.4	6.2			4.1		
3.5 3.3 2.2 3.8 100 99 285 6 100 8 430 516 6 0 6 2 2 9 0 331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 C C A 16.1 0.0 0.2 C A 16.1 1.0 0.2	s)							
98 100 99 285 643 1126 WB 1 NB 1 SB 1 8 4 0 6 6 0 6 331 0.02 0.01 16.1 0.0 0.2 C A 16.1 0.0		3.5	33			2.2		
285 643 1126  WB 1 NB 1 SB 1  8 430 516  2 0 0  2 0 0  331 1700 1126  0.02 0.25 0.01  0.6 0.0 0.1  16.1 0.0 0.2  C A  16.1 0.0 0.2  C A  16.1 0.0 0.2  C A  16.1 0.0 0.2  A  16.2 0.0 0.2  A  16.3 0.0 0.2  A  16.3 0.0 0.2  A  16.4 0.0 0.2  A  16.5 0.0 0.2  A  16.	% ә	86	100			66		
WB 1 NB 1 SB 1  8 430 516 6 0 6 2 9 0 331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 A 16.1 0.0 0.2 A 16.3 0.0 0.3 A 16.3 0.0 0.3 A 16.4 0.0 0.3 A 16.5 0.0 0.3 A 16.5 0.0 0.3 A 16.6 0.0 0.3 A 16.7 0.0 0.2 A 16.7 0.0 0.2 A 16.7 0.0 0.2 A 16.7 0.0 0.2 A 16.8 0.0 0.2 A 16.9	(veh/h)	285	643			1126		
8 430 516 2 9 0 331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 A 16.1 0.0 0.2 A 16.3 0.02 A 16.4 0.0 0.2 A 16.5 0.02 A 16.6 0.0 0.2 A 16.7 0.02 A 16.7 0.02 A 16.8 0.00 16.9 0.02 A 16.1 0.0 0.2 A 16.1 0.0 0.0 0.2 A 16.1 0	ine #	WB 1	NB 1	SB 1				
6 0 6 2 3 1 700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.3 0.0 16.4 0.0 16.5 0	-	8	430	516				
31 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C A A 16.1 0.0 0.2 16.2 A A 16.3 0.0 0.2 C A A 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C A A A 16.1 0.0 0.2 C A A A A A A A A A A A A A A A A A A A		9	0	9				
331 1700 1126 0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C C 0.2 C 1.2 C 0.2 C 1.2 C 1.2 C 1.2 C 1.2 C 1.2 C 1.3	ıt.	2	6	0				
0.02 0.25 0.01 0.6 0.0 0.1 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.1 0.0 0.2 C A 16.2 0.2 C A 16.3 0.0 17.5%   CU Level of Service		331	1700	1126				
0.6 0.0 0.1 16.1 0.0 0.2 C A A 16.1 0.0 0.2 C C 0.2 C A 16.2 0.0 0.2 16.2 C Level of Service	apacity	0.02	0.25	0.01				
16.1 0.0 0.2 C A 16.1 0.0 0.2 C  V 0.2  Utilization 37.6% ICU Level of Service	rth 95th (m)	9.0	0.0	0.1				
C A (C) 16.1 0.0 0.2 C (C) 16.1 0.0 0.2 C (C) 16.2 C (C	ty (s)	16.1	0.0	0.2				
16.1 0.0 0.2 C 0.2 Utilization 37.6% ICU Level of Service 15		ပ		∢				
C 0.2 Utilization 37.6% ICU Level of Service 16	elay (s)	16.1	0.0	0.2				
0.2 Utilization 37.6% ICU Level of Service 15	SC	ပ						
0.2 Utlization 37.6% ICU Level of Service 15	Summary							
Utilization 37.6% ICU Level of Service 15	ay			0.2				
	Capacity Utilization			37.6%	<u>ರ</u>	J Level of		
	iod (min)			15				

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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<Existing> Weekday PM Peak Hour 08-15-2024

Timings 4: Queen Street North & Robinson Street

	1	Ť	1	ţ	1	+	۶	-	
Lane Group	EBF	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		4	
Traffic Volume (vph)	6	4	38	12	15	308	89	376	
Future Volume (vph)	6	14	38	12	15	308	89	376	
Turn Type	Perm	¥	Perm	¥	Perm	¥	Perm	¥	
Protected Phases		4		∞		7		9	
Permitted Phases	4		∞		2		9		
Detector Phase	4	4	∞	80	7	2	9	9	
Switch Phase									
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Minimum Split (s)	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	
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	10	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	
Total Lost Time (s)		4.5		4.5		4.5		4.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Мах	Max	Max	Max	
Act Effct Green (s)		7.4		7.4		24.2		24.2	
Actuated g/C Ratio		0.20		0.20		0.64		0.64	
v/c Ratio		0.16		0.40		0.38		0.49	
Control Delay		8.3		10.3		0.9		7.7	
Queue Delay		0.0		0.0		0.2		0.0	
Total Delay		8.3		10.3		6.3		7.7	
ros		⋖		<u>a</u>		⋖		×	
Approach Delay		8.3		10.3		6.3		7.7	
Approach LOS		∢		മ		A		∢	
Intersection Summary									
Cycle Length: 45									
Actuated Cycle Length: 37.8									
Natural Cycle: 55									
Control Type: Semi Act-Uncoord	ord								
Maximum v/c Ratio: 0 49									
Intersection Signal Delay: 7.5				프	Intersection LOS: A	LOS: A			
Intersection Capacity Utilization 66.6%	%9.99 uc			೨	CU Level of Service C	f Service	ပ		
Analysis Period (min) 15									

Splits and Phases: 4: Queen Street North & Robinson Street

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185 Robinson Street, Community of Simooe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis <Existing> Weekday PM Peak Hour 4: Queen Street North & Robinson Street

<Existing> Weekday PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis 5: Metcalfe Street South/Site Access 1 & Robinson Street

		S.	200	0.00			-	00			٠	
Movement	EBE	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		4			4			4			Ą	
Fraffic Volume (vph)	6	14	22	38	15	23	15	308	62	89	376	8
-uture Volume (vph)	6	14	22	88	12	23	15	308	62	89	376	00
deal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
ane Util. Factor		1.00			1.00			1.00			1.00	
ı.		0.93			0.93			0.98			1.00	
-It Protected		0.99			0.98			1.00			0.99	
Satd. Flow (prot)		1722			1702			1819			1845	
-It Permitted		0.92			98.0			0.98			0.89	
Satd. Flow (perm)		1607			1482			1781			1658	
Peak-hour factor, PHF	0.82	0.82	0.82	0.75	0.75	0.75	0.89	0.89	0.89	0.87	0.87	0.87
4dj. Flow (vph)	Ξ	17	27	21	16	71	11	346	0.	78	432	6
RTOR Reduction (vph)	0	23	0	0	29	0	0	9	0	0	-	0
ane Group Flow (vph)	0	32	0	0	79	0	0	423	0	0	518	0
Type Type	Perm	N		Perm	NA		Perm	N		Perm	NA	
Protected Phases		4			∞			2			9	
Permitted Phases	4			∞			2			9		
Actuated Green, G (s)		6.3			6.3			23.3			23.3	
Effective Green, g (s)		6.3			6.3			23.3			23.3	
Actuated g/C Ratio		0.16			0.16			09.0			09.0	
Clearance Time (s)		4.5			4.5			4.5			4.5	
(ehicle Extension (s)		3.0			3.0			3.0			3.0	
ane Grp Cap (vph)		262			241			1075			1000	
/s Ratio Prot												
/s Ratio Perm		0.02			c0.05			0.24			c0.31	
//c Ratio		0.12			0.33			0.39			0.52	
Jniform Delay, d1		13.8			14.3			4.0			4.4	
Progression Factor		9			100			1.00			<del>1</del> .00	
ncremental Delay, d2		0.2			0.8			1.			1.9	
Jelay (s)		14.0			15.1			5.1			6.3	
evel of Service		മ			മ			∢			¥	
Approach Delay (s)		14.0			15.1			2.1			6.3	
Approach LOS		В			В			⋖			∢	
ntersection Summary												
HCM 2000 Control Delay			7.3	¥	HCM 2000 Level of Service	evel of S	ervice		∢			
HCM 2000 Volume to Capacity ratio	y ratio		0.48									
Actuated Cycle Length (s)			38.6	DS.	Sum of lost time (s)	time (s)			9.0			
ntersection Capacity Utilization	L.		%9.99	<u> </u>	U Level o	Service			ပ			
Analysis Period (min)			15									

(Norfolk County),	
t, Community of Simcoe (No	
185 Robinson Street, C	Trans-Plan Inc.

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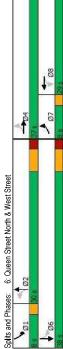
	1	Ť	1	1	ţ	1	•	4-	•	۶	-	•
Movement	盟	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	0	141	2	74	102	က	-	0	12	-	0	0
Future Volume (Veh/h)	0	141	2	74	102	3	-	0	12	-	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		%0	į		%0	0		%0	i		%0	
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.50	0.50	0.50	0.35	0.35	0.35
Hourly flow rate (vph)	0	162	9	27	115	က	7	0	74	က	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)		107										
pX, platoon unblocked												
vC, conflicting volume	118			168			336	337	165	360	338	116
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	118			168			336	337	165	360	338	116
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
fF (s)	2.2			2.2			3.5	4.0	33	3.5	4.0	33
p0 queue free %	90			86			100	100	26	66	100	100
cM capacity (veh/h)	1470			1410			609	573	879	571	572	936
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	168	145	56	3								
Volume Left	0	27	2	က								
Volume Right	9	က	74	0								
HSO	1470	1410	820	571								
Volume to Capacity	0.00	0.02	0.03	0.01								
Queue Length 95th (m)	0.0	0.5	0.8	0.1								
Control Delay (s)	0.0	1.5	9.4	11.3								
Lane LOS		∢	∢	ω								
Approach Delay (s)	0.0	1.5	9.4	11.3								
Approach LOS			∢	В								
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			27.9%	<u>0</u>	U Level o	ICU Level of Service			⋖			
Analysis Period (min)			12									

<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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Timings <Existing> Weekday PM Peak Hour 6: Queen Street North & West Street 08-15-2024

<b>†</b>	SBT	£3,	257	257	AA	9		9		20.0	38.0				2.0		0.9			Мах	32.0	0.50	0.48	11.5	4.8	16.4	മ	15.5	ш									
۶	SBL	#	40	40	pm+pt	-	9	-		2.0	8.0	8.0	10.7%	2.0	0.0	0.0	2.0	Lead	Yes	None	36.0	0.56	0.07	6.7	0.0	6.7	⋖										ш	
	NBT	42	220	220	¥	2		2		20.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	Max	27.2	0.42	0.40	15.2	0.0	15.2	ω	15.0	Ф							LOS: B	f Service	
1	NBL	F	49	49	Perm		2	2		20.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	Max	27.2	0.42	0.14	14.2	0.0	14.2	Ω									Intersection LOS: B	ICU Level of Service E	
Ţ	WBT	AT.	6	6	Ϋ́	∞		∞		20.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	None	20.0	0.31	0.21	12.8	0.0	12.8	Ω	12.8	В							프	೨	
-	WBL		32	32	Perm		∞	∞		20.0	29.0	29.0	38.7%	4.0	2.0			Lag	Yes	None																		
Ť	EBT	AT.	22	22	¥	4		4		20.0	37.0	37.0	49.3%	4.0	2.0	0.0	0.9			None	20.0	0.31	0.34	15.1	0.0	15.1	Ω	15.1	Ф									
1	EBL		125	125	pm+pt	7	4	7		3.5	8.0	8.0	10.7%	2.0	0.0			Lead	Yes	None														ord		6	on 89.1%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ros	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 64	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.48	Intersection Signal Delay: 14.9	Intersection Capacity Utilization 89.1%	Analysis Period (min) 15



185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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Movement         EBL         EBL         EBL         WBL         WBL         WBL         WBL         NBL         NB		\	Ť	~	-		1	1		•	٠	٠	*
figurations         4Th         4Th <th< td=""><td>Movement</td><td>田田</td><td>EBT</td><td>EBR</td><td>WBL</td><td>WBT</td><td>WBR</td><td>NBL</td><td>NBT</td><td>NBR</td><td>SBL</td><td>SBT</td><td>SBR</td></th<>	Movement	田田	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Linne (vph)         125         55         46         35         90         40         49         220         47         40         257           Linne (vph)         125         55         46         35         90         40         49         220         47         40         257           Linne (sh)         6.0         1900         19	Lane Configurations		AT.			A.D.		#	43		je.	43	
Name (vph)   125   54   53   59   40   49   220   47   49   257	Traffic Volume (vph)	125	22	46	32	06	40	49	220	47	40	257	139
(yph)         1900 <t< td=""><td>Future Volume (vph)</td><td>125</td><td>22</td><td>46</td><td>32</td><td>06</td><td>40</td><td>46</td><td>220</td><td>47</td><td>40</td><td>257</td><td>139</td></t<>	Future Volume (vph)	125	22	46	32	06	40	46	220	47	40	257	139
time (s)         6.0         6	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         0.95         0.09         1.00         <	Total Lost time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
ted (197) (196) (197) (196) (197) (196) (197) (196) (197) (196) (197) (196) (197) (196) (197) (196) (197) (196) (197) (196) (197) (1	Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
ted         0.97         0.99         0.55         1.00         0.55         1.00           ted         0.72         0.84         1.77         1814         1.77         174           ted         0.72         0.84         0.85         0.86         0.86         0.86         0.88         0.89         0.71         1764           ted         0.72         0.82         0.86         0.86         0.86         0.86         0.86         0.86         0.86         0.89         0.91         1764           tedenor         152         67         56         41         105         47         8         28         0.86         0.86         0.86         0.86         0.86         0.87         0.91         1764         44         413           ted (vph)         0         240         0         0         161         0         8         0.91         0.94         1764         44         413           ted (vph)         0         240         0         0         161         0         9         0         0         0         0         0         0         0         0         0         0         0         0         0	Ft		0.97			96.0		1.00	0.97		1.00	0.95	
V(prot)         3339         3374         1770         1814         1770         1764           red         0.72         0.84         0.51         1.00         0.49         1.00         0.79         1.00         1.04         1.04         1.04         1.04         1.04         1.04         1.04         1.04         1.00	FIt Protected		0.97			0.99		0.95	0.		0.95	0.	
ted         0 72         0.84         0.51         1.00         0.49         1.00           Velpermil         2476         286         0.86 <td< td=""><td>Satd. Flow (prot)</td><td></td><td>3339</td><td></td><td></td><td>3374</td><td></td><td>1770</td><td>1814</td><td></td><td>1770</td><td>1764</td><td></td></td<>	Satd. Flow (prot)		3339			3374		1770	1814		1770	1764	
V(perm)         2476         2862         956         1814         918         1764           reador, PHF         0.82         0.85         0.86         0.85         0.85         0.85         0.85         0.85         0.91         1764           (vph)         152         67         64         1         105         6         9         0         0         22           up Flow (vph)         0         240         0         0         32         0         0         9         0         0         22           up Flow (vph)         0         240         0         161         0         8         305         0         4         4         413           phases         4         Perm         NA         Perm	Fit Permitted		0.72			0.84		0.51	1.00		0.49	1.00	
reactor, PHF         0.82         0.85         0.86         0.89	Satd. Flow (perm)		2476			2862		920	1814		918	1764	
(vph)         152         67         56         41         105         47         58         259         55         44         282           duction (vph)         0         240         0         0         22         0         9         0         0         22           duction (vph)         0         240         0         161         0         161         0         161         0         9         0         0         22           Phases         7         4         Perm         NA         Perm         NA         pm+pt         413           Phases         4         200         200         200         27.2         27.2         32.8         32.8           Green, G(s)         200         200         200         27.2         27.2         32.8         32.8           Green, G(s)         200         20.2         20.0         27.2         27.2         32.8         32.8           Green, G(s)         200         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0         6.0 <th< td=""><td>Peak-hour factor, PHF</td><td>0.82</td><td>0.82</td><td>0.82</td><td>98.0</td><td>98.0</td><td>98.0</td><td>0.85</td><td>0.85</td><td>0.85</td><td>0.91</td><td>0.91</td><td>0.91</td></th<>	Peak-hour factor, PHF	0.82	0.82	0.82	98.0	98.0	98.0	0.85	0.85	0.85	0.91	0.91	0.91
duction (vph)         0         35         0         0         32         0         0         24         4 4 413           pup Flow (vph)         pn +pt         NA         Perm         NA         NA         Perm         NA         NA <th< td=""><td>Adj. Flow (vph)</td><td>152</td><td>29</td><td>26</td><td>41</td><td>105</td><td>47</td><td>28</td><td>259</td><td>22</td><td>44</td><td>282</td><td>153</td></th<>	Adj. Flow (vph)	152	29	26	41	105	47	28	259	22	44	282	153
up Flow (vph)         0         161         0         58         305         0         44           by Plases         Pment         NA         Perm         NA         Perm         Pment           Phases         4         Perm         NA         Perm         NA         pm-pt           Phases         7         4         8         20         2         6         6           Green, G(s)         200         200         200         27.2         27.2         27.2         32.8	RTOR Reduction (vph)	0	32	0	0	32	0	0	6	0	0	22	0
Phases         PA         Perm         NA         Perm         NA         pm-pt           Phases         7         4         8         2         1           Phases         4         8         2         1           Phases         4         8         2         6           Green, G(s)         20.0         20.0         27.2         27.2         32.8           Green, G(s)         20.0         20.0         27.2         27.2         32.8         32.8           Green, G(s)         0.31         0.31         0.31         0.42         0.42         0.51         32.8           GCed Ratio         0.31         0.31         0.31         0.42         0.42         0.51         32.0 <td>Lane Group Flow (vph)</td> <td>0</td> <td>240</td> <td>0</td> <td>0</td> <td>161</td> <td>0</td> <td>28</td> <td>302</td> <td>0</td> <td>44</td> <td>413</td> <td>0</td>	Lane Group Flow (vph)	0	240	0	0	161	0	28	302	0	44	413	0
Phases         7         4         8         2         1           Phases         4         8         2         2         1           Phases         4         8         2         2         1           Gene (s)         200         200         27.2         27.2         32.8           Green (s)         200         200         27.2         27.2         32.8           3 chen (s)         6.0         6.0         6.0         6.0         6.0         2.0           2 chen (s)         6.0         6.0         6.0         6.0         6.0         2.0           Cap (vph)         764         883         398         761         512           Pot         6.0         6.0         6.0         6.0         6.0         6.0         6.0           Cap (vph)         764         883         398         761         512         2.0           Permission (s)         0.31         0.18         0.15         0.0         0.0         0.0           Permission (s)         1.00         1.00         1.00         1.00         0.0         0.0         0.0           Permission (s)         1.00         1.00	Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	ΑN	
Phases   4   8   8   2   2   6     Glean (6)   200   27.2   27.2   27.2   32.8     Glean (16)   200   200   200   200     Glean (16)   200   200   200     Glean (10)   200   200   200	Protected Phases	7	4			∞			2		-	9	
Green, G(s)         20.0         20.0         27.2         27.2         32.8           3cen, g(s)         20.0         20.0         27.2         27.2         32.8           3cen, g(s)         20.0         20.0         27.2         27.2         32.8           Atension (s)         6.0         6.0         6.0         6.0         6.0         5.0           Atension (s)         3.0         3.0         3.0         3.0         3.0         3.0           Atension (s)         6.0         6.0         6.0         6.0         6.0         6.0         5.0           Atension (s)         764         883         398         761         6.0         5.0           Perm         0.01         0.06         0.06         0.0         7.0         0.04           Perm         0.31         0.16         1.00         1.00         1.00         1.00           Atend         1.02         1.00         1.00         1.00         1.00         1.00           Atende         B         B         B         B         A           Delay (s)         1.74         HCM 2000 Level of Service         B         A           Atender	Permitted Phases	4			∞			2			9		
Green g (s)         20.0         20.0         27.2         27.2         27.2         32.8           Grade (s)         6.0         6.0         6.0         6.0         6.0         20.           Atension (s)         3.0         3.0         3.0         3.0         3.0         3.0           Atension (s)         3.0         883         398         761         512           Prot         2.0         3.0         3.0         3.0         3.0           Prot         0.10         0.06         0.17         0.00           Perm         0.31         0.18         0.15         0.0           Perm         0.31         0.18         0.15         0.0           Perm         0.31         0.18         0.15         0.0           Perm         0.1         1.00         1.00         1.00         0.0           Atend         1.0         1.0         1.0         1.0         0.0         0.0           Atend         1.0         1.0         1.0         1.0         1.0         0.0         0.0         0.0           Atend         1.0         1.0         1.0         1.0         1.0         0.0         0.0 <td>Actuated Green, G (s)</td> <td></td> <td>20.0</td> <td></td> <td></td> <td>20.0</td> <td></td> <td>27.2</td> <td>27.2</td> <td></td> <td>32.8</td> <td>32.8</td> <td></td>	Actuated Green, G (s)		20.0			20.0		27.2	27.2		32.8	32.8	
Figure   Control Delay   Con	Effective Green, g (s)		20.0			20.0		27.2	27.2		32.8	32.8	
Time (s)         6.0         6.0         6.0         5.0           Atension (s)         3.0         3.0         3.0         3.0           Atension (s)         3.0         3.0         3.0         3.0           Atension (s)         764         883         3.8         761         512           Prof.         6.0         883         3.8         761         512           Prof.         6.0         0.06         0.07         0.07         0.00           Perm         6.1         0.06         0.06         0.06         0.09           Atelor         17.1         16.4         11.6         13.1         8.2           Atelor         1.00         1.00         1.00         1.00         1.00           Atelor         1.7         1.6         1.2         4.1         8.3           Atelor         1.7         1.6         1.0         1.00         1.00         1.00           Atelor         1.7         1.6         1.2         4.3         1.4         4.3         A           Atelor         1.7         1.6         1.0         1.0         1.0         1.0           Atelor         1.0 <th< td=""><td>Actuated g/C Ratio</td><td></td><td>0.31</td><td></td><td></td><td>0.31</td><td></td><td>0.42</td><td>0.42</td><td></td><td>0.51</td><td>0.51</td><td></td></th<>	Actuated g/C Ratio		0.31			0.31		0.42	0.42		0.51	0.51	
Attension (s)         3.0         <	Clearance Time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
Cap (vph)         764         883         398         761         512           Proft         Proft         0.10         0.00	Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Prot Control Delay (a) 15 (a) 16 (b) 17 (b) 0.00 (c) 0.04 (c) 0.05	Lane Grp Cap (vph)		764			883		398	761		512	892	
Perm         Cl.10         D.06         D.04         D.04           Pelay, d1         77.1         16.4         0.15         0.40         0.09           Pelay, d1         77.1         16.4         1.05         0.40         0.09           on Factor         1.00         1.00         1.00         1.00         1.00           istable, d2         0.2         0.1         0.1         0.1         0.1         0.1           istable, d2         0.2         0.1         0.8         1.6         0.1         1.00           lenvice         B         B         B         B         B         A         A           LCS         B         B         B         B         A         A         A         A           LCS         B         B         B         B         A         B         A           M Summary         14.3         HCM 2000 Level of Service         B         B         B         A           O.Volume to Capacity ratio         0.44         CALL capacity service         B         B         B         B           O.Control Data         64.8         Sum of lost time (s)         16.0         B         B	v/s Ratio Prot								0.17		0.00	c0.23	
1,1	v/s Ratio Perm		c0.10			90.0		90.0			0.04		
17.1   16.4   11.5   13.1   8.2	v/c Ratio		0.31			0.18		0.15	0.40		0.09	0.46	
on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Uniform Delay, d1		17.1			16.4		11.6	13.1		8.2	10.3	
Interpolary, d2	Progression Factor		90.			1.00		1.00	90.		1.00	00.	
17.4   16.5   12.4   14.7   8.3	Incremental Delay, d2		0.2			0.1		0.8	1.6		0.1	1.7	
17.4   16.5   14.3	Delay (s)		17.4			16.5		12.4	14.7		8.3	12.0	
17.4 16.5 14.3 B B B B B B B B B B B B B B B B B B B	Level of Service		œ			ш		<b>B</b>	В		V	В	
14.3 HCM 2000 Level of Service 0.44 Sum of lost time (s) 89.1% ICU Level of Service 15	Approach Delay (s)		17.4			16.5			14.3			11.7	
14.3 HCM 2000 Level of Service 0.44 Sum of lost time (s) 89.1% ICU Level of Service 15	Approach LOS		В			В			В			В	
14.3 HCM 2000 Level of Service 0.44 6.4.8 Sum of lost time (s) 89.1% ICU Level of Service 15	Intersection Summary												
0,44 64.8 Sum of lost time (s) 89.1% ICU Level of Service 15	HCM 2000 Control Delay			14.3	Н	<b>SM 2000</b>	Level of S	Service		В			
64.8 Sum of bot time (s) 89.1% ICU Level of Service 15	HCM 2000 Volume to Capa	acity ratio		0.44									
89.1% ICU Level of Service 15	Actuated Cycle Length (s)			64.8	ઝ	ım of lost	time (s)			16.0			
Analysis Period (min) 15	Intersection Capacity Utiliza	ation		89.1%	೨	U Level o	of Service			ш			
	Analysis Parind (min)			7									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <Existing> Weekday PM Peak Hour 7: Metcalfe Street South & West Street 08-15-2024

	80	Ť	•			,			L		٠	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		4			4			4			4	
raffic Volume (veh/h)	∞	122	12	12	146	4	-	-	က	က	∞	18
-uture Volume (Veh/h)	œ	122	12	12	146	4	-	-	က	က	∞	9
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.82	0.82	0.82	0.80	0.80	0.80	0.91	0.91	0.91	0.75	0.75	0.75
Hourly flow rate (vph)	9	149	15	15	182	22	-	-	က	4	Ξ	24
Pedestrians												
ane Width (m)												
Nalking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
X, platoon unblocked												
/C, conflicting volume	187			164			420	394	156	394	398	184
AC1, stage 1 conf vol												
vC2, stage 2 conf vol												
/Cu, unblocked vol	187			164			420	394	156	394	398	184
.C, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
C, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
on gueue free %	66			66			100	100	100	66	86	97
cM capacity (veh/h)	1387			1414			513	533	888	222	230	828
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
/olume Total	174	202	2	33								
/olume Left	9	15	-	4								
/olume Right	15	2	က	74								
	1387	1414	694	269								
Volume to Capacity	0.01	0.01	0.01	90.0								
Queue Length 95th (m)	0.2	0.3	0.2	1.4								
Control Delay (s)	0.5	9.0	10.2	10.5								
ane LOS	∢	∢	В	В								
Approach Delay (s)	0.5	9.0	10.2	10.5								
Approach LOS			В	മ								
ntersection Summary												
Average Delay			1.6									
ntersection Capacity Utilization	_		21.8%	ᅙ	ICU Level of Service	Service			⋖			

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis∕Background 2026> Weekday AM Peak Hour 1: Queen Street North & Union Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2026> Weekday AM Peak Hour 2: Queen Street North & Marshall Lane/Site Access 3 08-15-2024

Ť

0.87

0.87

0.84

0.84

0.40

0.40

0.25

0.25 36

Stop 0% 0.40 None

None 177 380

408

380

834

948

402

828

829

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

2.2 100 178

2.2 98 1151

3.5 99 193

3.3

300

3.5 87 284 2 2 2 111 1178 0.00 0.00 0.1 A A A

NB1 401 21 1151 0.02 0.4 0.6 A A A

> 234 0.02 0.02 0.4 20.6 C

156 36 36 120 0.31 10.6 15.4 C

Direction, Lane #
Volume Total
Volume Left
Volume Right
Colume Right
Volume to Capacity
Volume to Capacity
Courtol Delay (s)
Lane LOS
Approach Delay (s)
Approach LOS

380

408

380

834 6.5

948

402

828

829 7.1

345 345 345 0% 0.87

318 318 60% 0% 379

8 8

30

Movement EBL Traffic Volume (vehrln) 1 Traffic Volume (vehrln) 1 Sign Control Parade Hour Factor 0.86 Hourly flow rate (vph) 1 Pedestrians						8	60	25	0.00		3	1000
		EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
		4			4			T			4	
	_	15	9	Ξ	7	21	4	283	41	52	336	15
	L	15	9	Ξ	7	71	4	283	41	52	336	15
	S	Stop			Stop			Free			Free	
		%0			%0			%0			%0	
(hdv		0.86	98.0	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
	L	17	12	19	12	36	2	322	47	27	369	16
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
								None			None	
Median storage veh)												
Jpstream signal (m)								315				
pX, platoon unblocked												
vC, conflicting volume 828		810	377	807	794	346	385			369		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol 828		810	377	807	794	346	382			369		
7.		6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5		4.0	3.3	3.5	4.0	3.3	2.2			2.2		
100		94	86	93	96	92	100			86		
cM capacity (veh/h) 26;		305	029	276	312	269	1173			1190		
EB 1		WB1	NB 1	SB 1								
30		29	374	412								
_	_	19	2	27								
12	~	36	47	16								
38		422	1173	1190								
		0.16	0.00	0.02								
Queue Length 95th (m) 2.0		4.5	0.1	9.0								
15.		5.1	0.2	8.0								
J		ပ	⋖	⋖								
Approach Delay (s) 15.1		15.1	0.2	8.0								
J	ပ	ပ										
ntersection Summary												
			2.1									
Intersection Capacity Utilization		4	47.8%	<u>ವ</u>	CU Level of Service	f Service			⋖			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 1

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Vorfolk County),	
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Simo	
of	
Community of Simcoe	
Street,	
nson	an Inc
5 Robinso	ans-Plan
185	Tran

ICU Level of Service

2.8 39.5% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

HCM Unsignalized Intersection Capacity Analysis-Background 2026> Weekday AM Peak Hour 3: Queen Street North & Site Access 2

-	SBT .	₹	6 370		%0		, 420						None										0.1															
۶ ۱	NBR SBI			4		0.82 0.88	5 7									1.00	41(			407	4.1		2.2	66	1148													
<b>←</b> ✓	WBR NBT	<del>(</del> 2	5 332	Ī	% -		7 405						None		66	1.00	408			404	6.2		3.3	66	644	NB 1 SB 1	410 427	0 7				0.0 0.1		∢	0.0 0.2			
-	WBL	>	0	o do	%0 %0	0.75	0									1.00	842			840	6.4		3.5	100	333	WB 1	7	0	7	644	0.01	0.3	10.6	В	10.6	В		
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future volume (ven/n)	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF (s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	LS3	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 3

<Background 2026> Weekday AM Peak Hour Timings 4: Queen

4: Queen Street North & Robinson Street	orth & R	obinso	n Stre	eţ		,			08-15-2024
	1	1	-	Ţ	1		۶	<b>→</b>	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		4	
Traffic Volume (vph)	2	7	14	19	38	290	71	279	
Future Volume (vph)	5	7	14	19	88	290	71	279	
Turn Type	Pem	¥	Perm	¥	Perm	¥	Perm	₹	
Protected Phases		4		∞		7		9	
Permitted Phases	4		∞		2		9		
Detector Phase	4	4	∞	∞	7	7	9	9	
Switch Phase									
Minimum Initial (s)	2.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	
Minimum Split (s)	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	
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
Yellow Time (s)	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	10	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		4.5		4.5		4.5		4.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Мах	Мах	Мах	Мах	
Act Effct Green (s)		6.9		6.9		26.0		76.0	
Actuated g/C Ratio		0.19		0.19		0.72		0.72	
v/c Ratio		0.15		0.34		0.40		0.40	
Control Delay		7.5		9.1		5.7		0.9	
Queue Delay		0.0		0.0		0.2		0.0	
Total Delay		7.5		9.1		5.9		0.9	
SOT		⋖		⋖		⋖		⋖	
Approach Delay		7.5		9.1		5.9		6.0	
Approach LOS		⋖		∢		¥		¥	

Intersection LOS: A ICU Level of Service A Actuated Cyde Length: 36.3

Natural Cyde: 50

Control Type: Semi Act-Uncord
Maximum VR Ratio: 0.40

Intersection Signal Delay: 6.4

Intersection Capacity Utilization 48.8%

Analysis Period (min) 15

Cycle Length: 45

Splits and Phases: 4: Queen Street North & Robinson Street

		and the second	
- D4	22.58	<b>♣</b>	22.53
<b>√</b> Ø2	22.58	<b>♦</b> ∞ <b>♦</b>	22.58

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis <Background 2026> Weekday AM Peak Hour 4: Queen Street North & Robinson Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2026> Weekday AM Peak Hour 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.62

0.62

0.25

0.25

0.74

0.74

0.83

0.83

71 71 71 71 0% 0.74 96

164 164 0.83 198

Stop 0% 0.25

**4** 0

400

25 25 25 25 34 0 0 0	WBL WBT  14 19 114 19 116 1900 1900 1900 1900 1900 1900 1900 1900	MBR NBL 41 38 41 38 1900 1900 0.60 0.84 68 45 0 0 0 0 0 0 0 0 0 0 2	NBT N 290 290 290 290 1900 1,0	NBR SBL 91 771 91 771 1900 1900 0 0 0 0 0 0 0 0 6	SBT 279 279 279 279 279 279 279 279 279 279	21 21 1900 1900 0 0 0 0
pph) 5 7 25 7 25 7 25 7 25 7 25 7 25 7 25 7	111111111111111111111111111111111111111					21 21 1900 0.03 0 0
ph) 5 7 25 ph) 1900 1900 1900 1) 1900 1900 1900 1,100	0.00 1.10 0.00 0.00 0.00 0.00 0.00 0.00					21 21 1900 0.83 0 0 0
ph) 5 7 25 100 1900 1900 1900 1.00 1.00 1.00 1.00 1.00 1.00 1.01 1.00 1.00 1.00 1	0.00 171 0.00 0.00 0.00 0.00 0.00 0.00 0					21 1900 0.83 25 25 0
(vph) 1900 1900 1900 1900 1900 1900 1900 190						0.83 25 0 0
(vph) 6.09 (vph) 0.99 (vph) 0.99 (vph) 0.99 (vph) 0.21 0.73 (vph) 0.21 0.73 (vph) 0.21 0.8 (s) 8.8 4.8 (s) 9.99 (s) 0.13 (s) 9.99 (s) 0.14 (s) 9.99						0 0 0
100 0.91 0.99 1684 0.99 1684 0.99 1615 0.99 1615 0.99 0.00 (vph) 0 21 0 0 204 0 2						0.83 0.00 0.00
(vph) 0.91 (vph) 0.73 (vph) 0.73 (vph) 0.71 (vph) 0.73 (vph) 0.74						0 0 0
(vph) 0.99 (1684 0.95 0.99 (1684 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95						0.83 0 0
(vph) 0.73 0.73 0.73 (vph) 0 21 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						25 25 0 0
0.995 1615 0.73 0.73 0.73 0.73 0.7 10 30 0 30 0 10 0 13 0.13 4.5 2.04 2.04 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0						0.83
1615 0.73 0.73 0.73 0.73 0.73 0.73 0.73 0.73	`					0.83
0.73 0.73 0.73 0.73 0.73 0.73 0.73 0.73						0.83
7 10 34 0 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						25
Pem NA F Pem NA F 4 4 4 4.8 4.8 4.8 4.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0						
) Perm NA 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			485 NA 2 24.2			0
Perm NA 4 4.8 4.8 4.8 6.13 6.13 6.03 0.01 0.10 1.00 0.2		Perm 2	NA 2 24.2 24.2	Perr		
4		2	24.2	<b>a</b>	9	
4		2	24.2		"	
	4.8 4.8 0.13		24.2			
- 2	4.8 0.13		2 T C		24.2	
(S) 4 ZP	0.13		7.17		24.2	
(s)			0.64		0.64	
d2	4.5		4.5		4.5	
42	3.0		3.0		3.0	
42	200		1084		1003	
- 2p						
<b>4</b> 5	c0.04		c0.28		0.28	
d2	0.32		0.45		0.44	
d2	15.1		3.5		3.5	
	1.00		1.00		1.00	
	6.0		1.3		1.4	
14	16.0		4.8		4.9	
	മ		¥		⋖	
Approach Delay (s)	16.0		4.8		4.9	
Approach LOS B	В		A		A	
Intersection Summary						
HCM 2000 Control Delay 6.6	HCM 2000 Le	HCM 2000 Level of Service		¥		
pacity ratio						
Actuated Cycle Length (s) 38.0	Sum of lost time (s)	me (s)		9.0		
Intersection Capacity Utilization 48.8%	ICU Level of Service	Service		A		
Analysis Period (min)						

100 6.2

351 6.5

392

200

352 6.5

7.1

203

351

392

200

352

348

203

5

None

None

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

107

3.3 100 956

100

3.5 100 530

3.3 95 840

4.0 100 562

3.5 99 598

2.2 98 1369

2.2 100 488 203

ortical Lane Group

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

CU Level of Service

1.9 27.3%

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

530 0.00 0.1 11.8 B 11.8

8 8 44 791 0.07 1.7 1.7 9.9 A A

> 8 0.02 0.4 1.6 1.6

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coure Length 95th (m)
Lane LOS
Lane LOS

<Background 2026> Weekday AM Peak Hour 08-15-2024 Timings 6: Queen Street North & West Street

HCM Signalized Intersection Capacity Analysis <Background 2026> Weekday AM Peak Hour 6: Queen Street North & West Street

220 220 220 220 1900 6.0 1.00 1.00 1.00 1.00 1.81 1.00 1.81 1.00 1.81 1.00 1.82 268 8

50 50 50 6.0 6.0 6.0 6.0 0.95 0.98 0.80 54 10 85 85 NA

50 50 50 6.0 6.0 6.0 6.0 9.97 0.97 0.76 0.97 0.76 57 57 57 57 88 57 57 88

Frt FIt Protected Satd. Flow (prot)

28 28 28 1900 6.0 1.00 1.00 1.77 1770 0.55 0.55 34

49

Perm

55

0.92 13

0.92

887

0.88

Fit Permitted Satd. Flow (perm) Peak-hour factor, PHF Adj. Flow (vph) RTOR Reduction (vph) Lane Group Flow (vph)

38 38 38 2.0 1.00 1.00 1.00 1.77 0.95 942 0.51 942

45 45 1900

12 13 1900

26 26 1900

72 72 1900

187 187 1900

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Ideal Flow (vphpl)
Total Lost time (s)
Lane Util. Factor

29.8 29.8 0.52 6.0 3.0 932 c0.19

25.4 25.4 0.45 6.0 3.0 810 0.17

25.4 25.4 0.45 6.0 3.0 454

15.1 15.1 0.27 6.0 3.0 737

15.1 15.1 0.27 6.0 3.0 684

Actuated g/C Ratio Clearance Time (s)
Vehicle Extension (s)
Lane Grp Cap (vph)
v/s Ratio Prot

Turn Type
Protected Phases
Permitted Phases
Actuated Green, G (s)
Effective Green, g (s)

29.8 29.8 0.52 2.0 3.0 3.0 528 0.00 0.00 6.7 6.7

8.0 1.00 1.1 9.1

0.39 1.00 1.4 12.0 B B B

0.03 0.12 1.00 0.1 15.9 B B 15.9

0.44 17.4 17.8 17.8 17.8 17.8 B

Progression Factor Incremental Delay, d2

Jniform Delay, d1 //s Ratio Perm v/c Ratio

Delay (s) Level of Service Approach Delay (s) Approach LOS

0.03 0.07 9.0 1.00 0.3 9.3

ω 16.0 B

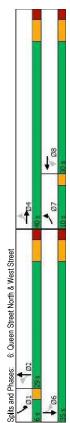
HCM 2000 Level of Service

Sum of lost time (s) ICU Level of Service

12.9 0.43 56.9 63.9%

HCM 2000 Volume to Capacity ratio
Actuated Cycle Length (s)
Intersection Capacity Utilization
Analysis Period (imi)
Critical Lane Group

	SBT	£	197	197	NA	9		9		29.0	35.0	35.0	7%	4.0	2.0	0.0	0.0			Max	0.6	1.52	0.38	8.9	1.8	10.7	В	10.0	В									
۶	SBL		88		pm+pt	-	9	-			0.9							Lead	Yes				0.08				⋖	_									<b></b>	
	NBT	£	220	220	¥			2		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Max	25.4	0.45	0.39	12.4	0.0	12.4	ω	12.2	Ф							n LOS: B	CU Level of Service B	
1	NBL		78		Perm		2																0.07		0.0		Ω									Intersection LOS: B	CU Level	
¥	WBT	1	20			∞		∞			30.0		4				9.0	Lag			15.1	0.27	0.13	14.3	0.0	14.3	В	14.3	В									
•	WBL		26		Perm		8				30.0								Yes	_																		
T.	EBI	100	20					4			28.0						9.0			Г	15.1	0.27	0.47	16.0	0.0	16.0	В	16.0	В								%	
1	EBF		187	187	pm+pt	7	4	7		5.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None												_		coord		12.8	ation 63.9°	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Lenath: 75	Actuated Cycle Length: 56.1	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.47	Intersection Signal Delay: 12.8	Intersection Capacity Utilization 63.9%	



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185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis Background 2026> Weekday AM Peak Hour 7: Metcalfe Street South & West Street

Movement   EBL   EBT   EBR   WB1   WBT   WBR   NB1   NBT   NBR   SBL   SBT   CBT		1	Ť	1	-	<b>↓</b>	1	1		•	٠	-	7
None	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
hh) 10 92 31 5 76 3 0 0 0 1 1	Lane Configurations		4			4			4			4	
h(h) 10 92 31 5 76 3 0 0 0 1 1	Traffic Volume (veh/h)	9	92	33	2	9/	က	0	0	0	-	15	12
Free   Free   Stop	Future Volume (Veh/h)	9	95	31	5	9/	က	0	0	0	-	15	12
None	Sign Control		Free			Free			Stop			Stop	
10) 12 111 37 5 78 3 0.98 0.98 0.61 0.61 0.65 0.25 0.30 0.08 0.08 0.08 0.08 0.06 0.06 0.00 0 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Grade		%0			%0			%0			%0	
h) 12 111 37 5 78 3 0 0 4 4  None None None None  81 148 321 244 130 243 3  101 81 148 321 244 130 243 3  22 22 22 35 40 33 35 35 39 30 705 1  1517 1434 581 553 650 920 705 1  150 86 0 112	Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
None	Hourly flow rate (vph)	12	11	37	2	78	က	0	0	0	4	90	48
None   None   None   None	Pedestrians												
None	Lane Width (m)												
None	Walking Speed (m/s)												
None   None   None	Percent Blockage												
None   None   None     105	Right turn flare (veh)												
105   105   105   106   106   107	Median type		None			None							
ed 81 105 ed 81 148 321 244 130 243 31 el 1517 1434 1700 100 100 100 100 100 199 el 1517 1434 1700 100 100 100 100 100 100 100 100 10	Median storage veh)												
ed 81 148 321 244 130 243 301 81 44.1 130 243 31 148 321 244 130 243 31 148 321 244 130 243 31 143 143 143 143 143 143 143 143 14	Upstream signal (m)		105										
State	pX, platoon unblocked												
S1	vC, conflicting volume	84			148			321	244	130	243	262	80
S1	vC1, stage 1 conf vol												
81 148 321 244 130 243 3 1	vC2, stage 2 conf vol												
4.1 4.1 7.1 6.5 6.2 7.1  2.2 2.2 3.5 4.0 3.3 3.5 99 100 100 100 100 99 1577 1434 553 650 920 705 1 160 86 0 112 12 5 0 48 37 3 0 48 1517 1434 1700 752 160 0.0 0.0 0.1 5 160 0.5 0.0 10.6 A A A B C B B B B B B B B B B B B B B B B B B	vCu, unblocked vol	84			148			321	244	130	243	262	80
22 2.2 3.5 4.0 3.3 3.5   99 100 100 100 100 99   1517 1434 553 650 920 705   160 86 0 112   12 5 0 4   37 0.01 0.00 0.01 0.15   1617 1434 1700 752   162 0.1 0.00 4.2   163 0.5 0.0 10.6   A A A B B   0.6 0.5 0.0 10.6   A A A B B   0.6 0.5 0.0 10.6   A A A B B   0.6 0.5 0.0 10.6   A A B B   0.6 0.5 0.0 10.6   A B B   0.7    19.9% ICU Level of Service A A B B B   19.9% ICU Level of Service A A B B B   19.0% ICU Level of Service A B B B   19.0% ICU Level of Service A B B B   19.0% ICU Level of Service A B B B B   19.0% ICU Level of Service A B B B B   19.0% ICU Level of Service A B B B B   19.0% ICU Level of Service A B B B B   19.0% ICU Level of Service A B B B B   19.0% ICU Level of Service A B B B B   19.0% ICU Level of Service B B B B   19.0% ICU Level of Service B B B B   19.0% ICU Level of Service B B B B    19.0% ICU Level of Service B B B B    19.0% ICU Level of Service B B	tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
22 22 3.5 4.0 3.3 3.5 15 1517 1517 160 100 100 100 100 100 100 100 100 100	tC, 2 stage (s)												
99 100 100 99 1517 1434 553 650 920 705 1610 1610 1610 99 1610 1610 99 1610 1610	tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	33
1517   1434   553   650   920   705     EB1   WB1   NB1   SB1   SB1     160   86   0   112     15   3   0   48     1517   1434   1700   752     1617   1434   1700   752     1617   1434   1700   752     1617   1434   1700   752     1617   1434   1700   752     1617   1434   1700   752     1617   1434   1700   752     1618   1619   1619   1619     17   17   17   17     18   18   18   18     18   18   18	p0 queue free %	66			100			100	100	100	66	91	95
EB 1 WB 1 NB 1 SB 1  160 86 0 112  12 5 0 4  37 3 0 48  1517 1434 1700 752  ith (m) 0.2 0.1 0.0 0.01 0.15  ith (m) 0.2 0.1 0.0 4.2  (s) 0.6 0.5 0.0 10.6  A A A B  mary  acty Utilization 19.9% ICU Level of Service  min) 15	cM capacity (veh/h)	1517			1434			553	650	920	705	636	981
160 86 0 112 12 5 0 4 37 3 0 48 1517 1434 1700 752 sith (m) 0.2 0.1 0.0 0.01 0.15 (s) 0.6 0.5 0.0 10.6 A A B (s) 0.6 0.5 0.0 10.6 Mary  3.7 ICU Level of Service min) 19.9% ICU Level of Service	Direction, Lane #	EB 1	WB1	NB 1	SB 1								
12 5 0 4 37 37 37 3 0 48 1517 1424 1700 752 iiiy 0.011 0.00 0.01 0.15 iiih 0.2 0.1 0.0 4.2 iiih 0.6 0.5 0.0 10.6 A A A B  many scity Utilization 19.9% ICU Level of Service	Volume Total	160	98	0	112								
1517 1434 7700 752  1517 1434 7700 752  1517 1434 7700 752  1517 1434 7700 752  1517 0.2 0.1 0.0 4.2  152 0.5 0.0 10.6  153 0.6 0.5 0.0 10.6  154 A A B  155 0.6 0.5 0.0 10.6  155 0.0 10.6  157 0.0 10.6  158 0.0 10.6  159 0.0 10.6  150 0.0 1	Volume Left	12	2	0	4								
ity 0.01 0.00 0.01 0.15 ith (m) 0.2 0.1 0.00 4.2 ith (m) 0.5 0.0 10.6 A A B (s) 0.6 0.5 0.0 10.6  mary  acity Utilization 19.9% ICU Level of Service min) 15.00 10.6  A B B B B B B B B B B B B B B B B B B	Volume Right	37	က	0	48								
ity 0.01 0.00 0.01 0.15  th	cSH	1517	1434	1700	752								
ith (m) 0.2 0.1 0.0 4.2  0.6 0.5 0.0 10.6  A A B  (s) 0.6 0.5 0.0 10.6  Mary 3.7  CU Level of Service min) 19.9%	Volume to Capacity	0.01	0.00	0.01	0.15								
0.6 0.5 0.0 10.6  A A A B  (s) 0.6 0.5 0.0 10.6  many 3.7  Coty Utlization 19.9% ICU Level of Service	Queue Length 95th (m)	0.2	0.1	0.0	4.2								
A A A B 0.6 0.5 0.0 10.6 A B  V 3.7 CUlization 19.9% ICU Level of Service	Control Delay (s)	9.0	0.5	0.0	10.6								
0.6 0.5 0.0 10.6  A B  V  13.7  CULevel of Service 15.9% 15.0	Lane LOS	∢	∢	∢	മ								
y y 3.7 Utization 19.9% ICU Level of Service 15	Approach Delay (s)	9.0	0.5	0.0	10.6								
y 3.7 3.7 ICU Level of Service 19.9% ICU Level of Service 15.00 15	Approach LOS			∢	В								
3.7 Utilization 19.9% ICU Level of Service 15.0%	Intersection Summary												
Utilization 19.9% ICU Level of Service	Average Delay			3.7									
	Intersection Capacity Utilization	_		19.9%	೨	U Level o	f Service			¥			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis Background 2031> Weekday AM Peak Hour 1: Queen Street North & Union Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2031> Weekday AM Peak Hour 2: Queen Street North & Marshall Lane/Site Access 3

Ť

0.87

0.87

0.84

0.84

0.40

0.40

0.25

0.25

Stop 0% 0.40

381 381 0% 0.87 438

351 351 0% 0.84 418

2 2

33

9 9

None

None 177 419

451

418

922

1047

444

916

916

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

419 4.1

451

418 6.2

922 6.5

7.1

6.2

916

2.2 100 140

2.2 98 1109

3.3 99 264

3.5 99 159

3.3 78 614

4.0 100 266

3.5 84 247

2 2 2 1140 0.00 0.00 0.1 A A A A

443 24 24 1109 0.02 0.7 0.7 0.7

172 40 132 456 0.38 13.9 17.6 C

Direction, Lane #
Volume Total
Volume Bright
eSH
Volume Right
Volume Right
Chance Length 95th (m)
Cueue Length 95th (m)
Lane LOS

0.02 0.02 0.5 23.5 C C

Approach Delay (s) Approach LOS

Movement							8		,		ŝ	
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
-ane Configurations		4			4			4			4	
raffic Volume (veh/h)	_	16	Ξ	13	∞	23	2	312	45	78	37.1	16
-uture Volume (Veh/h)	-	16	11	13	∞	23	2	312	45	78	371	16
Sign Control		Stop			Stop			Free			Free	
		%0			%0			%0			%0	
Peak Hour Factor	0.86	0.86	0.86	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
Hourly flow rate (vph)	-	19	13	22	14	39	9	355	51	31	408	18
Pedestrians												
-ane Width (m)												
Nalking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Jpstream signal (m)								315				
oX, platoon unblocked												
C, conflicting volume	918	897	417	894	880	380	426			406		
C1, stage 1 conf vol												
/C2, stage 2 conf vol												
/Cu, unblocked vol	918	897	417	894	880	380	426			406		
C, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
C, 2 stage (s)												
	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
on due ue free %	100	93	86	9	92	94	66			6		
cM capacity (veh/h)	223	270	636	237	276	299	1133			1153		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
/olume Total	33	75	412	457								
/olume Left	-	22	9	31								
/olume Right	13	33	51	18								
	347	371	1133	1153								
/olume to Capacity	0.10	0.20	0.01	0.03								
Queue Length 95th (m)	2.5	0.9	0.1	0.7								
Control Delay (s)	16.5	17.1	0.2	8.0								
	ပ	ပ	<	⋖								
Approach Delay (s)	16.5	17.1	0.2	8.0								
pproach LOS	ပ	ပ										
ntersection Summary												
Average Delay			2.3									
ntersection Capacity Utilization	5		52.4%	<u>0</u>	U Level o	CU Level of Service			⋖			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 1

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 2

CU Level of Service

3.2 42.8%

Average Delay Intersection Capacity Utilization Analysis Period (min)

HCM Unsignalized Intersection Capacity Analysis-Background 2031> Weekday AM Peak Hour 3: Queen Street North & Site Access 2

	-	4	•	•	١	-	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	>		£,			**	
Traffic Volume (veh/h)	0	2	366	4	9	409	
Future Volume (Veh/h)	0	2	366	4	9	409	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.75	0.75	0.82	0.82	0.88	0.88	
Hourly flow rate (vph)	0	7	446	2	7	465	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)			66				
pX, platoon unblocked	0.97	0.97			0.97		
vC, conflicting volume	928	448			451		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	806	412			415		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	33			2.2		
p0 queue free %	100	66			66		
cM capacity (veh/h)	594	618			1106		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	7	451	472				
Volume Left	0	0	7				
Volume Right	7	2	0				
CSH	618	1700	1106				
Volume to Capacity	0.01	0.27	0.01				
Queue Length 95th (m)	0.3	0.0	0.2				
Control Delay (s)	10.9	0.0	0.2				
Lane LOS	В		∢				
Approach Delay (s)	10.9	0.0	0.2				
Approach LOS	മ						
Intersection Summary							
Average Delay			0.2				
Intersection Capacity Utilization	_		36.3%	ಠ	CU Level of Service	Service A	
Analysis Period (min)			15				

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Timings <Background 2031> Weekday AM Peak Hour 4: Queen Street North & Robinson Street 08-15-2024

-	SBT	4	308	308	₹	9		9		2.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Max	53.1	0.79	0.41	4.7	0.0	4.7	∢	4.7	∢									
۶	SBL		8/	28	Perm		9	9		2.0	22.5	52.0	69.3%	3.5	1:0					Мах																	٧	
•	NBT	4	320	320	¥	7		7		2.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Мах	53.1	0.79	0.41	44	1.5	5.9	¥	5.9	V							LOS: A	Service	
1	NBL		43	43	Perm		2	7		2.0	22.5	52.0	69.3%	3.5	1.0					Мах																Intersection LOS: A	CU Level of Service A	
Ţ	WBT	4	71	71	¥	∞		∞		2.0	22.5	23.0	30.7%	3.5	1.0	0.0	4.5			None	8.3	0.12	0.52	20.7	0.0	20.7	O	20.7	ပ							프	<u> </u>	
1	WBL		15	15	Perm		∞	∞		2.0	22.5	23.0	30.7%	3.5	1.0					None																		
Ť	EBT	4	∞	∞	¥	4		4		2.0	22.5	23.0	30.7%	3.5	1.0	0.0	4.5			None	8.3	0.12	0.25	15.6	0.0	15.6	ω	15.6	В									
1	EB		9	9	Perm		4	4		2.0	22.5			3.5						None														ē			n 52.3%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)		Total Split (%)			Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	FOS	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 67.5	Natural Cycle: 55	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.52	Intersection Signal Delay: 7.4	Intersection Capacity Utilization 52.3%	Analysis Period (min) 15

Splits and Phases: 4: Queen Street North & Robinson Street



185 Robinson Street, Community of Simooe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis <Background 2031> Weekday AM Peak Hour 4: Queen Street North & Robinson Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2031> Weekday AM Peak Hour 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.62

0.62

0.25

0.25

0.74

0.83

0.83

40

13

78 78 0% 0.74 105

181 181 0% 0.83 218

22

§	28 15 28 15 1900 1900		WBR NBL 45 43 45 43 1900 1900	320 320	NBR	SBL	SBT	SBR
6 8 28 6 8 28 6 8 8 28 6 8 8 28 6 8 8 28 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	19		13					
6 8 28 6 8 28 8 28 100 1900 1900 1,00 0,91 1,00 0,93 1683 1683 1683 1683 1683 1683 1782 172 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7	19		3				4	
1900 1900 1900 1900 1900 1900 1900 1900	19		18		100	8/	308	23
1900 1900 1900 1900 1900 1900 1900 1900	_		_		100	78	308	23
4.5 1.00 0.91 0.99 1683 0.99 1683 0.93 1183 8 11 38 8 11 38 1 1 38 7 2 2 2 7 2 2 2 2 8 28.2 0.01 0.01 0.01 0.04 28.2 0.44 28.2 28.2 0.44 0.44 0.44 0.44 0.44 0.44 0.44 0.					1900	1900	1900	1900
1,00 0,91 0,99 1683 1683 1582 1782 178 10 34 0,11 4 4 7,2 7,2 7,2 7,2 7,2 7,2 7,2 7,2 7,2 7,2				4.5			4.5	
0.91 0.99 1683 0.93 1682 0.93 1782 0.73 0.73 0.73 0.73 0.73 0.74 4 4 4 4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2				1.00			1.00	
0.99 1683 0.93 1582 0.73 0.73 0.73 0.73 0.73 0.73 0.73 0.03 0 0 0.01 0.01 0.01 0.04 0.44 0.14 0.14				0.97			0.99	
1683 0.93 1582 0.73 0.73 0.73 0.73 0.73 0.73 0.73 0.73				1.00			0.99	
1982 1582 0.73 0.73 0.73 8 11 38 1 13 30 0 34 0 1 23 0 1 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2				1800			1831	
1582 0.73 0.73 0.73 0.73 0.73 0.73 0.73 0.73				0.93			0.83	
0,73 0,73 0,73 0,73 0,73 0,73 0,73 0,73				1682			1535	
8 11 3			0.60 0.84	0.84	0.84	0.83	0.83	0.83
Perm NA F F 7.2 0.011 0.011 0.011 0.014 0.			75 51		119	8	371	78
Perm NA 4 4 4 7.2 7.2 0.11 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5		. 67		တ	0	0	7	0
Perm NA  4  7.2  7.2  7.2  7.2  7.2  0.11  4.5  3.0  0.01  0.01  0.01  0.04  28.2  C  Sac C  Sac C  C  Sac C  Sac C  C  Sac C					0	0	491	0
4 4 7.2 7.2 7.2 7.2 7.2 7.1 9.11 9.11 9.11 9.11 9.11 9.11 9.11	Perm		Perm			Perm	NA	
4 7.2 7.2 7.2 0.11 4.5 3.0 0.01 0.14 27.8 1.00 0.4 27.8 27.8 27.8 27.8 27.8 27.8 27.8 27.8		∞		2			9	
7.2 7.2 7.2 0.11 4.5 3.0 166 0.01 0.14 27.8 1.00 0.4 27.8 2.2 C C C C C C C C C Capacity ratio	w	œ	2			9		
7.2 4.5 4.5 3.0 3.0 1.0 0.01 0.14 0.14 2.78 1.00 2.2 2.8.2		7.2		52.2			52.2	
0.11 4.5 3.0 1.00 0.01 0.01 0.04 2.7.8 1.00 0.4 2.8.2 2.8.2 2.8.2 2.8.2 2.2.2		7.2		52.2			52.2	
4.5 3.0 166 166 0.01 0.04 27.8 1.00 2 0.4 28.2 28.2 28.2 28.2 2 28.2 2 28.2 2 28.2 2 28.2 2 C C C C C C C C C C C C C C C C C C		0.11		0.76			92.0	
3.0 186 0.01 0.01 0.14 2.7.8 1.00 1.00 0.4 2.2.2 2.8.2 C C 2.8.2 C C 2.8.2 C C 2.8.2 C C C 2.8.2 C C C 2.8.2 C C C C C C C C C C C C C C C C C C C		4.5		4.5			4.5	
166 0.01 0.01 0.14 27.8 1.00 d2 28.2 C C 28.2 C C C C Bany Delay C C C C C C C T T T C C C C C C C C C		3.0		3.0			3.0	
0.01 0.14 0.14 27.8 1.00 0.4 28.2 C C 28.2 C C C C C C Delay C C C C C C C C C C C C C C C C C C C		168		1283			1171	
0.01 0.14 0.14 27.8 1.00 d2 0.4 28.2 0.4 28.2 0.5 28.2 0.5 28.2 0.5 28.2 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5								
0.14 27.8 1.00 d2 0.4 28.2 C 4.00 Delay The let of Capacity ratio		c0.04		c0.32			0.32	
27.8 1.00 d2 0.4 28.2 C C 28.2 C C Delay 10 Capacity ratio		0.40		0.42			0.42	
1.00 d2 0.4 0.4 28.2 C C 28.2 C 28.2 C 28.2 C Delay The loc Capacity ratio		28.6		2.8			2.8	
d2 0.4 28.2 28.2 C 28.2 C 28.2 C Delay Delay The Copacity ratio		1.00		1.00			1.00	
28.2 C 28.2 C 28.2 C Delay		1.6		1.0			<del>-</del>	
C 28.2 29.2 29.7 20.2 20.2 20.2 20.2 20.2 20.2 20.2 20		30.2		3.9			3.9	
28.2 29.3 C Delay Delay on (s)		ပ		⋖			∢	
C mmany trol Delay mue to Capacity ratio		30.2		3.9			3.9	
Ш		ပ		A			A	
	7.9	HCM 2000 L	HCM 2000 Level of Service		¥			
	0.42							
	68.4	Sum of lost time (s)	ime (s)		9.0			
Intersection Capacity Utilization 52.3%	52.3%	CU Leve of	Service		¥			
Analysis Period (min)	15							
c Critical Lane Group								

109 6.2

387

436

221 6.2

388

384

224

113

387

436

221

388

384

224

113

None

None

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

107

3.3 100 945

4.0 100 536

3.5 100 489

3.3 94 819

4.0 100 536

3.5 99 565

2.2 98 1345

2.2 100 1476 EB 1

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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f Simcoe (Norfolk County), ON	
Community of	
185 Robinson Street,	Trans-Plan Inc.

CU Level of Service

2.0 28.7% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

0.00 0.00 0.1 12.4 12.4 B

60 8 52 777 0.08 2.0 2.0 10.1 10.1 B

> 8 1345 0.02 0.5 1.6 A A

Direction, Lane #
Volume Total
Volume Left
SSH
Volume Right
SSH
Volume to Capacity
Queue Length 95th (m)
Lane LOS
Lane LOS

<Background 2031> Weekday AM Peak Hour 08-15-2024 Timings 6: Queen Street North & West Street

HCM Signalized Intersection Capacity Analysis <Background 2031> Weekday AM Peak Hour 6: Queen Street North & West Street

				_																																		
-	SBT	£3	217	217	¥	9		9		29.0	35.0	35.0	46.7%	4.0	2.0	0.0	0.9			Max	29.0	0.51	0.42	9.6	2.3	11.9	В	11.1	В									
۶	SBL	N.	43	43	pm+pt	-	9	-		4.0	0.9	0.9	8.0%	2.0	0.0	0.0	2.0	Lead	Yes	None	33.0	0.59	0.10	5.6	0.0	5.6	⋖										ပ	
4	NBT	£3	242	242	¥	2		2		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	25.4	0.45	0.43	13.1	0.0	13.1	В	12.9	ш							LOS: B	f Service	
•	NBL	F	31	31	Perm		2	2		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	25.4	0.45	0.09	11.1	0.0	11.1	В									Intersection LOS: B	CU Level of Service C	
<b>↓</b>	WBT	AT.	22	22	¥	∞		∞		15.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	None	15.4	0.27	0.14	14.2	0.0	14.2	ω	14.2	В							<u>u</u>	೨	
-	WBL		53	59	Perm		∞	∞		15.0	30.0	30.0	40.0%	4.0	2.0			Lag	Yes	None																		
Ť	EBT	AT.	22	22	Ϋ́	4		4		15.0	28.0	40.0	53.3%	4.0	2.0	0.0	0.9			None	15.4	0.27	0.52	17.0	0.0	17.0	В	17.0	В									
1	EBL		207	207	pm+pt	7	4	7		2.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None														ord		9	%1.07 nc	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 56.4	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.52	Intersection Signal Delay: 13.6	Intersection Capacity Utilization 70.7%	Analysis Period (min) 15

29.8 29.8 0.52 6.0 3.0 927 c0.21

25.4 25.4 0.44 6.0 3.0 3.0 806 0.19

25.4 25.4 0.44 6.0 3.0 437

15.4 15.4 0.27 6.0 3.0 733

15.4 15.4 5.27 6.0 3.0 689

Actuated g/C Ratio Clearance Time (s)
Vehicle Extension (s)
Lane Grp Cap (vph)
v/s Ratio Prot

Turn Type
Protected Phases
Permitted Phases
Actuated Green, G (s)
Effective Green, g (s)

29.8 29.8 0.52 2.0 3.0 3.0 495 0.00 0.05 0.05 0.01 1.00 7.0

8.3 1.00 9.7 0.41

0.43 10.9 1.00 1.7 12.6 B B 12.3 B

0.04 0.13 15.8 1.00 0.1 15.9 B 15.9

0.49 17.6 1.00 1.00 1.81 18.1 18.1

Progression Factor Incremental Delay, d2

Jniform Delay, d1 //s Ratio Perm v/c Ratio

Delay (s) Level of Service Approach Delay (s) Approach LOS

0.09 9.2 1.00 0.4 9.6 A

ω 16.0

HCM 2000 Level of Service

Sum of lost time (s) ICU Level of Service

13.3 0.48 57.2 70.7%

HCM 2000 Volume to Capacity ratio
Actuated Cycle Length (s)
Intersection Capacity Utilization
Analysis Period (imi)
Critical Lane Group

217 2217 1900 6.0 6.0 1.00 1.00 1.78 0.78 0.78 1.00 0.78 1.00 0.78 1.00 0.78 1.00 0.78

242 242 242 1900 6.0 1.00 1.00 1.00 1.00 1.00 1.00 2.95 8

31 31 1900 6.0 6.0 1.00 1,70 0.95 985 0.82 38

Frt FIt Protected Satd. Flow (prot)

22

Perm

).82 60

0.92 15

0.92 32 0

90

0.88

Fit Permitted Satd. Flow (perm) Peak-hour factor, PHF Adj. Flow (vph) RTOR Reduction (vph) Lane Group Flow (vph)

0.88 0.88 62 50 NA

43 43 43 2.0 2.0 1.00 1.00 1.77 1770 0.47 880 0.78

49

14 14 1900

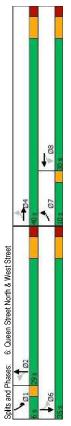
29 29 1900

79 79 1900

207 207 900

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Ideal Flow (vphpl)
Total Lost time (s)
Lane Util. Factor

55 55 55 6.0 6.0 0.95 0.97 0.97 0.97



185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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Synchro 11 Report Page 8

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis-Background 2031> Weekday AM Peak Hour 7: Metoalfe Street South & West Street

Movement				0		83	_		2		×	
	EBF	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		4			4			4			÷	
raffic Volume (veh/h)	=	101	34	9	84	က	0	0	0	-	16	14
Future Volume (Veh/h)	#	101	34	9	84	က	0	0	0	-	16	14
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
Hourly flow rate (vph)	13	122	41	9	98	3	0	0	0	4	64	26
Pedestrians												
-ane Width (m)												
Valking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Jpstream signal (m)		105										
oX, platoon unblocked												
C, conflicting volume	68			163			356	270	142	268	288	88
AC1, stage 1 conf vol												
vC2, stage 2 conf vol												
/Cu, unblocked vol	88			163			326	270	142	268	288	88
C, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
C, 2 stage (s)												
F(s)	2.2			2.2			3.5	4.0	33	3.5	4.0	3.3
on dueue free %	66			100			100	100	100	66	8	8
cM capacity (veh/h)	1506			1416			515	629	902	849	613	971
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
/olume Total	176	92	0	124								
/olume Left	13	9	0	4								
/olume Right	41	က	0	26								
SSH	1506	1416	1700	739								
/olume to Capacity	0.01	0.00	0.01	0.17								
Queue Length 95th (m)	0.2	0.1	0.0	4.8								
Control Delay (s)	9.0	0.5	0.0	10.9								
-ane LOS	4 90	A 6	4 O	10 g								
Approach LOS			×	В								
ntersection Summary												
Average Delay			3.8									
ntersection Capacity Utilization	tion		20.7%	<u> </u>	ICU Level of Service	Service			⋖			
alysis Period (IIIIII)			2									

Synchro 11 Report Page 9 185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis∕Background 2036> Weekday AM Peak Hour 1: Queen Street North & Union Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2036> Weekday AM Peak Hour 2: Queen Street North & Marshall Lane/Site Access 3 08-15-2024

Ť

0.87

0.87

0.84

0.84

0.40

0.40

0.25

0.25

Stop 0% 0.40

421 421 7ree 0% 0.87 484

388 388 388 0% 0.84 462

22

33

9 9

None

None 177 463

499

462

1018

1142

492

1010

1011

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

2.2 100 1098

2.2 98 1065

3.3 100 599

99 231

3.5 99 134

3.3

4.0 100 233

3.5 81 212 501 2 15 1098 0.00 0.00 0.1 A A A

NB 1 489 26 106 0.02 0.0 0.6 0.7 0.7

> 2 0 170 0.02 0.6 26.7 D D

172 40 412 0.42 0.42 16.1 19.8 C

Direction, Lane #
Volume Total
Volume Left
SSH
Volume Right
SCH
Volume to Capacity
Outene Length Stift (m)
Lane LOS
Lane LOS

463

499

462

6.5

7.1

492 6.2

1010

Hell EBI EBI EBI   EBI   EBI   EBI   EBI   EBI   EBI   EBI   EBI   EBI   MBI   NBI		1	Ť	<u>/</u>	1	ţ	1	1		•	٠	-	•
Ordigurations         44         4         4         4         9         25         5         44         9         30         70         40         30         70         40         30         30         345         49         30         30         30         32         5         345         49         30         <	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Colume (verlnt)         1         16         11         14         9         25         5         345         49         30           Volume (verlnt)         1         16         11         14         9         25         5         345         49         30           Author (verlnt)         1         16         11         14         9         25         5         345         49         30           Own rate (vph)         1         19         13         24         15         42         6         392         56         33           Light (m)         1         19         13         24         15         42         6         392         56         33           Light (m)         1         19         13         24         15         42         6         32         56         33           Light (m)         1         19         13         24         15         42         6         32         6         33         14         448           Blocksed         1         1         1         1         1         1         448         14           Spicoration (min)         1	Lane Configurations		T			4			T			4	
Volume (Veh/h)         1         16         11         14         9         25         5         345         49         30           windol         Shop         Shop         Free         1         1         13         24         15         42         6         392         56         33           insignal court Factor         0.86         0.86         0.86         0.86         0.89         0.89         0.89         0.99         1           Speed (m/s)         1         1         1         1         2         4         15         42         6         392         56         33           Bocksage         min stand (exh)         Mintage (exh)         Mone         A         4         448           Bocksage exh)         min stand (m)         315         461         982         969         420         471         448           storage exh)         min stand (m)         36         3         461         982         969         420         471         448           storage exh)         min stand (m)         3         461         982         969         420         471         448           sige (s)         7.1         <	Traffic Volume (veh/h)	_	16	Ξ	14	6	52	2	345	49	30	410	18
Stop   Stop   Stop   Free	Future Volume (Veh/h)	-	16	11	14	6	22	2	345	49	30	410	18
own Factor         0.86         0.86         0.86         0.89         0.99         0.99         0.91         0.99	Sign Control		Stop			Stop			Free			Free	
Hour Factor 0.86 0.86 0.86 0.89 0.89 0.89 0.91  Hour Factor 1 19 13 24 15 42 6 392 56 33  Width (m)  Width (m)	Grade		%0			%0			%0			%0	
Aflow rate (vph)         1         19         13         24         15         42         6         392         56         33           Width (m)         98 Speed (m/s)         1         19         13         24         15         42         6         392         56         33           Width (m)         10         88         4         1         8         8         8         8         8         8         8         8         8         315         8         8         33         315         4         448         8         8         33         315         4         448         8         4         448         8         448 <td< td=""><td>Peak Hour Factor</td><td>0.86</td><td>0.86</td><td>0.86</td><td>0.59</td><td>0.59</td><td>0.59</td><td>0.88</td><td>0.88</td><td>0.88</td><td>0.91</td><td>0.91</td><td>0.91</td></td<>	Peak Hour Factor	0.86	0.86	0.86	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
hydrat (ms)  Author (ms)  Autho	Hourly flow rate (vph)	~	19	13	74	15	45	9	392	26	33	451	20
Width (m)         Width (m)           Mydth (m)         Width (m)           Mydth (m)         Myde (ms)           Lun (Bare (eh))         None           nu storage ver)         More           am storage ver)         More           am storage ver)         More           aton unblocked         More           aton unblocked voll         1008           aton unblocked voll         1008           sage 1 420         471           Atol 3.3         2.2           stage 2 cont vol         1008           niblocked vol         1008           niblocked vol         1008           stage 1 cont vol         100           niblocked vol         1008           stage 2 cont vol         40           niblocked vol         1008           stage 2 cont vol         40           niblocked vol         100           stage 5 cont vol         40           stage 6 sp         40           3.5         4.0           stage 8 sp         420           41         448           pacity (well-h)         190           100 Lane #         6           100 Lane #	Pedestrians												
99 Speed (m/s) Introducing et al. 1862 869 820 871 848  and storage vet)  an storage vet)  an storage vet)  an storage vet)  an storage vet)  and storage vet)  and storage vet)  and storage vet)  315  315  315  316  317  318  319  319  319  319  319  319  319	Lane Width (m)												
nt Blockage uur flare (veh) nur dans	Walking Speed (m/s)												
turn flare (veh)         None           ns porage veh)         315           aem signal (m)         315           aton unlobocked         471           aton (m)         471           stage 2 conf vol         461           stage 2 conf vol         461           stage 2 conf vol         461           stage 4 conf vol         471           stage 8         47           stage 1 conf vol         7.1           stage 8         34	Percent Blockage												
In type and signal (III) and storage with the storage vehicles with the stage 1 control of 1008 987 461 982 969 420 471 448 at 982 5 ont vol or	Right turn flare (veh)												
In storage veh)  atternage veh)  atternage veh)  atternage veh)  atternage veh)  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1008 987 461 982 969 420 471  atternage solit volume  1009 92 98 88 94 93 99  atternage solit volume  1000 239 600 204 245 633 1091  1100 239 600 204 245 633 1091  1100 239 600 204 245 633 1091  1100 239 600 204 245 630 1091  1100 239 600 204 245 633 1091  1100 239 600 204 240 240 240 240 240 240 240 240 2	Median type								None			None	
sam signal (m)  stage 1 cont vol tage 2 cont vol tage 2 cont vol tage 2 cont vol tage 3 cont vol tage 4 20 471  stage 2 cont vol tage 3 420 471  stage 2 cont vol tage 3 420 471  stage 5 cont vol tage 3 420 471  stage 6 3 3 461 982 969 420 471  mblocked vol 1008 987 461 982 969 420 471  mblocked vol 1008 987 461 982 969 420 471  stage 6 3 3 40 33 22  stage 6 2 7.1 6.5 6.2 4.1  stage (s) 3.3 3.5 4.0 3.3 2.2  stage (s) 3.3 40 4.0 3.3 2.0  stage (s) 3.3 40 4.0 2.0  stage (s) 4.0 1.0 1.0 2.0  stage (s) 4.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Median storage veh)												
Attached and the cheed and the cheed and the cheed attached attached attached and the cheed attached a	Upstream signal (m)								315				
Indicating volume 1008 987 461 982 969 420 471  Indicator vol vol stage 1 cont vol stage 2 cont vol stage 2 cont vol stage 2 cont vol stage (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.1  Indicator vol 1008 987 461 982 969 420 471  Indicator vol stage (s) 3.3 3.5 4.0 3.3 2.2  Indicator vol stage (s) 4.1 4.0 3.2 0.9  Indicator vol stage (s) 4.1 4.0 3.2 0.9  Indicator vol stage (s) 4.1 4.0 3.2 0.9  Indicator vol stage (s) 4.1 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	pX, platoon unblocked												
tage 1 conf vol stage 2 conf vol stage (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.1 stage (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.1 stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 stage 2 stage 3 stage	vC, conflicting volume	1008	286	461	982	696	420	471			448		
tage 2 conf vol hole 987 461 982 969 420 471 966 (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.1 414 966 (s) 7.1 6.5 6.2 4.1 4.1 414 966 (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 4.1 4.1 3.3 3.5 4.0 3.3 2.2 4.1 3.1 5.2 4.0 3.3 3.5 4.0 3.3 2.2 4.1 3.1 5.2 4.0 3.3 3.5 4.0 3.3 3.5 4.0 3.3 5.2 4.0 3.3 5.2 4.0 3.3 5.2 4.0 3.3 5.2 4.0 3.3 5.2 4.0 3.3 5.0 4.1 3.3 81 454 504 4.2 504 245 633 1091 1001 Lane # EB1 WB1 NB1 SB1 5.0 4.1 5.0 4.1 5.0 4.1 5.0 4.1 5.0 4.1 5.0 4.1 5.0 4.1 5.0 4.1 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	vC1, stage 1 conf vol												
inflocked vol 1008 987 461 982 969 420 471  stage (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.1  stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2  stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2  stage (s) 3.5 4.0 3.3 2.2  stage (s) 3.5 4.0 3.3 2.2  stage (s) 99 92 98 88 94 93 99  stage (s) 190 239 600 204 245 633 1091  stage (s) 239 600 204 245 633 1091  stage (s) 130 33 81 454 504  stage (s) 141 0.2 5 0.0 1 0.7  stage (s) 180 10 1112  stage (s) 180 194 0.2 0.9	vC2, stage 2 conf vol												
type (s)         7.1         6.5         6.2         7.1         6.5         6.2         4.1           stage (s)         3.5         4.0         3.3         3.2         2.2           eue free %         99         92         98         89         94         93         99           pacity (veh/h)         190         239         600         204         245         633         1091         1           ion Lane #         EB 1         WB 1         SB 1         42         63         99         92         99         89         94         93         99           pacity (veh/h)         190         239         600         204         245         633         1091         1           rel call         33         44         50         20         20         20         20           rel call         34         25         20         33         3         4 <t< td=""><td>vCu, unblocked vol</td><td>1008</td><td>286</td><td>461</td><td>982</td><td>696</td><td>420</td><td>471</td><td></td><td></td><td>448</td><td></td><td></td></t<>	vCu, unblocked vol	1008	286	461	982	696	420	471			448		
stage (s) 3.5	tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5         4,0         3.3         3.5         4,0         3.3         2.2           pacity (verlhr)         199         92         98         88         94         93         99           pacity (verlhr)         199         204         245         633         1091         11           lon, Lane #         EB1         WB1         NB1         SB1         A54         504         17           le Total         33         81         454         504         17         17         A5         504         17         A54         504         17         A5         A6         A7         A	tC, 2 stage (s)												
Age of the Mark of	fF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
apacity (veh/h)         190         239         600         204         245         633         1091           ition Lane #         EB 1         WB 1         SB 1         AS 1         AS 2         AS 3         AS 3           ne Total         33         81         454         504         AS 3	p0 queue free %	66	92	86	88	8	83	66			97		
ition, Lane #         EB 1         WB 1         NB 1         SB 1           ne Total         33         81         454         504           ne Left         1         24         6         20           ne Right         13         34         1091         1112           ne to Capacity         0.11         0.25         0.01         0.03           ne to Capacity         0.11         0.25         0.01         0.03           culo Delay (s)         18.0         19.4         0.2         0.9           culo Delay (s)         18.0         19.4         0.2         0.9           asch LoS         C         A         A           asch LoS         C         C         A           age Delay         C         C         C           ascetion Summary         2.5         C           section Capacity Utilization         56.9%         ICU Level of Service	cM capacity (veh/h)	190	239	009	704	245	633	1091			1112		
ne Total 33 81 454 504  ne Left 1 24 6 33  ne Right 13 42 56 20  ne Right 310 320 1091 1112  ne to Capacity 0.11 0.25 0.01 0.03  ne to Capacity 95th (m) 2.8 7.6 0.1 0.7  LoS 0.01 0.07  c C A A A A A A A A A A A A A A A A A A	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
ne Left 1 24 6 33  ne Right 13 42 56 20  ne to Capacity 0.11 0.25 0.01 0.03  ne to Capacity (s) 180 19.4 0.2 0.9  LOS acct Delay (s) 180 19.4 0.2 0.9  acct LoS C C A A A  acct Delay (s) 180 19.4 0.2 0.9  acct LoS C C A A A  A A A  acct Delay (s) 26 0.00  acct LoS C C A A A  acct Delay (s) 26 0.00  acct LoS C C A A  A A A  acct Delay (s) 26 0.00  acct LoS C C A A  A A  A A  A A  A B  A C C A A  A A	Volume Total	33	81	454	504								
ne Right 13 42 56 20 310 330 1091 1112 ne to Capacity 0.11 0.28 7.6 0.01 0.03 ne Length 95th (m) 2.8 7.6 0.1 0.7 nol Delay (s) 18.0 19.4 0.2 0.9 acach LOS C A A A acach Delay (s) C C C c C C C C C C C C C C C C C C C C	Volume Left	_	54	9	33								
310 330 1091 1112  The to Capacity 5th (m) 2.8 0.1 0.03  The Length 95th (m) 2.8 7.6 0.1 0.7  Tol Delay (s) (2 C A A A A A A A A A A A A A A A A A A	Volume Right	13	45	26	70								
0.11 0.25 0.01 0.03 2.8 7.6 0.1 0.7 18.0 19.4 0.2 0.9 C C A A A 18.0 19.4 0.2 0.9 C C L C 2.5 Idization 56.9% ICU Level of Service	SSH	310	330	1091	1112								
2.8 7.6 0.1 0.7 (1.8.0 19.4 0.2 0.9 0.9 (1.8.0 19.4 0.2 0.9 0.9 (1.8.0 19.4 0.2 0.9 0.9 (1.8.0 19.4 0.2 0.9 0.9 0.9 (1.8.0 19.4 0.2 0.9 0.2 0.9 0.	Volume to Capacity	0.11	0.25	0.01	0.03								
18.0 19.4 0.2 0.9 C C A A C C A A C C A A A C C 2 0.9 Any Ulization 56.9% ICU Level of Service	Queue Length 95th (m)	2.8	9.7	0.1	0.7								
C C A A  18.0 19.4 0.2 0.9  C C  any  2.5  CU Level of Service  15.9%  15.9%	Control Delay (s)	18.0	19.4	0.2	6.0								
18.0 19.4 0.2 0.9 C C C Suy Vulitation 56.9% ICU Level of Service	Lane LOS	ပ	ပ	∢	⋖								
C C 2.5 Pacity Utilization 56.9% ICU Level of Service (min) 15	Approach Delay (s)	18.0	19.4	0.2	6.0								
7 2.5 CU Level of Service 15 15 15	Approach LOS	ပ	ပ										
2.5 Utilization 56.9% ICU Level of Service 15	Intersection Summary												
Utilization 56.9% ICU Level of Service 15	Average Delay			2.5									
	Intersection Capacity Utilization	uo		26.9%	<u>0</u>	J Level o	f Service			В			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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County), ON	
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by of Simcoe	
, Community	
n Street	Plan Inc.
185 Robinso	Trans-Plar

ICU Level of Service

3.3 46.4% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

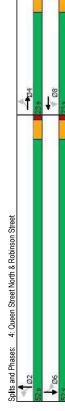
HCM Unsignalized Intersection Capacity Analysis-Background 2036> Weekday AM Peak Hour 3: Queen Street North & Site Access 2

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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<Background 2036> Weekday AM Peak Hour 08-15-2024 Timings 4: Queen Street North & Robinson Street

-	SBT	4	340	340	₹	9		9		5.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Max	52.7	0.78	0.46	5.4	0.0	5.4	⋖	5.4	×									
۶	SBL		98	98	Perm		9	9		2.0	22.5	52.0	69.3%	3.5	1.0					Мах																	<b>a</b>	
•	NBT	4	354	354	¥	7		2		2.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Max	52.7	0.78	0.46	5.0	1.8	6.8	⋖	6.8	∢							LOS: A	CU Level of Service B	
1	NBL		47	47	Perm		2	2		2.0	22.5	52.0	69.3%	3.5	1.0					Max																Intersection LOS: A	U Level o	
¥	WBT	4	23	23	¥	∞		∞		2.0	22.5	23.0	30.7%	3.5	1.0	0.0	4.5			None	9.8	0.13	0.54	21.0	0.0	21.0	ပ	21.0	ပ							프	<u>ප</u>	
-	WBL		16	16	Perm		∞	∞		2.0	22.5	23.0	30.7%	3.5	1.0					None																		
Ť	EBT	4	∞	∞	¥	4		4		2.0	22.5	23.0	30.7%	3.5	1.0	0.0	4.5			None	8.6	0.13	0.24	15.3	0.0	15.3	മ	15.3	Ф									
1	EBL		9	9	Perm		4	4		2.0	22.5	23.0	30.7%	3.5	1.0					None														ıd			n 56.9%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ros	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 67.4	Natural Cycle: 60	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.54	Intersection Signal Delay: 8.1	Intersection Capacity Utilization 56.9% Analysis Period (min) 15	/



185 Robinson Street, Community of Simooe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis <Background 2036> Weekday AM Peak Hour 4: Queen Street North & Robinson Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2036> Weekday AM Peak Hour 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.62

0.62

0.25

**4** C

<u>4</u> 4

Movement of the configurations         EBT         EBT         EBT         WBI         WBI         NBI         NBI         NBI         NBI         NBI         SBI         SBI         AT         AT<		1	Ť	1	1	Ļ	1	1	6 ccc.	4	Þ	-	•
ph/l         6         4	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ph)         6         8         28         16         23         49         47         354         110         86         340           ph)         6         8         28         16         23         49         47         354         110         86         340           ph)         190         1900 <td>Lane Configurations</td> <td></td> <td>4</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td>4</td> <td></td>	Lane Configurations		4			4			4			4	
Part	Traffic Volume (vph)	9	∞	78	16	23	49	47	354	110	98	340	22
1900   1900	Future Volume (vph)	ဖ	∞	78	16	23	49	47	354	110	98	340	25
1.00	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
1,00	Total Lost time (s)		4.5			4.5			4.5			4.5	
150   0.91   0.92   0.97   0.99   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   1.00   0.99   0.92   0.93   0	Lane Util. Factor		1.00			1.00			1.00			1.00	
1572   1507   1608   1000   1039   1000   1039   1000   1039   1000   1031   1501   1502   1501	Fr		0.91			0.92			0.97			0.99	
1683   1707   1800   1831	Flt Protected		0.99			0.99			1.00			0.99	
ted         0,93         0,93         0,93         0,81         0,81         0,81         0,81         1,80	Satd. Flow (prot)		1683			1707			1800			1831	
(perm)         1572         1597         1688         1501           rackor, PHF         0.73         0.73         0.60         0.60         0.64         0.64         0.64         0.64         0.63         0.63           (ph)         8         4         8         2         56         421         11         104         410           daddion (vph)         0         23         0         0         76         0         9         0         6         24           pp beach         Perm         NA         Perm         NA         Perm         NA         Perm         NA           Phases         4         8         7.5         6.78         9         0         542           Phases         4         8         7.5         1.88         2         6         6.82           Phases         4         8         8         6         9         0         0         2.22           Green, Cl         7.5         7.5         7.5         1.88         7.8         6.18         8.18           Green, Cl         3.0         4.5         4.5         4.5         4.5         4.5         4.5	Fit Permitted		0.93			0.93			0.92			0.81	
rfactor, PHF         0,73         0,73         0,73         0,60         0,60         0,84         0,84         0,84         0,84         0,83         0,83         0,83         0,83         0,93	Satd. Flow (perm)		1572			1597			1668			1501	
(vph)         8         11         38         27         38         82         56         421         131         104         410           doduction (vph)         0         34         0         0         71         0         0         9         0         0         22           se deduction (vph)         0         23         0         75         0         0         9         0         0         22           Phases         Perm         NA         Perm         NA         Perm         NA         Perm         NA           Phases         A         Perm         NA         Perm         NA         Perm         NA           Phases         A         Perm         NA         Perm         NA         Perm         NA           Phases         A         A         A         Perm         NA         Perm         NA           Green, g(s)         7.5         7.5         7.5         51.8         51.8         51.8           Green, g(s)         7.5         7.5         4.5         4.5         4.5         4.5           Green, g(s)         7.5         7.5         4.5         4.5         4.5	Peak-hour factor, PHF	0.73	0.73	0.73	09.0	09.0	09.0	0.84	0.84	0.84	0.83	0.83	0.83
Outchion (vph)         0         34         0         71         0         9         0           Outchion (vph)         0         23         0         0         76         0         599         0         0           Phases         A         Perm         NA         Perm         NA         Perm	Adj. Flow (vph)	∞	Ξ	88	27	38	85	26	421	131	104	410	30
up Flow (vph)         0         23         0         76         0         599         0           phases         4         Perm         NA         Perm         NA         Perm           phases         4         8         8         2         6           Phases         4         8         7.5         5.8         6           Phases         4         7.5         7.5         5.18         6           Green, G(s)         7.5         7.5         5.18         6           Green, G(s)         7.5         7.5         5.18         6           Green, G(s)         4.5         7.5         5.18         6           Green, G(s)         4.5         7.5         5.18         6           Action         4.5         4.5         4.5         4.5         4.5           Action         1.72         1.75         1.26         7.7         4.4         7.7         4.4 <t< td=""><td>RTOR Reduction (vph)</td><td>0</td><td>34</td><td>0</td><td>0</td><td>71</td><td>0</td><td>0</td><td>တ</td><td>0</td><td>0</td><td>2</td><td>0</td></t<>	RTOR Reduction (vph)	0	34	0	0	71	0	0	တ	0	0	2	0
Phases         Perm         NA         Perm         NA         Perm           Phases         4         8         2         6           Phases         4         8         2         6           Green, G(s)         7.5         7.5         51.8         6           Green, G(s)         0.11         0.11         0.76         4.5           Arension (s)         3.0         1.75         4.5         4.5           Arension (s)         3.0         1.75         1.265         7.7           Proft         0.13         0.43         0.47         1.00           Arension (s)         0.13         0.43         0.44         1.00           Arension (s) <td< td=""><td>Lane Group Flow (vph)</td><td>0</td><td>23</td><td>0</td><td>0</td><td>9/</td><td>0</td><td>0</td><td>599</td><td>0</td><td>0</td><td>542</td><td>0</td></td<>	Lane Group Flow (vph)	0	23	0	0	9/	0	0	599	0	0	542	0
Phases         4         8         2         6           Phases         4         8         2         5           Phases         4         5         5         5         6           Green, g(s)         7.5         7.5         7.5         51.8         6           Green, g(s)         7.5         7.5         51.8         6         7           Green, g(s)         7.5         7.5         51.8         6         6           ST (Ario)         0.11         0.11         0.76         4.5         4.5         6           Ford (Aph)         172         175         1265         7         6         7           Perm         0.01         0.05         0.36         0.36         0         6           Perm         0.01         0.05         0.05         0.36         0         0           Permission (s)         0.01         0.05         0.36         0 <td>Turn Type</td> <td>Perm</td> <td>Ϋ́</td> <td></td> <td>Perm</td> <td>¥</td> <td></td> <td>Perm</td> <td>¥</td> <td></td> <td>Perm</td> <td>¥</td> <td></td>	Turn Type	Perm	Ϋ́		Perm	¥		Perm	¥		Perm	¥	
Phases	Protected Phases		4			∞			5			9	
Green, G (s)         7.5         7.5         51.8           Green, G (s)         7.5         7.5         51.8           Green, G (s)         7.5         51.8         51.8           Green, G (Station (s))         4.5         4.5         4.5           Attension (s)         3.0         4.5         4.5         4.5           Attension (s)         3.0         3.0         4.5         4.5           Attension (s)         4.5         4.5         4.5         4.5           Attension (s)         4.7         4.5         4.5         4.5           Port         Cap (vpt)         1.05         1.25         0.47         1.25         0.47           Perm         0.01         0.01         0.00         1.00         1.00         4.4         4.4           Perm         0.2         0.4         1.7         4.4         4.	Permitted Phases	4			∞			2			9		
Green, g(s)         7.5         7.5         51.8           9/C Ratio         0.11         0.76         4.5         4.5           4/5         4.5         4.5         4.5         4.5           Attension (s)         3.0         3.0         3.0         3.0           Cap (vph)         172         175         1265         7.2           Prof         0.13         0.43         0.47         0.47           Pelay, d1         27.5         28.4         3.1         0.47           Relay, d2         0.0         1.00         1.00         1.00           Relay, d3         0.0         1.00         1.00         1.00           Revise         0.0         1.0         1.0         4.4         1.0           Liabley, d2         0.0         1.0         1.0         1.0         1.0         1.0           Liabley, d2         0.0         1.0         1.0         4.4         4.4         1.0 <td>Actuated Green, G (s)</td> <td></td> <td>7.5</td> <td></td> <td></td> <td>7.5</td> <td></td> <td></td> <td>51.8</td> <td></td> <td></td> <td>51.8</td> <td></td>	Actuated Green, G (s)		7.5			7.5			51.8			51.8	
g/C Ratio         0.11         0.76           a Filter         0.11         0.76           A Filter         4.5         4.5           Prot         4.5         4.5           Prot         4.5         4.5           Prot         4.5         4.5           Port         0.01         0.05         0.36         c           Perm         0.13         0.43         0.47         0.47           A Belay, d1         27.5         28.4         3.1         0.47           A Belay, d2         0.4         1.00         1.00         1.00           A LOS         27.8         30.1         4.4         4.4           Belay (s)         27.8         30.1         4.4         4.4           Lock         C         C         A         A           Control Delay         8.2         HCM 2000 Level of Service         A           A Control Delay         2.2         2.2         A           A Control De	Effective Green, g (s)		7.5			7.5			51.8			51.8	
Time (s)   4.5	Actuated g/C Ratio		0.11			0.11			9.76			0.76	
xtension (s)         3.0         3.0         3.0           Cap (vph)         172         175         1265         1           Perm         0.01         c0.05         0.36         c0.4         0.47         c0.4           Perm         0.01         c0.05         0.36         c0.4         0.4         c0.4         c0	Clearance Time (s)		4.5			4.5			4.5			4.5	
Cap (vph)         172         175         1265         1           Proft         Cot         Cot         0.36         0.36         0.47           Perm         0.13         0.43         0.47         0.44 </td <td>Vehicle Extension (s)</td> <td></td> <td>3.0</td> <td></td> <td></td> <td>3.0</td> <td></td> <td></td> <td>3.0</td> <td></td> <td></td> <td>3.0</td> <td></td>	Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Prot Prot Could Co	Lane Grp Cap (vph)		172			175			1265			1138	
Perm         0.01         6.00 \$         0.36         oct           Pelay, d1         27.5         0.43         0.47         0.67           Delay, d1         27.5         28.4         3.1         0.47         0.67           on Factor         1.00	v/s Ratio Prot												
leay, d1 27.5 28.4 3.1 0.47 C C C A Delay, d1 27.5 28.4 3.1 0.47 C C C A Delay (s) C C Delay (s) C C C C C C C C C C C C C C C C C C C	v/s Ratio Perm		0.01			c0.05			0.36			c0.36	
Delay, d1	v/c Ratio		0.13			0.43			0.47			0.48	
March   1,00	Uniform Delay, d1		27.5			28.4			3.1			3.1	
tel Delay, d2         0.4         1.7         1.3           ervice         27.8         30.1         4.4           betwice         C         C         A           Delay (s)         27.8         30.1         4.4           LOS         C         A         A           LOS Summany         C         A         A           0 Control Delay         8.2         HCM 2000 Level of Service         A           O/vellume to Capacity ratio         0.47         A         A           Oyde Length (s)         68.3         Sum of lost time (s)         9.0           Por Capacity Utilization         56.9%         ICU Level of Service         B           Por Capacity Utilization         56.9%         ICU Level of Service         B	Progression Factor		1.00			1.00			1.00			1.00	
27.8   30.1   4.4	Incremental Delay, d2		0.4			1.7			1.3			1.4	
C C A  27.8 30.1 4.4  C C C A  In State	Delay (s)		27.8			30.1			4.4			4.6	
27.8 30.1 44  C C C A  I Manual Service A  Capacity ratio 68.3 Sum of lost time (s) 68.9 (CU Level of Service B  Utilization 68.4 (CU Level of Service B  15	Level of Service		ပ			ပ			∢			⋖	
C C A  V  Alay  Subscript Alication  Capacity ratio  Alication  Capacity ratio  Capacity rat	Approach Delay (s)		27.8			30.1			4.4			4.6	
Hom 2000 Level of Service   8.2 Hom 2000 Level of Service   0.47	Approach LOS		ပ			ပ			V			Υ	
slay         8.2         HCM 2000 Level of Service           Capacity ratio         0.47           h (s)         68.3         Sum of lost time (s)           Utilization         56.9%         ICU Level of Service           15         15	Intersection Summary												
Capacity ratio 0.47 Sum of fost time (s) 68.3 Sum of fost time (s) 65.9% ICU Level of Service 15.9% 15	HCM 2000 Control Delay			8.2	ヹ	CM 2000	Level of S	ervice		∢			
h (s) 68.3 Sum of lost time (s) Utilization 56.9% ICU Level of Service	HCM 2000 Volume to Capaci	ity ratio		0.47									
Utilization 56.9% ICU Level of Service 15	Actuated Cycle Length (s)			68.3	รั	ım of lost	time (s)			9.0			
15	Intersection Capacity Utilizati	uo		26.9%	೨	U Level o	of Service			Ф			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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40 Stop 0% 0.25 405 6.5 4.0 100 523 405 0.25 7.1 3.5 98 550 401 CU Level of Service 86 86 86 0% 0.74 116 None 0.00 0.01 12.7 12.7 B 22 0.74 2.2 98 345 224 224 2.2 29.3% 0.83 68 12 56 754 0.09 2.4 2.4 10.2 B 181 181 0% 0.83 218 None 154 30 8 1345 0.02 0.5 107 0.83 124 6 463 0.00 0.0 124 2.2 100 463 224 Average Delay Intersection Capacity Utilization Analysis Period (min) Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coure Length 95th (m)
Lane LOS
Lane LOS Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff. Approach Delay (s) Approach LOS

120 6.2

6.5

7.1

221 6.2

404

457

221

3.3 100 931

4.0 100 524

3.5 100 471

3.3

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

<Background 2036> Weekday AM Peak Hour 08-15-2024 Timings 6: Queen Street North & West Street

HCM Signalized Intersection Capacity Analysis <Background 2036> Weekday AM Peak Hour 6: Queen Street North & West Street

	1	1	-	ļ	1		۶	-	
Lane Group	EB	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		AT.		AT.	F	43	N.	<del>(</del> 2	
Traffic Volume (vph)	207	22	32	61	8	268	47	240	
Future Volume (vph)	207	22	32	61	8	268	47	240	
Tum Type	pm+pt	¥	Perm	¥	Perm	Ϋ́	pm+pt	¥	
Protected Phases	7	4		∞		2	-	9	
Permitted Phases	4		∞		2		9		
Detector Phase	7	4	80	∞	2	2	-	9	
Switch Phase									
Minimum Initial (s)	2.0	15.0	15.0	15.0	23.0	23.0	4.0	29.0	
Minimum Split (s)	9.5	28.0	30.0	30.0	29.0	29.0	0.9	35.0	
Total Split (s)	10.0	40.0	30.0	30.0	29.0	29.0	0.9	35.0	
Total Split (%)	13.3%	53.3%	40.0%	40.0%	38.7%	38.7%	8.0%	46.7%	
Yellow Time (s)	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		0.9		0.9	0.9	0.9	2.0	0.9	
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	Мах	Max	None	Max	
Act Effct Green (s)		15.4		15.4	25.4	25.4	33.0	29.0	
Actuated g/C Ratio		0.27		0.27	0.45	0.45	0.59	0.51	
v/c Ratio		0.52		0.16	0.10	0.48	0.11	0.47	
Control Delay		17.0		14.2	11.3	13.9	2.7	10.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	3.0	
Total Delay		17.0		14.2	11.3	13.9	5.7	13.3	
SOT		Ω		В	Ω	Ω	⋖	В	
Approach Delay		17.0		14.2		13.6		12.3	
Approach LOS		Ф		В		Ф		а	
Intersection Summary									
Cycle Length: 75									
Actuated Cycle Length: 56.4									
Natural Cycle: 75									
Control Type: Semi Act-Uncoord	ord								
Maximum v/c Ratio: 0.52									
Intersection Signal Delay: 14.1	1			<u>=</u>	Intersection LOS: B	LOS: B			
Intersection Capacity Utilization 76.6%	%9.97 nc			2	CU Level of Service D	f Service	۵		
Analysis Period (min) 15									

29.8 29.8 0.52 6.0 3.0 927 c0.24

25.4 25.4 0.44 6.0 3.0 3.0 805

25.4 25.4 0.44 6.0 3.0 42.1

15.4 15.4 0.27 6.0 3.0 729

15.4 15.4 5.27 6.0 3.0 685

Actuated g/C Ratio Clearance Time (s)
Vehicle Extension (s)
Lane Grp Cap (vph)
v/s Ratio Prot

Turn Type
Protected Phases
Permitted Phases
Actuated Green, G (s)
Effective Green, g (s)

29.8 29.8 0.52 2.0 3.0 3.0 461 0.01 0.06 0.13 7.0 1.00 0.1

0.45 8.6 1.00 1.6 10.2 B 9.8

0.48 11.2 2.0 2.0 13.3 B B B

0.04 0.14 15.9 1.00 1.00 16.0 B

0.49 17.6 1.00 0.6 18.2 B 18.2

Progression Factor Incremental Delay, d2

Jniform Delay, d1 v/s Ratio Perm v/c Ratio

Delay (s) Level of Service Approach Delay (s) Approach LOS

0.04 0.10 9.2 1.00 0.5 9.7 A

16.0 D

ω

HCM 2000 Level of Service Sum of lost time (s) ICU Level of Service

13.5 0.51 57.2 '6.6% 15

HCM 2000 Volume to Capacity ratio
Actuated Cycle Length (s)
Intersection Capacity Utilization
Analysis Period (min)
C Ortical Lane Group

240 240 240 1900 6.0 6.0 1.00 1.00 1.78 1.00 1.78 308 420 NA

47 47 47 1900 2.0 2.0 1.00 0.95 177 0.43 60 60 60 60

268 268 1900 6.0 1.00 0.97 1.00 1.00 1.00 327

34 34 1900 6.0 1.00 1.00 1.770 0.51 949 949 949

Frt FIt Protected Satd. Flow (prot)

).82 67

0.92

35

90

0.88

Fit Permitted
Satd. Flow (perm)
Peak-hour factor, PHF
Adj. Flow (vph)
RTOR Reduction (vph)
Lane Group Flow (vph)

8 88 ¥N

Pem 41

55 900

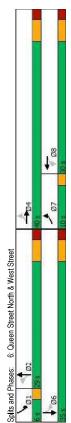
15 15 1900

32 32 1900

79 79 1900

207 207 1900

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Ideal Flow (vphpl)
Total Lost time (s)
Lane Util. Factor



185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis Background 2036> Weekday AM Peak Hour 7: Metcalfe Street South & West Street

Movement         EBI         EBI         EBI         WBI         WBI         WBI         WBI         NBI         NBI         NBI         SBI         SBI         SBI         Lane Configurations         44         45         44         0         44         45         60         1         18         15         15         45         45         60         0         1         18         15         18         15         18		1	Ť	*	-	ţ	1	1	<b>-</b>	•	٠	-	7
11 101 34 6 44 0 0 0 1 1 18 1 11 101 34 6 93 4 0 0 0 0 1 1 18 1 11 101 34 6 93 4 0 0 0 0 1 1 18 1 101 34 6 93 4 0 0 0 0 1 1 18 1 102 34 6 93 4 0 0 0 0 1 1 18 1 103 103 0.88 0.98 0.98 0.61 0.61 0.61 0.25 0.25 1 13 122 41 6 95 4 0 0 4 77  1 105	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
11 101 34 6 93 4 0 0 0 1 18  11 101 34 6 93 4 0 0 0 0 1 18  Free Control Contr	Lane Configurations		4			4			4			4	
11   101   34   6   93   4   0   0   0   1   18     Free   Free   Stop	Traffic Volume (veh/h)	1	101	34	9	93	4	0	0	0	-	9	15
Fige   Fige   Fige   Stop   Stop   O%   O%   O%   O%   O%   O%   O%   O	Future Volume (Veh/h)	1	101	34	9	93	4	0	0	0	-	9	15
0.83 0.83 0.83 0.98 0.96 0.61 0.61 0.65 0.25 13 122 41 6 95 4 0 0 4 72 105 105 106 107 108 109 109 109 109 109 109 109 109 109 109	Sign Control		Free			Free			Stop			Stop	
13 122 41 6 95 4 0 0 0 4 72  14 16 95 4 0 0 0 0 4 72  15 122 41 6 95 4 0 0 0 0 4 72  105 None  105 163 374 280 142 278 298  4.1 4.1 4.1 6.1 6.2 6.2 7.1 6.5 7.1 6.5 6.2 7.1 6.5 7.1 6.	Grade		%0			%0			%0			%0	
13 122 41 6 95 4 0 0 4 72  None None None 163 374 280 142 278 298 160 140 171 6.5 6.2 7.1 6.5 6.2 6.2 7.1 6.5 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2	Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
None None None 105  105  106  107  108  99 163 374 280 142 278 298  4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 1.1 6.5 6.2 6.2 1.1 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2	Hourly flow rate (vph)	13	122	41	9	92	4	0	0	0	4	72	09
None None None 105 105 163 374 280 142 278 298 163 174 280 142 278 298 171 6.5 6.2 7.1 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 171 6.5 6.5 6.5 171 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5	Pedestrians												
None None None 163 374 280 142 278 298 163 143 163 274 280 142 278 298 163 143 163 140 140 140 140 140 140 140 140 140 140	Lane Width (m)												
105 105 106 107 108 109 109 109 109 109 109 109 109 109 109	Walking Speed (m/s)												
None   None   None   None   105   105   163   374   280   142   278   298   163   374   280   142   278   298   163   374   280   142   278   298   399   160   100   100   39   38   34   40   39   38   34   40   39   38   34   40   39   38   39   39   39   39   39   39	Percent Blockage												
None	Right turn flare (veh)												
99 163 374 280 142 278 296 141 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.5 14.0 9.9 88 149 149 149 149 149 149 149 149 149 149	Median type		None			None							
99 163 374 280 142 278 298 143 143 143 143 143 143 143 143 143 143	Median storage veh)												
99 163 374 280 142 278 298 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 999 180 180 180 180 180 180 180 180 180 180	Upstream signal (m)		105										
99 163 374 280 142 278 298 4.1 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.5 1.4 6.5 6.5 6.5 1.4 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5	pX, platoon unblocked												
99 163 374 280 142 278 298 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 5 99 100 100 100 100 100 99 88 100 100 100 100 100 99 88 100 100 100 100 99 88 100 100 100 100 99 88 100 100 100 100 100 100 100 100 100	vC, conflicting volume	66			163			374	280	142	278	298	97
99 163 374 280 142 278 298 298 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 7.1 6.5 6.2 7.1 6.5 7.1 6.5 7.1 6.5 7.1 6.5 7.1 6.5 7.1 6.5 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1 7.1	vC1, stage 1 conf vol												
Inblocked vol         99         163         374         280         142         278         298           side (s)         4.1         4.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5         5.8         298         7.1         6.5         7.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5         6.5         7.1         6.5         7.1         6.5         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         8.8	vC2, stage 2 conf vol												
type (s)         4.1         4.1         7.1         6.5         6.2         7.1         6.5           stage (s)         2.2         2.2         3.5         4.0         3.3         3.5         4.0         5.3         4.0         5.2         4.0         5.2         4.0         5.2         4.0         5.2         4.0         5.0         4.0         5.0         4.0         5.0         4.0         5.0 <t< td=""><td>vCu, unblocked vol</td><td>66</td><td></td><td></td><td>163</td><td></td><td></td><td>374</td><td>280</td><td>142</td><td>278</td><td>298</td><td>97</td></t<>	vCu, unblocked vol	66			163			374	280	142	278	298	97
stage (s)         2.2         2.2         3.5         4.0         3.3         3.5         4.0           eue free %         99         100         100         100         100         99         88           pacify (vehrh)         1494         1416         1416         492         621         905         668         606         8           pacify (vehrh)         1494         181         SB1         492         621         905         668         606         8           er Total         176         105         0         136         4         6         6           er Edith         41         4         6         6         4         8         6         8         6         8         6         8         6         6         8         6         6         8         6         6         8         6         6         8         6         6         8         6         6         8         6         6         8         8         8         8         8         9         8         9         8         9         8         9         8         9         8         9         8         9 <t< td=""><td>tC, single (s)</td><td>4.1</td><td></td><td></td><td>4.1</td><td></td><td></td><td>7.1</td><td>6.5</td><td>6.2</td><td>7.1</td><td>6.5</td><td>6.2</td></t<>	tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
eue free % 99 100 100 33 3.5 4.0 3 8 8 9 9 9 100 100 100 99 88 9 9 9 100 100 100 100 99 88 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	tC, 2 stage (s)												
99 100 100 99 88 1494 1416 492 621 905 668 606 1494 1416 105 0 136 1494 1416 1416 1416 1416 1416 1416 141	tF (s)	2.2			2.2			3.5	4.0	33	3.5	4.0	33
H494 1416 492 621 905 668 606 181 181 181 181 181 181 181 181 181 18	p0 queue free %	66			100			100	100	100	66	88	8
EB1 WB1 NB1 SB1  176 105 0 136  41 4 0 60  1494 1416 1700 726  0.01 0.00 0.01 0.19  0.2 0.1 0.0 5.5  0.6 0.5 0.0 11.1  A A A B  0.6 0.5 0.0 11.1  A B  0.6 0.5 0.0 11.1  A B  140  4.0 IUI  A A B  150  4.0 IUI  A B  160  170  180  180  180  180  180  180  18	cM capacity (veh/h)	1494			1416			492	621	902	899	909	929
176 105 0 136 13 6 0 4 4 1 0 60 1494 1416 1700 726 0.01 0.00 0.01 0.19 0.2 0.1 0.0 5.5 0.6 0.5 0.0 11.1 A A A B 0.6 0.5 0.0 11.1 A B 0.6 0.5 0.0 11.1 A B 1.1 A B 1.1 A B 1.2 0.0 1.1 A B 1.3 A B 1.4 B 4.0 ICU Level of Service	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
13 6 0 4 41 41 7700 726 0.01 0.00 0.01 0.19 0.2 0.1 0.0 5.5 0.6 0.5 0.0 11.1 A A A B 0.6 0.5 0.0 11.1 A A B 0.6 1.5 0.0 11.1	Volume Total	176	105	0	136								
1434 146 0 60 1494 1416 1700 726 0.01 0.00 0.01 0.19 0.6 0.5 0.0 11.1 A A A B 0.6 0.5 0.0 11.1 A A B 0.6 0.5 0.0 11.1 A B 1.0 0.5 0.0 11.1 A B 1.1 0.0 0.1 1.1 A B	Volume Left	13	9	0	4								
1494 1416 1700 726 0.01 0.00 0.01 0.19 0.2 0.1 0.0 5.5 0.6 0.5 0.0 11.1 A A B B 0.6 0.5 0.0 11.1 A B B 4.0 CU Level of Service 15 15 15 15 15 15 15 15 15 15 15 15 15 1	Volume Right	4	4	0	09								
0.01 0.00 0.01 0.19 0.2 0.1 0.0 6.5 0.6 0.5 0.0 11.1 A A A B 0.6 0.5 0.0 11.1 A B 0.6 0.5 0.0 11.1 A B 1.0 CU Level of Service 15 15 15 15 15 15 15 15 15 15 15 15 15 1	SSH	1494	1416	1700	726								
0.2 0.1 0.0 5.5 0.6 0.5 0.0 11.1 0.6 0.5 0.0 11.1 A B B 0.6 0.5 0.0 11.1 A B 4.0 ICU Level of Service 15.0% ICU Level of Service	Volume to Capacity	0.01	0.0	0.01	0.19								
0.6 0.5 0.0 11.1  A A B  0.6 0.5 0.0 11.1  any  4.0 Ulization 21.0% ICU Level of Service	Queue Length 95th (m)	0.2	0.1	0.0	5.5								
A A B  0.6 0.5 0.0 11.1  any  4.0  CU Level of Service  1)	Control Delay (s)	9.0	0.5	0.0	11.1								
0.6 0.5 0.0 11.1  any 4.0  ty Utilization 21.0% ICU Level of Service 1)	Lane LOS	∢	∢	∢	Ф								
A B  Mmary 4.0 4.0 1.0% ICU Level of Service (min) 15	Approach Delay (s)	9.0	0.5	0.0	11.1								
4.0 Utilization 21.0% ICU Level of Service 15	Approach LOS			∢	В								
4.0 Utilization 21.0% ICU Level of Service 15	Intersection Summary												
Utilization 21.0% ICU Level of Service 15	Average Delay			4.0									
	Intersection Capacity Utilization	_		21.0%	೨	U Level o	f Service			∢			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Synchro 11 Report Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis∕Background 2036> Weekday PM Peak Hour 1: Queen Street North & Union Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2036> Weekday PM Peak Hour 2: Queen Street North & Marshall Lane/Site Access 3 08-15-2024

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0.88

0.88

0.92

0.92

0.56

0.56

0.25

0.25

9 9

Stop 0% 0.56 None

None 177

0.97

597

0.97

0.97

0.97

288

0.97

0.97

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

2.2 100 1070

2.2

3.3 100 585

100 205

3.5 100 158

3.3 509

100 207

3.5 78 185 597 0 0 17 1070 0.00 0.00

0.03 0.3 0.3 0.3 0.3

84 44 44 277 0.30 9.9 23.5 C

Direction, Lane #
Volume Total
Volume Left
SSH
Volume Right
SCH
Volume to Capacity
Outene Length Stift (m)
Lane LOS
Lane LOS

2 585 0.00 0.1 11.2 B B

458

597 4.1

458 6.2

096 6.5

7.1

588 6.2

1087 6.5

7.1

510 510 0% 0.88 580

450 450 10% 0.92 489

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6 6

EBI EBT EBR WBL WBT WBR NBL NBT SBL    1		1	Ť	1	1	ţ	1	1		•	۶	-	*
onfigurations	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Colume (verlnt)         6         3         16         15         14         43         20         424         19         24           Volume (verlnt)         6         3         16         15         14         43         20         424         19         24           Own           Own rate (vph)         7         4         19         18         17         52         22         466         21         27           dish of verl (vph)         7         4         19         18         17         52         22         466         21         27           dish of verl (vph)         7         4         19         18         17         52         22         466         21         27           dish of verl (vph)         7         4         19         18         17         52         22         466         21         27           distribution (will)         18         564         1159         1140         476         565         487           Appelloy (will)         13         18         564	Lane Configurations		T			4			4			4	
our Factor (Veh/h) 6 3 16 15 14 43 20 424 19 24 mitrol (Veh/h) 6 3 16 15 14 43 20 424 19 24 mitrol (Veh/h) 7 4 19 18 17 52 22 466 21 27 low rate (vph) 7 4 19 18 17 52 22 466 21 27 low rate (vph) 7 4 19 18 17 52 22 466 21 27 low rate (veh) 7 4 19 18 17 52 22 466 21 27 low rate (veh) 7 4 19 18 17 52 22 466 21 27 low rate (veh) 8 18 148 564 1159 1140 476 565 locotron unblocked littles (veh) 8 1148 564 1159 1140 476 565 locotron unblocked littles (veh) 8 13 2 2 2 2 locotron unblocked littles (veh) 8 13 3 5 4 1 3 3 2 2 2 2 locotron unblocked littles 8 192 589 1007 1076 locotron unblocked veh 8 18 19 2 589 1007 1076 locotron unblocked veh 9 5 9 6 8 9 9 1 9 1 9 9 1 9 1 9 9 1 9 1 9 1 9 1	Traffic Volume (veh/h)	9	က	16	15	14	43	50	424	19	54	495	33
Stop   Stop   Stop   Free	Future Volume (Veh/h)	9	က	16	15	14	43	70	424	19	24	495	3
own Factor         0.84         0.84         0.84         0.84         0.84         0.84         0.89         0.99	Sign Control		Stop			Stop			Free			Free	
Hour Factor 0.84 0.84 0.84 0.82 0.82 0.91 0.91 0.91 0.88  Hour Factor 1 4 19 18 17 52 22 466 21 27  Width (m)	Grade		%0			%0			%0			%0	
Mone	Peak Hour Factor	0.84	0.84	0.84	0.82	0.82	0.82	0.91	0.91	0.91	0.88	0.88	0.88
width (ms)         None           nt Blockage         Int Blockage           tun flate (vet)         Int Blockage           tun flate (vet)         Int Blockage           tun flate (vet)         Int Manuary           nam signal (m)         315           sam signal (m)         315           sam signal (m)         315           sam signal (m)         315           stage 1 cont vol         1198         1148         564         1159         1140         476         565         487           stage 2 cont vol         1198         1148         564         1159         1140         476         565         487           stage 1 cont vol         1198         1148         564         1159         1140         476         565         487           stage 2 cont vol         1198         1148         564         115         41         41           stage (s)         3.5         4.0         3.3         3.5         4.1         41           stage (s)         3.5         4.0         3.3         3.5         4.1         41           stage (s)         3.5         4.0         3.3         3.5         2.2         2.2 </td <td>Hourly flow rate (vph)</td> <td>7</td> <td>4</td> <td>19</td> <td>18</td> <td>17</td> <td>25</td> <td>22</td> <td>466</td> <td>21</td> <td>27</td> <td>295</td> <td>က</td>	Hourly flow rate (vph)	7	4	19	18	17	25	22	466	21	27	295	က
Width (m)         Width (m)           Mydth (m)         Width (m)           Mydth (m)         Myde (ms)           Lun Bare (eh)         None           nn kyce         None           nn kyce         Mone           am signal (m)         315           aton unblocked         118         1148         564         1159         1140         476         565         487           millicing volume         1198         1148         564         1159         1140         476         565         487           millicing volume         1198         1148         564         1159         1140         476         565         487           millicing volume         1198         1148         564         1159         1140         476         565         487           millicing volume         1198         1148         564         1159         1140         476         565         487           sige (s)         3.5         4.0         3.3         2.2         4.1         4.1           sige (s)         3.5         4.0         3.3         2.2         4.1         4.1           sige (s)         3.5         4.0         <	Pedestrians												
99 Speed (m/s) Introducing etch Introducing verb) In storage verb) In storage verb) In storage verb) In storage verb) Introducing verb Introdu	Lane Width (m)												
nt Blockage uur flare (veh) nu flare (veh) nu flare (veh) nu flare (veh) nu strage veh) aten signal (m) aten size veh) aten signal (m) aten size veh) aten size veh aten s	Walking Speed (m/s)												
turn flare (veh)  In type ann signal (m) ans signal (m) ann signal (m) atage 1 conf vol atage 2 conf vol atage 3 conf vol atage 2 conf vol atage 4 conf vol atage 6 conf vol atage 6 conf vol atage 7 conf vol atage 8 conf vol atage 8 conf vol atage 9 conf vol atage 9 conf vol atage 1 conf vol atage 1 conf vol atage 1 conf vol atage 2 conf vol atage 3 conf vol atage 2 conf vol atage 2 conf vol atage 2 conf vol atage 3 conf vol atage 4 conf vol atage 2 conf vol atage 2 conf vol atage 2 conf vol atage 2 conf vol atage 3 conf vol atage 2 conf vol atage 3 conf vol atage 4 conf vol atage 2 conf vol atage 2 conf vol atage 2 conf vol atage 2 conf vol atage 3 conf vol atage 2 conf vol atage 3 conf vol atage 2 con at	Percent Blockage												
In type and signal (III) attorn unblocked attorn unblocke	Right turn flare (veh)												
na storage veh)  atom circular (iii)  atom capacity (iveh/h)  and capacity (veh/h)  and capacity  an	Median type								None			None	
sam signal (m)  sam signal (m)  milcular good multiple 1148 564 1159 1140 476 565  tage 1 cont vol 1198 1148 564 1159 1140 476 565  tage 2 cont vol 1198 1148 564 1159 1140 476 565  tage 2 cont vol 1198 1148 564 1159 1140 476 565  milcocked vol 1198 1148 564 1159 1140 476 565  tage 2 cont vol 1198 1148 564 1159 1140 476 565  tage 3 3 3 4 0 33 3.5 4.0 33 2.2  tage (s) 3 5 4 0 33 3.5 4.0 33 2.2  the Fight 1 3 189 525 158 192 589 1007 11  ton, Lane # EB1 WB1 NB1 SB1  ton, Lane # B2 2 2 7  ton, Lane # B3 4 4 4 4 5 5 5 5 6 5 6 5 6 5 6 6 6 6 6 6	Median storage veh)												
Authority cellularity volume 1198 1148 564 1159 1140 476 565 441 4189 1140 476 565 4189 1140 476 565 4189 1140 476 565 4189 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Upstream signal (m)								315				
Augus (ou)me 1198 1148 564 1159 1140 476 565 4 1139 1140 476 565 4 1139 1140 476 565 4 1139 1140 476 565 4 1139 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 4 1 1140 476 565 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	pX, platoon unblocked												
Asigne Loom' vol stage 2 conf vol miles (s) 2.0 m vol stage 2 conf vol miles (s) 2.1 6.5 6.2 4.1 6.5 6.2 6.2 4.1 6.5 6.2 6.2 4.1 6.5 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2	vC, conflicting volume	1198	1148	264	1159	1140	476	265			487		
stage 2 conf vol         tage 2 co	vC1, stage 1 conf vol												
indicocked vol 1198 1148 564 1159 1140 476 565 4.1 stage (s) 7.1 6.5 6.2 4.1 stage (s) 3.5 4.0 3.3 2.2 4.1 stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 4.1 stage (s) 3.5 4.0 3.3 2.2 4.1 stage (s) 3.5 4.0 3.3 2.2 4.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	vC2, stage 2 conf vol												
ygle (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.1 stage (s) 3.5 4.0 3.3 2.2 are free % 95 96 99 91 91 92 32 2.2 are free % 95 98 96 89 91 91 92 92 92 92 92 92 92 92 92 92 92 92 92	vCu, unblocked vol	1198	1148	264	1159	1140	476	265			487		
stage (s) 3.5	tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
ue free %         3.5         4,0         3.3         3.5         4,0         3.3         2.2           pacity (veh/h)         13         18         96         89         91         91         98           pacity (veh/h)         13         18         158         192         589         1007         111           fon, Lane #         EB1         WB1         NB1         581         1007         111           er Total         30         87         509         592         7         7         8         1007         111           er Effitt         7         18         22         27         29         1007         1006         1006         1007	tC, 2 stage (s)												
agacity (vehhh) 133 189 525 158 192 589 1007 11 agacity (vehhh) 133 189 525 158 192 589 1007 11 and total 30 87 500 392 and teleft 7 18 22 27 and teleft 19 52 21 3 and teleft 19 52 3 and teleft 19 32 32 32 and teleft 19	tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
apacity (veh/h) 133 189 5.25 158 192 589 1007  tion. Lane # EB1 WB1 NB1 SB1  The Total 30 87 509 592  The Left 7 18 5.2 27  The Right 27 3 289 1007 1076  The Left 27 2 27  The Left 27 8 2.2 27  The	p0 queue free %	92	86	96	68	9	9	86			6		
ston Lane #         EB 1         WB 1         NB 1         SB 1           ne Total         30         87         509         592           ne Left         7         18         22         27           ne Right         19         52         21         3           ne to Capacity         0.11         0.29         10.7         10.76           ne Length 95th (m)         2.9         9.4         0.5         0.6           nol Delay (s)         19.8         21.9         0.6         0.7           LOS         C         A         A         A           acetion Summary         C         C         A         A           age Delay         C         C         C         C           cection Capacity Utilization         2.6         0.7         LOL Level of Service	cM capacity (veh/h)	133	189	525	158	192	288	1007			1076		
ne Total 30 87 509 592  ne Left 7 18 22 27  ne Right 19 22 27  ne Right 273 299 1007 1076  ne to Capacity 0.11 0.29 0.02 0.03  ne to Capacity 0.11 0.29 0.05 0.07  LOS 0.07  C C A A A A A A A A A A A A A A A A A	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
ne Left 7 18 22 27  ne Right 19 52 27  ne Right 273 29 21 3  ne to Capacity 0.11 0.29 0.02 0.03  ne Length 95th (m) 2.9 9.4 0.5 0.6  rol Delay (s) 19.8 21.9 0.6 0.7  oach Delay (s) 19.8 21.9 0.6 0.7  oach LOS C A A A  actor Summary C C C A A  age Delay  section Summary 26  section Summary 27  26  27  28  28  CU Level of Service 27  15  28  29  20  20  20  20  20  20  20  20  20	Volume Total	30	87	209	592								
ne Right 19 52 21 3 29 1007 1076 213 299 1007 1076 219 29 4 0.5 0.6 210 C A A A 220 C C A A A 220 C C C A A 230 C C C A A 240 C C C A A 250 C C C C C C C C C C C C C C C C C C C	Volume Left	7	9	22	27								
re to Capacity (176  re to Capacity (177  re Length 95th (m) 2.9 9 1007 1076  re Length 95th (m) 2.9 9 4 0.5 0.6  rol Delay (s) 2.9 9.4 0.5 0.6  C C A A A A A A A A A A A A A A A A A	Volume Right	19	25	21	3								
0.11 0.29 0.02 0.03 2.9 9.4 0.5 0.6 2.9 0.4 0.5 0.7 2 0 A A 19.8 21.9 0.6 0.7 2 C C 2 C 2 A A 19.8 21.9 0.6 0.7 47.0% ICU Level of Service	SSH	273	588	1007	1076								
29 9.4 0.5 0.6 19.8 21.9 0.6 0.7 19.8 21.9 0.6 0.7 C C A A 19.8 21.9 0.6 0.7 C C 2.6 47.0% ICU Level of Service	Volume to Capacity	0.11	0.29	0.02	0.03								
19.8 21.9 0.6 0.7 C C A A C C A A C C A A A C C 2.0 0.7 C C 2.0 0.7 Any 2.6 ICU Level of Service	Queue Length 95th (m)	5.9	9.4	0.5	9.0								
C C A A A 198 21.9 0.6 0.7 C C S S O S O S O S O S O S O S O S O S	Control Delay (s)	19.8	21.9	9.0	0.7								
19.8 21.9 0.6 0.7 C C Suppose	Lane LOS	ပ	ပ	∢	⋖								
C C 2.6 2.6 2.6 2.7.0% ICU Level of Service 1.5 1.5	Approach Delay (s)	19.8	21.9	9.0	0.7								
y 2.6 Utilization 47.0% ICU Level of Service 15	Approach LOS	ပ	ပ										
2.6 Utilization 47.0% ICU Level of Service 15	Intersection Summary												
Utilization 47.0% ICU Level of Service	Average Delay			2.6									
	Intersection Capacity Utilization	5		47.0%	<u> </u>	J Level o	f Service			⋖			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 1

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ICU Level of Service

1.8 46.3% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

0.0

Approach Delay (s) Approach LOS

HCM Unsignalized Intersection Capacity Analysis-Background 2036> Weekday PM Peak Hour 3: Queen Street North & Site Access 2

1 459 8 5 1 459 8 5 1 459 8 5 1 769 8 5 1 769 0.86 0.88 0.88 0.50 0.86 0.88 0.88 0.91 99 0.91 0.91 99 0.91 0.91 8B 1 0.91 99 0.91 99 0.91 99 0.91 99 0.91 99 0.91 0.91 0.02 0.01 0.0 0.2 0.01 0.0 0.1 0.02 0.0 0.02 0.0 0.02 0.0 0.03 0.0	× ×	<b>√</b> agw	<b>←</b> F	<b>₹</b>	<b>≯</b> ₹	→ SBT	
3 1 459 8 3 1 459 8 3 1 459 8 3 1 459 8 6 2 0.50 0.86 0.86 6 2 534 9 0.91 0.91 99 0.91 0.91 99 7 100 442 6.4 6.2 3.5 3.3 3.3 97 100 442 6 0 6 2 0 0 0 2 51 170 101 0.8 0.0 0.1 0.8 0.0 0.1 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.1 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.8 0.0 0.2 0.9 0.0 0.2 0.0 0.2 0.2 0.0 0.2 0.2 0.0 0.2 0.2 0.2 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.3 0.2 0.2 0.2 0.3 0.2		L	2	NON!	ODF.	100	
3 1 459 8 Stop Free 0% 0.50 0.86 0.86 0.50 0.86 0.86 0.91 0.91 1136 538 142 142 64 6.2 35 3.3 97 100 8 540 8 541 158 0.0 0.2 C A 1198 0.0 0.2 C A 111% 158 1.00 168 0.0 0.1 C A 111%	9	3	459	8	2	516	
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185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 3

Synchro 11 Report Page 4

## Timings <br/> Sackground 2036> Weekday PM Peak Hour 4: Queen Street North & Robinson Street <br/> 08-15-2024

ane Group ane Configurations rraffic Volume (vph) uture Volume (vph) Protected Phases Pemitted Phases	10 10 Hem 4 4	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	WBL 48 48 Pem 8 8	WBT 15 NA 8 8 8	NBL 19 19 Pem 2 2 2 2	NBT 391 391 2 2 2 2 2	78 78 Perm 6 6	SBT 432 432 432 NA NA 06 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Switch Phase Minimum Initial (s) Minimum Split (s) rotal Split (s) rotal Split (s) rellow Time (s) Alt-Red Time (s) ost Time Adjust (s) rotal Lost Time (s) ead/Lag ead-Lag Optimize?		5.0 22.5 23.0 30.7% 3.5 1.0 0.0	5.0 22.5 23.0 30.7% 3.5 1.0	5.0 22.5 23.0 30.7% 3.5 1.0 0.0	5.0 22.5 52.0 52.0 3.5 1.0	5.0 22.5 52.0 52.0 69.3% 3.5 1.0 0.0	5.0 22.5 52.0 52.0 69.3% 1.0	5.0 22.5 52.0 52.0 69.3% 3.5 1.0 0.0 4.5	
Accan wood we Accan wood water Green (s) Actuated g/C Ratio for Ratio for Ratio Journal Delay Jouene Delay Colled Delay Colled Delay Colled Delay Colled Delay Approach Delay Approach Delay Approach LoS	<u>n</u>	10.5 0.15 0.23 16.9 16.9 16.9		10.5 0.15 0.61 25.7 25.7 C	N N N N N N N N N N N N N N N N N N N	51.1 0.72 0.43 0.43 5.6 8.1 8.1	ğ M	51.1 0.72 0.52 7.0 7.0 7.0 7.0 7.0	
Intersection Summary  you'de Length: 75  Actuated Cycle Length: 70.7  Natural Cycles (0.6)  Control Type: Semi Act-Uncord  Maximum v/c Ratio: 0.61  Intersection Signal Delay: 10.3  Intersection Capacity Utilization 77.4%  Intersection Capacity Utilization 77.4%  Analysis Period (min) 15	rd 5 n 77.4%			ΞΩ	ntersection LOS: B	LOS: B			

Splits and Phases: 4: Queen Street North & Robinson Street

HCM Signalized Intersection Capacity Analysis <Background 2036> Weekday PM Peak Hour 4: Queen Street North & Robinson Street

HCM Unsignalized Intersection Capacity Analysis∕Background 2036> Weekday PM Peak Hour 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.35

0.35

0.50

0.50

0.89

0.89

0.87

0.87

40

15

129 129 0% 0.89

162 162 162 0% 0.87

30 30

FBL   FBT   FBR   WBL   WBT   WBR   NBL   NBT   NBR   SBL     10	titue (syl)         EBI         EBI         WBL         WBT         WBL         NBT         NBT <th< th=""><th></th><th>1</th><th>Ť</th><th>1</th><th>1</th><th><b>↓</b></th><th>1</th><th>1</th><th></th><th>•</th><th>•</th><th>-</th><th>7</th></th<>		1	Ť	1	1	<b>↓</b>	1	1		•	•	-	7
figurations for the figuration for figuration figuration for figuration figuration for figuration figuration for figuration for figuration figuration for figuration figuration	figurations         the section of the control of	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Nume (vph)         10         16         25         48         15         67         19         391         79         78           Jume (vph)         10         16         25         48         15         67         19         391         79         78           Jume (vph)         100         100         1900<	tume (vph)         10         16         25         48         15         67         19         331         79         78           tume (vph)         10         16         25         48         15         67         19         391         79         78           v (vphpl)         1900	Lane Configurations		4			4			4			4	
lume (vph)         10         16         25         48         15         67         19         391         79         78           v (vphpl)         1900	v(pht)         10         16         25         48         15         67         19         391         79         78           v(pht)         100         190	Traffic Volume (vph)	10	16	52	48	15	29	19	391	79	28	432	6
trine (s) 1900 1900 1900 1900 1900 1900 1900 14 trine (s) 1.00 1900 1900 1900 1900 1900 1900 1900	trime (s) 1900 1900 1900 1900 1900 1900 1900 190	Future Volume (vph)	10	16	52	48	15	29	19	391	79	78	432	6
time (s) 4.5 4.5 4.5 4.5 4.5 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	trime (s) 4.5 4.5 4.5 4.5 4.5 Feator 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         1,00         1,00         1,00           ted         0,993         0,998         1,00           ted         0,993         0,998         1,00           ted         0,993         0,988         1,00           ted         0,993         0,988         1,00           ted         0,993         0,987         1,00           ted         0,993         0,988         1,00           ted         0,993         0,988         1,00           ted         0,82         0,82         0,75         0,89         0,89           ted         0,82         0,82         0,75         0,89         0,87         0           dougleton (ph)         0         26         0         58         0         0         7         0         0           dougleton (ph)         0         26         0         158         0         7         0         0           derine (s)         0         0         0         0         0         2         0         0           derine (s)         0         0         0         0         0         0         0         0         0         0	Factor         1,00         1,00         1,00           red         0,99         0,98         0,98         1,00           red         0,99         0,98         1,00         1,00           red         0,99         0,98         0,88         1,00           red         0,93         0,88         1,00         1,00           red         0,93         0,88         0,75         0,75         0,75         0,75           red         1,2         20         30         64         20         89         0,89         0,89         0,89           v(ph)         1,2         20         30         64         20         89         0,89         0	Total Lost time (s)		4.5			4.5			4.5			4.5	
the different between	ted (pot) (1724 1702 1819 1.00 (pot) (pot) (1724 1702 1819 1.00 (pot) (p	Lane Util. Factor		1.00			1.00			1.00			1.00	
tied (1999 0.899 1.000	ted (102) (103) (1	뀨		0.93			0.93			0.98			1.00	
w (prot)         1774         1702         1819           ted         0.93         0.87         0.97           ted         0.82         0.82         0.75         0.75         0.89         0.89         0.87           (pm)         1 (22)         0.80         0.75         0.75         0.89         0.89         0.87         0.77           (pm)         1 (2         20         30         64         20         89         21         439         89         0.89         0.87         0.90	tred (prot) 1724 1702 1819 ted (prot) 1622 0.82 0.82 0.75 0.75 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.75 0.75 0.89 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.75 0.75 0.89 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.75 0.75 0.89 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.75 0.75 0.89 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.75 0.89 0.89 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.75 0.89 0.89 0.89 0.87 treator, PHF 0.82 0.82 0.75 0.89 0.89 0.89 0.87 treator, C(s) 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5	Fit Protected		0.99			0.98			1.00			0.99	
tred   0,93	tied         0.83         0.87         1774           w (perm)         1622         0.82         0.75         0.75         0.75         0.75         0.75         0.75         0.75         0.75         0.75         0.75         0.75         0.75         0.89         0.89         0.87           (vph)         12         0.8         0.7         0.0         0         5         0 <td>Satd. Flow (prot)</td> <td></td> <td>1724</td> <td></td> <td></td> <td>1702</td> <td></td> <td></td> <td>1819</td> <td></td> <td></td> <td>1845</td> <td></td>	Satd. Flow (prot)		1724			1702			1819			1845	
w (perm)         1622         1599         1774         1           reduction (vph)         0.82         0.82         0.75         0.75         0.89         0.89         0.87         0           v(vph)         12         0         0         64         20         0         0         7         0         0           actuation (vph)         0         26         0         0         115         0         0         7         0         0           up Flow (vph)         0         36         0         0         115         0         0         7         0         0           up Flow (vph)         0         36         0         0         115         0         0         7         0         0           up Flow (vph)         0         36         0         0         115         0<	March   Marc	Fit Permitted		0.93			0.87			0.97			0.86	
(vpf)         0.82         0.82         0.75         0.75         0.89 <t< td=""><td>rector, PHF         0.82         0.82         0.75         0.75         0.75         0.89         0.89         0.89         0.89         0.87           (vpfi)         12         20         30         64         20         89         21         439         89         90           obduction (vph)         0         36         0         0         115         0         6         90         0</td><td>Satd. Flow (perm)</td><td></td><td>1622</td><td></td><td></td><td>1509</td><td></td><td></td><td>1774</td><td></td><td></td><td>1599</td><td></td></t<>	rector, PHF         0.82         0.82         0.75         0.75         0.75         0.89         0.89         0.89         0.89         0.87           (vpfi)         12         20         30         64         20         89         21         439         89         90           obduction (vph)         0         36         0         0         115         0         6         90         0	Satd. Flow (perm)		1622			1509			1774			1599	
(vph)         12         20         30         64         20         89         21         439         89         90           abduction (wph)         0         26         0         64         20         89         21         439         89         90           abduction (wph)         0         26         0         0         7         0         0           abduction (wph)         0         26         0         10         7         0         0           Phases         4         A         Perm         NA         Perm         A         Perm           Phases         4         B         A         A         Perm         A         Perm           Green, g(s)         0.15         0.15         0.15         51.1         6         6           Green, g(s)         0.15         0.15         0.15         0.72         0.72         0           Green, g(s)         0.15         0.15         0.15         0.15         0.72         0           Green, g(s)         0.15         0.15         0.15         0.15         0.12         0.12           Green, g(s)         0.15         0.15         0.15 <td>(vph)         12         20         30         64         20         89         21         439         89         90           eduction (vph)         0         26         0         0         58         0         0         7         0         0           eduction (vph)         0         26         0         0         7         0         0           eduction (vph)         Perm         NA         Perm         NA         Perm         Perm           Phases         4         8         2         Perm         A         Perm           Phases         4         8         10.5         51.1         Perm         A.5         Perm         A.5         A.5         Perm         A.5         Perm         A.5         A.5         Perm         A.5         Perm         A.5         A.5         A.5         Perm         <t< td=""><td>Peak-hour factor, PHF</td><td>0.82</td><td>0.82</td><td>0.82</td><td>0.75</td><td>0.75</td><td>0.75</td><td>0.89</td><td>0.89</td><td>0.89</td><td>0.87</td><td>0.87</td><td>0.87</td></t<></td>	(vph)         12         20         30         64         20         89         21         439         89         90           eduction (vph)         0         26         0         0         58         0         0         7         0         0           eduction (vph)         0         26         0         0         7         0         0           eduction (vph)         Perm         NA         Perm         NA         Perm         Perm           Phases         4         8         2         Perm         A         Perm           Phases         4         8         10.5         51.1         Perm         A.5         Perm         A.5         A.5         Perm         A.5         Perm         A.5         A.5         Perm         A.5         Perm         A.5         A.5         A.5         Perm         A.5         Perm <t< td=""><td>Peak-hour factor, PHF</td><td>0.82</td><td>0.82</td><td>0.82</td><td>0.75</td><td>0.75</td><td>0.75</td><td>0.89</td><td>0.89</td><td>0.89</td><td>0.87</td><td>0.87</td><td>0.87</td></t<>	Peak-hour factor, PHF	0.82	0.82	0.82	0.75	0.75	0.75	0.89	0.89	0.89	0.87	0.87	0.87
value(ion (vph))         0         26         0         58         0         0         7         0         0           up Flow (vph)         Perm         NA         Perm         NA         Perm         NA         Perm           Inbases         4         8         8         2         2         6           Phases         4         8         8         2         6         6           Phases         4         8         8         2         6         6           Phases         4         8         8         2         6         6           Gleen, (s)         10.5         10.5         51.1         6         6           Green, (s)         10.5         10.5         51.1         6         7           Green, (s)         3.0         4.5         4.5         4.5         6         7           Adersion (s)         3.0         4.5         4.5         4.5         7         6           Adersion (s)         3.0         3.0         3.0         3.0         3.0         3.0           Adersion (s)         2.2         2.2         2.2         4.9         4.9         4.9	Outbrillion (vph)         0         26         0         58         0         0         7         0         0           Outbrillion (vph)         Perm         NA         Perm         NA         Perm         A         Perm         Perm <td>Adj. Flow (vph)</td> <td>12</td> <td>70</td> <td>30</td> <td>64</td> <td>20</td> <td>83</td> <td>21</td> <td>439</td> <td>88</td> <td>90</td> <td>497</td> <td>10</td>	Adj. Flow (vph)	12	70	30	64	20	83	21	439	88	90	497	10
up Flow (vph)         0         36         0         115         0         542         0         0           Phases         Phases         4         Perm         NA         Perm         NA         Perm           Phases         4         8         2         6         6           Green, G(s)         10.5         10.5         51.1         5         6           Green, G(s)         10.5         10.5         51.1         5         6         6           Green, G(s)         10.5         4.5         4.5         4.5         4.5         4.5         6           Atmerison (s)         3.0         4.5 <th< td=""><td>between (vph)         0         36         0         115         0         542         0         0           besses         Perm         NA         Perm         NA         Perm         NA         Perm           Phases         4         8         2         2         6           Phases         4         8         2         6         6           Phases         4         8         2         6         6           Phases         4         8         2         6         6           Green, G(s)         10.5         10.5         51.1         6         6           Green, G(s)         10.5         10.5         51.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         1.1         6         1.1         6         1.1         6         1.1         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1</td><td>RTOR Reduction (vph)</td><td>0</td><td>56</td><td>0</td><td>0</td><td>28</td><td>0</td><td>0</td><td>7</td><td>0</td><td>0</td><td>-</td><td>0</td></th<>	between (vph)         0         36         0         115         0         542         0         0           besses         Perm         NA         Perm         NA         Perm         NA         Perm           Phases         4         8         2         2         6           Phases         4         8         2         6         6           Phases         4         8         2         6         6           Phases         4         8         2         6         6           Green, G(s)         10.5         10.5         51.1         6         6           Green, G(s)         10.5         10.5         51.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         6         1.1         6         1.1         6         1.1         6         1.1         6         1.1         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1.2         1	RTOR Reduction (vph)	0	56	0	0	28	0	0	7	0	0	-	0
Phases	Phases	Lane Group Flow (vph)	0	36	0	0	115	0	0	542	0	0	596	0
Phases	Phases	Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Phases	Phases	Protected Phases		4			∞			7			9	
Green, G (s)         10.5         10.5         51.1         56.1           Gleen, g (s)         10.5         10.5         51.1         51.1           Gleen, g (s)         10.5         10.5         51.1         51.1           Gleen, g (s)         4.5         4.5         4.5         4.5           Attension (s)         3.0         3.0         3.0         3.0           Attension (s)         3.0         3.0         3.0         1.24         <	Geen, G(s)         10.5         10.5         51.1           Green, g(s)         10.5         10.5         51.1           Green, g(s)         10.5         10.5         51.1           Green, g(s)         1.5         0.15         0.72           Atherston         4.5         4.5         4.5           Atherston (s)         3.0         3.0         3.0           Cap (vph)         241         22.4         1284           Perm         0.02         0.08         0.31           Perm         0.15         0.51         0.42           Perm         0.15         0.51         3.9           Perm         0.2         2.0         1.0           Perm         0.3         2.0         1.0           Perm         0.3         2.0         1.0           Perm         0.3         2.0         1.0           Pervice         0.0         0.0         1.0 </td <td>Permitted Phases</td> <td>4</td> <td></td> <td></td> <td>∞</td> <td></td> <td></td> <td>2</td> <td></td> <td></td> <td>9</td> <td></td> <td></td>	Permitted Phases	4			∞			2			9		
Green, g(s)         10.5         10.5         51.1         g g craft           g/C Rafto         0.15         0.15         0.72         0.72           g/C Rafto         4.5         4.5         4.5         0.72           Atension (s)         3.0         3.0         3.0         0.72         0.72           Atension (s)         2.41         2.24         1.284         1         1.284         1           Perm         0.02         0.008         0.31         0.42         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43         0.43 <td>Green g (s)         10.5         10.5         51.1           g/C Ratio         0.15         0.15         0.72           g/C Ratio         4.5         4.5         4.5           Attension (s)         3.0         3.0         3.0           Attension (s)         2.41         2.24         1.284           Prot         0.02         c.0.08         0.31           Perm         0.15         0.51         0.42           Delay, d1         2.6.2         2.7.7         3.9           on Factor         1.00         1.00         1.00           rata Delay, d2         0.3         2.0         1.0           service         C         A         A           control Delay         2.6.5         2.9.7         4.9           consultation         0.51         A         A           control Delay         9.4         HCM 2000 Level of Service         A           of Oydernet to Capacity ratio         0.51         C         A           of Oydernet bength (s)         7.7.4%         ICU Level of Service         D           d2         0.55         C         A         A           d3         C         C         A</td> <td>Actuated Green, G (s)</td> <td></td> <td>10.5</td> <td></td> <td></td> <td>10.5</td> <td></td> <td></td> <td>51.1</td> <td></td> <td></td> <td>51.1</td> <td></td>	Green g (s)         10.5         10.5         51.1           g/C Ratio         0.15         0.15         0.72           g/C Ratio         4.5         4.5         4.5           Attension (s)         3.0         3.0         3.0           Attension (s)         2.41         2.24         1.284           Prot         0.02         c.0.08         0.31           Perm         0.15         0.51         0.42           Delay, d1         2.6.2         2.7.7         3.9           on Factor         1.00         1.00         1.00           rata Delay, d2         0.3         2.0         1.0           service         C         A         A           control Delay         2.6.5         2.9.7         4.9           consultation         0.51         A         A           control Delay         9.4         HCM 2000 Level of Service         A           of Oydernet to Capacity ratio         0.51         C         A           of Oydernet bength (s)         7.7.4%         ICU Level of Service         D           d2         0.55         C         A         A           d3         C         C         A	Actuated Green, G (s)		10.5			10.5			51.1			51.1	
g/C Ratio         0.15         0.72         C           s = Time (s)         4.5         4.5         0.72         C           c = Time (s)         4.5         4.5         4.5         4.5         C           c = Time (s)         3.0         3.0         3.0         3.0         3.0         1.284         1         1           Prot         0.02         c.0.08         0.31         c/l.         0.31         c/l.         c/l.<	g/C Ratio         0.15         0.15         0.72           a Time (s)         4.5         4.5         4.5           b Tool (c)         3.0         3.0         3.0           Cap (vph)         241         224         1284           Prot         0.02         0.08         0.31           Perm         0.02         0.08         0.31           Delay, d1         26.2         27.7         3.9           on Factor         0.10         1.00         1.00           tal Delay, d2         0.3         2.0         1.0           service         C         C         A           control Delay         26.5         29.7         4.9           t LOS         C         A           n Summary         0.51         A           o Control Delay         9.4         HCM 2000 Level of Service         A           O Control Delay         0.51         C         A           O Control Capacity ratio         0.51         C	Effective Green, g (s)		10.5			10.5			51.1			51.1	
Time (s)   4.5   4.5   4.5   4.5     Attaine (s)   3.0   3.0   3.0     Attaine (s)   3.0   3.0     Attaine (s)   2.4   2.24   1.284   1.284     Prof.   2.4   2.24   1.284   1.284     Prof.   2.6   2.0   0.31   0.0     Prof.   2.6   2.7   3.9     Prof.   2.6   2.7   3.9     Prof.   2.6   2.7   3.9     Prof.   2.6   2.7   3.9     Prof.   2.6   2.9   4.9     Prof.   2.6   2.9     Prof.   2.6     Pr	Attent (s) 4.5 4.5 4.5 Attent (s) 3.0 3.0 Attent (s) 3.0 3.0 3.0 Attent (s) 2.4 1.22	Actuated g/C Ratio		0.15			0.15			0.72			0.72	
Attension (s)         3.0         3.0         3.0           Cap (vph)         241         224         1284         1           Cap (vph)         241         224         1284         1           Perm         0.02         c.0.08         0.31         c.0           Perm         0.02         c.0.08         0.31         c.0           Delay, d1         0.15         0.51         0.42         c.0           Delay, d2         2.0         2.77         3.9         c.0           Tal Delay, d2         0.3         2.0         1.0         1.0         1.0           Tal Delay, d2         2.6.5         2.9.7         4.9         4.9         1.0           LOS         C         C         A         A         A         A           Delay (s)         2.6.5         2.9.7         4.9         A         A           LOS         C         A         A         A         A           D Control Delay         9.4         HCM 2000 Level of Service         A         A           Octotrol Delay         3.0         3.0         A         A           Octotrol Delay         7.0         Sum of lost time (s) <t< td=""><td>Attension (s)         3.0         3.0         3.0           Attension (s)         241         224         1284           Prof         0.02         c.0.08         0.31           Perm         0.15         0.51         0.42           Perm         0.15         0.51         0.31           Perm         0.15         0.51         0.42           Perm         0.15         0.51         0.42           Perm         0.15         27.7         3.9           Delay         d.2         27.7         3.9           Delay         d.2         2.0         1.0           Service         C         C         A           C C         C         A           A Discovery         C         C         A           A Discovery         C         C         A           O Control Delay         9.4         HCM 2000 Level of Service         A           O Control Delay         3.4         HCM 2000 Level of Service         A           O Control Delay         3.0         A         A           O Control Delay         3.0         A           O Control Delay         3.0         A</td><td>Clearance Time (s)</td><td></td><td>4.5</td><td></td><td></td><td>4.5</td><td></td><td></td><td>4.5</td><td></td><td></td><td>4.5</td><td></td></t<>	Attension (s)         3.0         3.0         3.0           Attension (s)         241         224         1284           Prof         0.02         c.0.08         0.31           Perm         0.15         0.51         0.42           Perm         0.15         0.51         0.31           Perm         0.15         0.51         0.42           Perm         0.15         0.51         0.42           Perm         0.15         27.7         3.9           Delay         d.2         27.7         3.9           Delay         d.2         2.0         1.0           Service         C         C         A           C C         C         A           A Discovery         C         C         A           A Discovery         C         C         A           O Control Delay         9.4         HCM 2000 Level of Service         A           O Control Delay         3.4         HCM 2000 Level of Service         A           O Control Delay         3.0         A         A           O Control Delay         3.0         A           O Control Delay         3.0         A	Clearance Time (s)		4.5			4.5			4.5			4.5	
Cap (vph)         241         224         1284         1           Proft         Proft         0.02         c.0.08         0.31         c.0.42         c.0.	Cap (vph)         241         224         1284           Prof         Prof         120         1284           Perm         0.02         0.038         0.31           Pelay, 41         28.2         27.7         3.9           Pelay, 41         28.2         27.7         3.9           Per Act         1.00         1.00         1.00           Per Act         1.00         1.00         1.00           Per Act         2.6.5         2.9.7         4.9           Per Act         C         A         A           Per Act         C         C         A           A District or         D         A         A           O Control Delay         0.51         A         A <t< td=""><td>Vehicle Extension (s)</td><td></td><td>3.0</td><td></td><td></td><td>3.0</td><td></td><td></td><td>3.0</td><td></td><td></td><td>3.0</td><td></td></t<>	Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Prot Prot Could be a c	Prot 6.002 c.0.08 0.31 Perm 0.02 c.0.08 0.31 Delay, d1 26.2 27.7 3.9 on Factor 1.00 1.00 1.00 tal Delay, d2 26.2 27.7 3.9 on Factor 1.00 1.00 1.00 tal Delay d2 26.5 29.7 4.9 service C C C A A 1.00 Summary C C C A A 1.00 O Control Delay 26.5 29.7 4.9 O Control Delay 26.5 29.7 4.9 O Control Delay 26.5 C C A A 2.00 O Volume to Capacity ratio 7.14% 10.01 evel of Service A 1.00 O Capacity ratio 7.14% 10.01 evel of Service D 2.00 O Capacity ratio 7.14% 10.01 evel of Service D 2.00 O Capacity ratio 7.14% 10.01 evel of Service D 2.00 O Capacity ratio 7.14% 10.01 evel of Service D 2.00 O Capacity (min) 15.01 evel of Service D 2.00	Lane Grp Cap (vph)		241			224			1284			1157	
Perm         0.02         cb.08         0.31         cc.           Pelay, d1         0.15         0.51         0.42         cc.           Delay, d1         26.2         27.7         3.9         cc.         C.         C.         C.         C.         C.         C.         C.         C.         L.00         1.00	Perm         0.02         c.0.08         0.31           0.15         0.51         0.42           Delay, d1         26.2         27.7         3.9           on Factor         1.00         1.00         1.00           tal Delay, d2         0.3         2.0         1.0           Service         C         C         4.9           LOS         28.5         29.7         4.9           LOS         C         A         A           LOS         C         A         A           no Summary         C         C         A           no Summary         C         C         A           O Control Delay         9.4         HCM 2000 Level of Service         A           O Volumento Capacity ratio         0.51         A           O Volumento Capacity ratio         0.51         Sum of lost time (s)         9.0           Period (min)         15         Sum of lost time (s)         9.0	v/s Ratio Prot												
belay, d1         0.15         0.51         0.42         C           on Factor         2.6.2         27.7         3.9         C           on Factor         1.00         1.00         1.00         1.0           tal Delay, d2         0.3         2.0         1.0         1.0           service         2.6.5         29.7         4.9         4.9           Loblay (s)         26.5         29.7         4.9         4.9           Local Delay         26.5         29.7         4.9         4.9           no Control Delay         9.4         HCM 2000 Level of Service         A         A           Oycle Length (s)         70.6         Sum of lost time (s)         9.0         9.0           On Captority Utilization         7.4         ICU Level of Service         D         9.0           An Captority Utilization         7.4         ICU Level of Service         D         9.0	belay, d1         0.15         0.51         0.42           on Factor         20.2         27.7         3.9           on Factor         1.00         1.00         1.00           tal Delay, d2         0.3         2.0         1.0           service         C         2.0         4.9           cervice         C         C         A           LCS         2.9.7         4.9           LCS         C         A           non Summany         C         C         A           O Control Delay         9.4         HCM 2000 Level of Service         A           Oycle Length (s)         0.51         Sum of lost time (s)         A           Ox capacity Utilization         77.4%         ICU Level of Service         A           e-ricd (min)         15         ICU Level of Service         A	v/s Ratio Perm		0.02			c0.08			0.31			c0.37	
Delay, d1	Pelay d1	v/c Ratio		0.15			0.51			0.42			0.52	
on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Uniform Delay, d1		26.2			27.7			3.9			4.3	
Ital Delay, d2	Ital Delay, d2	Progression Factor		9			1.00			1.00			1.00	
26.5   29.7   4.9	26.5 29.7 4.9  Delay (s) C C C A  1.0S C C C A  On Nummary  O Control Delay  O Control Dela	Incremental Delay, d2		0.3			2.0			1.0			1.6	
C C A A 26.5 29.7 4.9 4.9 C A A C C A A C C A A C C A A C C A C C A C C A C C C A C	26.5 C C A A C C A A S C C C A A C C C A A C C C A A C C C C	Delay (s)		26.5			29.7			4.9			5.9	
26.5 29.7 4.9 C C A A 9.4 HCM 2000 Level of Service A 0.51 Sum of lost time (s) 9.0 77.4% ICU Level of Service D 15	26.5 29.7 4.9 C C A A 9.4 HCM 2000 Level of Service 0.51 Sum of lost time (s) 77.4% ICU Level of Service 15	Level of Service		ပ			ပ			٧			⋖	
C C C A  9.4 HCM 2000 Level of Service A  0.51 70.6 Sum of lost time (s) 9.0 77.4% ICU Level of Service D  15	S.4 HCM 2000 Level of Service 0.51 To.6 Sum of lost time (s) 77.4% ICU Level of Service 15	Approach Delay (s)		26.5			29.7			4.9			5.9	
9.4 HCM 2000 Level of Service 0.51 70.6 Sum of lost time (s) 77.4% ICU Level of Service	9.4 HCM 2000 Level of Service 0.51 70.6 Sum of lost time (s) 77.4% ICU Level of Service 15	Approach LOS		ပ			ပ			∢			∢	
9.4 HCM 2000 Level of Service 0.51 70.6 Sum of lost time (s) 77.4% ICU Level of Service 15	9.4 HCM 2000 Level of Service 0.51 70.6 Sum of lost time (s) 77.4% ICU Level of Service 15	Intersection Summary												
0.51 70.6 Sum of lost time (s) 77.4% ICU Level of Service	0.51 70.6 Sum of lost time (s) 77.4% ICU Level of Service 15	HCM 2000 Control Delay			9.4	 	M 2000	Level of S	ervice		∢			
h (s) 70.6 Sum of lost time (s) Utilization 77.4% ICU Level of Service 15	h (s) 70.6 Sum of lost time (s) Utilization 77.4% ICU Level of Service 15	HCM 2000 Volume to Capaci	ity ratio		0.51									
Utilization 77.4% ICU Level of Service	Utilization 77.4% ICU Level of Service	Actuated Cycle Length (s)			9.07	nS.	m of lost	time (s)			9.0			
£	15	Intersection Capacity Utilization	ou		77.4%	ᅙ	U Level o	f Service			۵			
S:		Analysis Period (min)			15									

146 6.2

6.5

7.1

190

406

7.1

193

408

434

190

406

404

193

148

None

None

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

107

3.3

4.0 100 520

3.5 99 504

3.3 96 852

4.0 100 521

3.5 100 547

2.2 98 1380

2.2 100 434

193

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 5

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

CU Level of Service

1.5 30.9% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

504 0.01 0.1 12.2 B 12.2 B

32 30 30 0.04 1.0 9.5 A A A A

3 0.02 0.6 1.6 A A

0.00

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coure Length 95th (m)
Lane LOS
Lane LOS

<Background 2036> Weekday PM Peak Hour 08-15-2024 Timings 6: Queen Street North & West Street

HCM Signalized Intersection Capacity Analysis <Background 2036> Weekday PM Peak Hour 6: Queen Street North & West Street

-	SBT	43	295	295	A	9		9		20.0	38.0	38.0	20.7%	4.0	2.0	0.0	0.9			Мах	32.0	0.50	0.55	12.8	6.6	22.7	ပ	21.2	ပ									
۶	SBL	*	46	46	pm+pt	-	9	-		2.0	8.0	8.0	10.7%	2.0	0.0	0.0	2.0	Lead	Yes	None	36.0	0.56	0.10	8.9	0.0	9.9	⋖										ш	
+	NBT	42	279	279	Ϋ́	7		2		20.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	27.2	0.42	0.51	17.0	0.0	17.0	В	16.7	В							LOS: B	Service	
1	NBL	F	62	62	Perm		2	2		20.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	27.2	0.42	0.20	15.1	0.0	15.1	ш									Intersection LOS: B	CU Level of Service F	
ļ	WBT	474	114	114	¥	∞		∞			29.0															13.3	В	13.3	Ф							호	<u></u>	
-	WBL		4	44	Perm		∞	80		20.0	29.0	29.0	38.7%	4.0	2.0			Lag	Yes	None																		
Ť	EBT	AT.	63	63	Ϋ́	4		4		20.0	37.0	37.0	49.3%	4.0	2.0	0.0	0.9			None	20.0	0.31	0.40	16.2	0.0	16.2	В	16.2	В									
1	EBL		144	144	pm+pt	7	4	7		3.5	8.0	8.0	10.7%	2.0	0.0			Lead	Yes	None														ord		9	on 95.3%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Tum Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 64	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.55	Intersection Signal Delay: 17.6	Intersection Capacity Utilization 95.3%	Analysis Period (min) 15

32.8 32.8 0.51 6.0 3.0 892 c0.27

27.2 27.2 0.42 6.0 3.0 3.0 761

27.2 27.2 0.42 6.0 3.0 3.65

20.0 20.0 0.31 6.0 3.0 863

20.0 20.0 3.0 3.0 744

Actuated g/C Ratio Clearance Time (s)
Vehicle Extension (s)
Lane Grp Cap (vph)
v/s Ratio Prot

Turn Type
Protected Phases
Permitted Phases
Actuated Green, G (s)
Effective Green, g (s)

Perm

3.86 59 0

).82 65

0.82

Fit Permitted Satd. Flow (perm) Peak-hour factor, PHF Adj. Flow (vph) RTOR Reduction (vph) Lane Group Flow (vph)

32.8 32.8 0.51 2.0 3.0 4.39 0.01 0.05 0.12 8.5 1.00 0.11

0.54 10.8 1.00 2.3 13.1 B

0.51 13.9 1.00 2.5 2.5 B B 15.9 B

0.07 0.23 16.7 1.00 0.1 16.8 B 16.8

0.38 17.5 17.00 0.3 17.9 B

Progression Factor Incremental Delay, d2

Jniform Delay, d1 v/s Ratio Perm v/c Ratio

Delay (s) Level of Service Approach Delay (s) Approach LOS

0.08 0.20 1.00 1.2 13.1 B

ω 16.0

HCM 2000 Level of Service

Sum of lost time (s) ICU Level of Service

15.3 0.51 64.8 95.3%

HCM 2000 Volume to Capacity ratio
Actuated Cycle Length (s)
Intersection Capacity Utilization
Analysis Period (imi)
Critical Lane Group

295 295 1900 6.0 6.0 1.00 1.00 1.764 1.00 1.764 2.3 24 27 878

279 279 279 1900 6.0 1.00 1.00 1.00 1.00 1.85 328 9 9

62 62 62 6.0 6.0 6.0 1.00 1.00 1.70 1.70 87.1 73 73 73

63 63 63 63 6.0 6.0 0.95 0.97 0.97 0.70 77 77 38 38 77 77 77

Frt FIt Protected Satd. Flow (prot)

46 46 1900 2.0 1.00 1.00 1.770 1.770 0.95 7.56 0.91

09 006

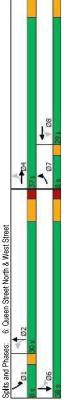
51 51 900

4 4 4 9

53

44 4 9 8 4 4 B

Lane Configurations
Traffic Volume (vph)
Future Volume (vph)
Ideal Flow (vphpl)
Total Lost time (s)
Lane Util. Factor



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185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis Background 2036> Weekday PM Peak Hour 7: Metcalfe Street South & West Street

	\	Ť	-	-	1000	/		Asta Of	L	٠	÷	۲
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	6	140	4	15	185	2	-	<del>-</del>	4	က	တ	21
Future Volume (Veh/h)	6	140	14	15	185	2	-	-	4	က	6	21
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.82	0.82	0.82	0.80	0.80	0.80	0.91	0.91	0.91	0.75	0.75	0.75
Hourly flow rate (vph)	11	171	17	19	231	9	-	-	4	4	12	78
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	237			188			208	476	180	478	482	234
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	237			188			208	476	180	478	482	234
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	66			66			100	100	100	66	6	97
cM capacity (veh/h)	1330			1386			443	477	863	486	473	802
Direction, Lane #	EB 1	WB1	NB 1	SB 1								
Volume Total	199	256	9	44								
Volume Left	=	19	-	4								
Volume Right	17	9	4	78								
SSH	1330	1386	299	644								
Volume to Capacity	0.01	0.01	0.01	0.07								
Queue Length 95th (m)	0.2	0.3	0.2	1.8								
Control Delay (s)	0.5	0.7	10.4	11.0								
Lane LOS	∢ ,	∢,	œ	ω :								
Approach Delay (s)	0.5	0.7	10.4	11.0								
Approach LOS			Ф	В								
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization	_		24.9%	೨	U Level o	ICU Level of Service			⋖			
Analysis Period (min)			15									

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Trans-Plan Inc.
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<TOTAL 2026> Weekday AM Peak Hour 08-29-2024 HCM Unsignalized Intersection Capacity Analysis 1: Queen Street North & Union Street

0.87

0.87

0.84

0.84

0.40

0.40

0.25

0.25 36

Stop 0% 0.40

None

None 177

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

389

408

384

88

994

402

88

930

2.2 98 1170

2.2 98 1151

3.3 664

99 275

3.5 86 177

3.3

4.0 100 275

3.5 84 219

23 23 11 1170 0.02 0.6 A A A

410 21 10 10 0.02 0.04 0.6 A A A

WB1 82 25 55 355 0.23 7.0 7.0 C C C

156 36 36 120 124 17.3 C C C

Direction, Lane #
Volume Total
Volume Left
SSH
Volume Right
SCH
Volume to Capacity
Outene Length Stift (m)
Lane LOS
Lane LOS

389

408

384

880 6.5

402

6.5

345 345 345 0% 0.87 397

318 318 50% 0% 379

20 20

8 8

22

9 9

30

<TOTAL 2026> Weekday AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

2: Queen Street North & Marshall Lane/Site Access 3

Ť

Movement         EBI         EBI         EBI         WBI         WBI         NBI         NBI         NBI         SBI         SBI         SBI         SBI         AP         AP <th></th> <th>1</th> <th>Ť</th> <th>1</th> <th>-</th> <th><b>↓</b></th> <th>1</th> <th>1</th> <th></th> <th>•</th> <th>۶</th> <th>-</th> <th>•</th>		1	Ť	1	-	<b>↓</b>	1	1		•	۶	-	•
(m) 1 1 5 10 13 44 25 352 14 1 15 10 13 7 2 1 4 303 44 25 352 14 1 15 10 13 7 2 1 4 303 44 25 352 15 2 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
hh) 1 15 10 13 7 21 4 303 44 25 352 hh) 1 15 10 13 7 21 4 303 44 25 352 hh) 1 15 10 13 7 21 4 303 44 25 352 hh) 1 1 15 10 13 7 21 4 303 44 25 352 hh) 1 1 17 12 22 12 36 5 848 0.88 0.88 0.81 0.91 0.91 he 870 853 395 848 836 369 403 394 he 870 853 395 848 836 369 403 394 he 870 853 395 848 836 369 403 394 he 870 853 395 848 836 677 1156 1165 he 100 94 98 91 96 95 100 98 he 11 2 2 2 2 2 2 2 2 2 2 2 ho 24 28 654 258 295 677 1156 1165 he 12 36 50 16 1165 he 12 36 50 16 1165 he 13 391 1156 1165 he 14 28 654 258 295 677 1156 1165 he 15 6 16 1165 he 17 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ane Configurations		4			4			4			4	
1	affic Volume (veh/h)	_	15	9	13	7	21	4	303	4	52	352	15
Shop   Shop   Free   Free   Free   Free     0.86   0.86   0.86   0.59   0.59   0.59   0.59   0.91   0.91   0.91     1	ture Volume (Veh/h)	-	15	10	13	7	21	4	303	44	22	352	15
0.86 0.86 0.86 0.59 0.59 0.88 0.88 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91	Sign Control		Stop			Stop			Free			Free	
1) 1 17 12 22 12 36 6.88 0.88 0.88 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91	Grade		%0			%0			%0			%0	
1) 1 17 12 22 12 36 5 344 50 27 387 1	Peak Hour Factor	0.86	0.86	0.86	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
None  None  870 863 395 848 836 369 403 394  1870 853 395 848 836 369 403 394  197 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  198 870 853 395 848 836 369 403 394  244 288 654 258 295 677 1156 1165  EB1 WB1 NB1 SB1  30 70 399 430  1 22 5 27  12 36 50 16  30 0.02  (m) 2.1 5.2 0.1 0.6  15 6 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C A A A A  15 16.2 0.1 0.7  C C C C A A A A  15 16.2 0.1 0.7  C C C C A A A  15 16.2 0.1 0.7  C C C C A A A  15 16.2 0.1 0.7  C C C C A A	Hourly flow rate (vph)	~	17	12	22	15	36	2	344	20	27	387	16
None   State	Pedestrians												
None  None  870 853 395 848 836 369 403 394  1 870 853 395 848 836 369 403 394  1 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  100 94 98 91 96 95 100 98  100 94 98 91 96 95 110 98  11 22 5 27  12 36 50 16  388 391 1156 1165  0.08 0.18 0.00 0.02  (m) 2.1 5.2 0.1 0.7  C C C A A A  156 16.2 0.1 0.7  C C C C A A A  156 16.2 0.1 0.7  C C C C A A A  157 156 16.2 0.1 0.7  C C C C A A A  158 159 150 150 150 150 150 150 150 150 150 150	ne Width (m)												
None   None   State	alking Speed (m/s)												
None   State	rcent Blockage												
None  870 883 898 888 888 898 898 898 898 898 898	tht turn flare (veh)												
ed 870 853 395 848 836 369 403 315 ed 870 853 395 848 836 369 403 3 3 3 3 3 4 1 1 2 2 4 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 2 2 5 1 1 1 1	dian type								None			None	
ed 870 853 395 848 836 369 403 315 and a second sec	dian storage veh)												
ed 870 853 395 848 836 369 403 51 51 51 51 51 51 51 51 51 51 51 51 51	stream signal (m)								315				
Per 870 853 395 848 836 369 403 31	, platoon unblocked												
870 853 395 848 836 369 403   1	conflicting volume	870	853	395	848	836	369	403			394		
STO 853 395 848 836 369 403   STO 853 395 848 836 369 403   STO 855 6.2 4.1   STO 85 6.2 6.2 4.1   STO 85 6.2 6.2 5.2   STO 85 6.2 6.2   STO 85 6.2   STO 8	1, stage 1 conf vol												
870 853 395 848 836 369 403   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 4.1   17.1 6.5 6.2 9.5 6.7 11.6   17.1 6.5 6.4 6.7 11.6   17.1 6.5 6.4 6.7 11.6   17.1 6.5 6.4 6.7 11.6   17.1 6.5 6.4 6.7 11.6   17.1 6.5 6.7 11.6   17.1 6.5 6.7 11.6   17.1 6.5 6.7 11.6   17.1 6.5 6.7 11.6   17.1 6.5 6.7 11.6   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6.5 6.7   17.1 6	2, stage 2 conf vol												
7.1 6.5 6.2 7.1 6.5 6.2 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2  100 94 98 91 96 95 100  244 288 654 258 295 677 1156  11 22 5 27  12 36 50 16  38 391 1165 1165  10 0.0 0.02  (m) 2.1 5.2 0.1 0.6  1.5 16.2 0.1 0.7  1.5	ı, unblocked vol	870	853	392	848	836	369	403			394		
3.5 4.0 3.3 3.5 4.0 3.3 2.2 100 94 98 91 96 95 100 244 288 654 258 295 677 1156 11 EB1 WB1 NB1 SB1 30 70 399 430 1 22 5 27 12 5 0 16 38 391 1156 1165 0.08 0.18 0.00 0.02 0.08 0.18 0.00 0.02 0.09 0.10 0.00 0.00 0.10 0.00 0.00 0.10 0.00 0.00 0.10 0.00 0.00 0.10 0.00 0.00 0.10 0.00 0.00 0.00 0.00 0.10 0.00 0.00 0.00	single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5 4,0 3.3 3.5 4,0 3.3 2.2 100 94 98 91 96 95 100 24 288 654 295 677 1156 11  EB1 WB1 NB1 SB1 30 70 399 430 1 2 5 27 1 36 20 16 368 391 156 165 0.08 0.18 0.00 0.02 0.08 0.18 0.00 0.02 0.08 0.18 0.00 0.02 0.08 0.18 0.00 0.02 0.08 0.18 0.00 0.02 0.08 0.10 0.00 0.09 0.10 0.7 0.00 0.10 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7	2 stage (s)												
100 94 98 91 96 95 100  244 288 654 258 295 677 1156  EB 1 WB 1 SB 1 30 70 399 430  1 22 5 27 1 28 67 165 368 391 166 1165 0.08 0.18 0.00 0.02 0.08 0.18 0.00 0.02 0.0 0.1 0.7 15.6 16.2 0.1 0.7 0. 0.2 A A A 15.6 16.6 0.9 A A A 15.6 16.2 0.1 0.7 0. C A A A A 15.6 16.2 0.1 0.7 0. C A A A A 15.6 16.2 0.1 0.7 0. C A A A A 15.6 16.2 0.1 0.7 0. C A A A A 15.6 16.2 0.1 0.7 0. C A A A A 15.6 16.2 0.1 0.7 0. C A A A A 15.6 16.2 0.1 0.7 0. C A A A A A 15.6 16.2 0.1 0.7 0. C A A A A A A A A A A A A A A A A A A	s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
EB1 WB1 NB1 SB1 30 70 399 430 1 2 5 27 12 8 5 27 (m) 2.1 5.2 0.1 0.6 (m) 2.1 6.2 0.1 0.7 C C A A 155 (C C C C C A 155 (C C C C C C C C C C C C C C C C C C C	dnene tree %	100	94	86	91	96	92	100			86		
tion, Lane #         EB 1         WB 1         NB 1         SB 1           ne Total         30         70         399         430           ne Left         1         2         5         27           ne Left         12         5         0         16           ne to Capacity         0.08         0.18         0.00         0.02           ne to Capacity         0.08         0.18         0.00         0.02           ne to Capacity         0.08         0.18         0.00         0.02           color Losaly (s)         15.6         16.2         0.1         0.7           color Delay (s)         15.6         16.2         0.1         0.7           aset Los         C         A         A         A           aset Los         C         C         A         A           aset Delay (s)         15.6         16.2         0.1         0.7           aset Los         C         C         C         C           color Sapacity Utilization         5.00%         ICU Level of Service	capacity (veh/h)	244	288	654	258	295	229	1156			1165		
ne Total 30 70 399 430  ne Left 1 22 5 27  ne Right 12 6 27  ne Right 12 8 5 0 16  ne to Capacity 0.08 0.18 0.00 0.02  ne to Length 95th (m) 2.1 5.2 0.1 0.6  LOS C C A A A  asch LOS C C C A  asch Los C C C A A  asch Los C C C C A  asch Los C C C C A  asch Los C C C C C C C C C C C C C C C C C C C	ection, Lane #	EB 1	WB 1	NB 1	SB 1								
ne Left 1 22 5 27  ne Right 12 36 50 16  ne to Capacity 0.08 0.18 0.00 0.02  ne to Capacity 0.08 0.18 0.00 0.02  ne Le Length 95th (m) 2.1 5.2 0.1 0.6  LOS C C A A A  ach LOS C C C C A  ach LOS C C C A	lume Total	30	02	399	430								
ne Right 12 36 50 16 368 391 1156 1165 ne to Capacity 0.08 0.18 0.00 0.02 e Length 95th (m) 2.1 5.2 0.1 0.6 clo Delay (s) 15.6 16.2 0.1 0.7 ach Delay (s) 15.6 16.2 0.1 0.7 ach LOS C A A A A A A A A A A A A A A A A A A A	lume Left	-	22	2	27								
368 391 1156 1165  ne to Capacity 0.08 0.18 0.00 0.02  ne Length 95th (m) 2.1 5.2 0.1 0.6  LOS C A A A  asch Delay (s) 15.6 16.2 0.1 0.7  codch LOS C C A A  asch Delay (s) 2.1 5.0 0.1 0.7  asch Delay (s) 2.1 5.0 0.1 0.7  2.1 2.1 0.7  2.2 2.1 0.7  389 Delay 2.1 0.7  391 Delay 2.1 0.7  392 Delay 2.1 0.7  393 Period (min) 15.0 0.1 0.7  15.0 0.00 0.00 0.00 0.00  15.0 0.00 0.00 0.00  15.0 0.00 0.00 0.00  16.0 0.00 0.00 0.00  17.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  18.0 0.00 0.00 0.00  19.0	lume Right	12	36	20	16								
0.08 0.18 0.00 0.02 2.1 5.2 0.1 0.6 15.6 16.2 0.1 0.7 C C A A 15.6 16.2 0.1 0.7 C C C A A A 15.0 16.2 0.1 0.7 C 16.2 0.1 0.7 C 16.2 0.1 0.7 C 16.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	_	368	391	1156	1165								
15.5 0.1 0.6 15.6 16.2 0.1 0.7 15.6 16.2 0.1 0.7 C C C C C 2.1 CU Level of Service	lume to Capacity	0.08	0.18	0.00	0.02								
15.6 16.2 0.1 0.7 C C A A 15.6 16.2 0.1 0.7 C C 2.1 2.1 Ulization 50.0% ICU Level of Service	eue Length 95th (m)	2.1	5.2	0.1	9.0								
C C A A  156 16.2 0.1 0.7 C C  2.1 Utilization 50.0% ICU Level of Service 15	ntrol Delay (s)	15.6	16.2	0.1	0.7								
15.6 16.2 0.1 0.7  / / 2.1  Utilization 50.0% ICU Level of Service 16.2	ne LOS	ပ	ပ	∢	⋖								
7 2.1 CU Level of Service 15 15	proach Delay (s)	15.6	16.2	0.1	0.7								
. 2.1 Utilization 50.0% ICU Level of Service 15	אוסמקון בסס	)	)										
2.1 Utilization 50.0% ICU Level of Service 15	ersection Summary												
Utilization 50.0% ICU Level of Service 15	erage Delay			2.1									
	ersection Capacity Utilization	_		20.0%	<u> </u>	U Level o	f Service			×			
	alysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 1

185 Rc Trans-F

Synchro 11 Report Page 2

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obinson Street, Co	
Robinson	or Dian Inc

ICU Level of Service

4.4 35.4% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2026> Weekday AM Peak Hour 3: Queen Street North & Site Access 2

-	SBT	€4	379	379	Free	%0	0.88	431						None																									
ノへ	NBR SBL		9 /	2 6			0.82 0.88	2 6									0.98	422			396	4.1		2.2	66	1135													
	NBT	£3	339	339	Free	%0	0.82	413						None		66											SB 1	438	7	0	1135	0.01	0.1	0.2	¥	0.2			
1	WBR		5				0.75										Ū	418				6.2			66	642	NB 1	4.					0.0			0.0			
-	WBL	>	4	4	Stop	%0	0.75	5									0.98	862			847	6.4		3.5	86	322	WB 1	12	5	7	454	0.03	0.7	13.1	В	13.1	В		
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Contro	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	<ul><li>vC, conflicting volume</li></ul>	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	fF (s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	

185 Robinson Street, Community of Smrcoe (Norfolk County), ON Trans-Plan Inc.

Timings <a href="https://weekday AM Peak Hour at the color: blue;">TOTAL 2026> Weekday AM Peak Hour 4: Queen Street North & Robinson Street</a>

-	SBT	4	291	591	¥	ဖ		9		2.0	22.5	20.0	%2.99	3.5	1.0	0.0	4.5			Max	52.0	0.79	0.37	4.3	0.0	4.3	⋖	4.3	⋖									
٠	SBL		71	71	Perm		9	9		2.0	22.5	20.0	%2.99	3.5	1.0					Max																	∢	
•	NBT	4	301	301	¥	7		2		2.0	22.5	20.0	%2.99	3.5	1.0	0.0	4.5			Max	52.0	0.79	0.38	4.1	1.3	5.3	⋖	5.3	⋖							LOS: A	CU Level of Service A	
1	NBL		38	38	Perm		2	2		2.0	22.5	20.0	%2'99	3.5	1.0					Max																Intersection LOS: A	U Level o	
ţ	WBT	4	19	19	¥	∞		∞		2.0	22.5	25.0	33.3%	3.5	1.0	0.0	4.5			None	8.0	0.12	0.49	20.1	0.0	20.1	ပ	20.1	ပ							Ξ	<u>o</u>	
1	WBL		4	14	Perm		∞	∞		2.0	22.5	25.0	33.3%	3.5	1.0					None																		
Ť	EBT	4	7	7	ΑĀ	4		4		2.0	22.5	25.0	33.3%	3.5	1.0	0.0	4.5			None	8.0	0.12	0.23	15.2	0.0	15.2	മ	15.2	Ф									
1	EBF		2	2	Perm		4	4		2.0	22.5	25.0	33.3%	3.5	1.0					None														ord			ın 49.6%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ROS	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 66.1	Natural Cycle: 50	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.49	Intersection Signal Delay: 6.9	Intersection Capacity Utilization 49.6% Analysis Period (min) 15	

Splits and Phases: 4: Queen Street North & Robinson Street

	<b>→</b> 204	25%	<b>↓</b>	No.
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185 Robinson Street, Community of Sincoe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis <TOTAL 2026> Weekday AM Peak Hour 4: Queen Street North & Robinson Street

Movement         EBL         EBT         EBR         WBL         MRT         WBR         NBL           Lane Configurations         40         2         7         25         14         19         41         38           Future Volume (vph)         5         7         25         14         19         41         38           Ideal Flow (vph)         1900         190	A-1-10	4	Ť	1	-	Ţ	1	1		•	٠	-	•
figurations figurations figurations figurations figurations 5 7 25 14 19 41 19 41 Illume (vph) 5 7 25 14 19 41 19 41 Illume (vph) 5 7 25 14 19 41 19 41 Illume (vph) 6 1900 1900 1900 1900 1900 1900 1900 19	ement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Nume (vph)         5         7         25         14         19         41           Nume (vph)         5         7         25         14         19         41           Intime (vph)         100         100         1900         1900         1900         1900           Itime (s)         4.5         4.5         4.5         4.5         4.1           Itime (s)         4.5         4.5         4.5         4.5         4.5           Itime (s)         0.39         0.99         <	Configurations		4			4			4			4	
Name (vph)   5	ic Volume (vph)	2	7	52	4	19	41	38	301	91	7	291	21
Factor   1900	oh)	2	7	22	4	19	41	88	301	91	71	291	21
Factor (s) 4.5 Hille (s) 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0		006	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         1,00         1,00           red         0,91         0,93           red         0,99         0,99           red         0,73         0,73         0,60         0,60           red         0,73         0,73         0,60         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70         0,70	Lost time (s)		4.5			4.5			4.5			4.5	
ted (0.99) 0.99 0.99  w (port) 1684 0.99  ted (0.99 0.99  w (port) 1687 1708  ted (0.99 0.99  w (port) 1697 1708  tractor, PHF 0.73 0.73 0.60 0.60 0.60  w (vph) 7 10 34 23 35 68  outsciron (vph) 0 30 0 61 0  outsciron (vph) 0 30 0 0 61 0  outsciron (vph) 0 30 0 0 61 0  outsciron (vph) 0 30 0 0 0 61 0  outsciron (vph) 0 30 0 0 0 61 0  outsciron (vph) 0 30 0 0 0 0 0 0 0  outsciron (vph) 0 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Util. Factor		1.00			1.00			1.00			1.00	
tied (1999 1999 1999  tied (1984 1708  ted (1984 1708  ted (1984 1708 1708  tractor, PHF (1973 1677 1659  relacion (vph) (199 1999  property (vph) (1999 1999  property (vph) (1999 1999  property (vph) (1999 1999  property (1999 1999  proper			0.91			0.93			0.97			0.99	
w (prot)         1684         1708           red         0.95         0.92           w (perm)         1607         0.73         0.73         0.60         0.60           w (perm)         7         10         34         23         26           duction (wph)         0         21         0         60         0.60         0.60           up Flow (wph)         0         21         0         62         0         60	rotected		0.99			0.99			1.00			0.99	
thed (1955) 1697 (1958) (1958) (1958) (1959)	. Flow (prot)		1684			1708			1802			1832	
w (perm)         1607         1589           r (perm)         1 (607         1589           r (ph)         7         10         34         28         68           (vpl)         7         10         34         28         68         69         60         00         60         00         60         00         60         00         60         00         60         00         00         60         00 <th< td=""><td>ermitted</td><td></td><td>0.95</td><td></td><td></td><td>0.92</td><td></td><td></td><td>0.94</td><td></td><td></td><td>0.85</td><td></td></th<>	ermitted		0.95			0.92			0.94			0.85	
rector, PHF 0.73 0.73 0.60 0.60 0.60 0.60 0.60 0.00 0.00 0.0	. Flow (perm)		1607			1589			1700			1566	
(vph)         7         10         34         23         32         68           up Flow (vph)         0         21         0         61         0           a beduction (vph)         0         21         0         62         0           a beduction (vph)         Perm         NA         Perm         NB         Perm         NB           Phases         4         8         8         8         8         8         8         8         8         8         8         8         8         8         8         8         9		0.73	0.73	0.73	09.0	09.0	09.0	0.84	0.84	0.84	0.83	0.83	0.83
reduction (vph)         0         30         0         61         0           up Flow (vph)         0         21         0         62         0           up Flow (vph)         Phases         4         Perm         NA           Phases         4         8         8           Phases         4         8         8           Green, g(s)         6.9         6.9         6.9           Green, g(s)         6.9         6.9         6.9           Green, g(s)         6.9         6.9         6.9           g(C Ratio         0.10         0.10         4.5         4.5           Atension (s)         3.0         3.0         3.0         A.5           Atension (s)         3.0         3.0         3.0         A.5           Atension (s)         3.0         3.0         3.0         A.5           Perm         0.12         0.3         4.5         A.5           Perm         0.12         0.3         3.0         A.5           Perm         0.12         0.3         1.5         C.           Delay, d1         27.5         29.5         C.         C.           Delay (s)	Flow (vph)	7	10	34	23	32	89	45	358	108	98	351	22
up Flow (vph)         0         21         0         62         0           Phases         4         Perm         NA         Perm         NA           Phases         4         8         8         8           Phases         4         8         8         8           Phases         4         8         8         8         8           Phases         6.9 <td>R Reduction (vph)</td> <td>0</td> <td>30</td> <td>0</td> <td>0</td> <td>61</td> <td>0</td> <td>0</td> <td>∞</td> <td>0</td> <td>0</td> <td>2</td> <td>0</td>	R Reduction (vph)	0	30	0	0	61	0	0	∞	0	0	2	0
Perm NA   Perm	Group Flow (vph)	0	21	0	0	62	0	0	503	0	0	460	0
Phases		erm	¥		Perm	¥		Perm	¥		Perm	¥	
Phases	ected Phases		4			∞			5			9	
Green, G (s)   6.9	nitted Phases	4			<b>∞</b>			7			9		
Green, g (s) 6.9  9/C Ratio 0.10  1.10  Cap (xph) 4.5  3.0  Cap (xph) 165  Prot Perm 0.01  Prot 0.12  Pelay, d1 27.3  on Factor 0.3  In Delay, d2 27.6  Everyce C 27.6  Everyce C C C C C C C C C C C C C C C C C C C	ated Green, G (s)		6.9			6.9			51.0			51.0	
9,C Ratio 0.10  a Time (s) 4.5  cap (vph) 165  Prot (vph) 165  Prot 0.12  Prot 0.12  Delay, d1 27.3  on Factor 1.00  In Delay (s) 27.6  Evice C C  Delay (s) 27.6  Delay (s) 27.6  C C  O C C C  O C C C  O C C C  O C C C  O C C C  O C C C  O C C C C	tive Green, g (s)		6.9			6.9			51.0			51.0	
Time (s)   4.5	ated g/C Ratio		0.10			0.10			0.76			0.76	
Cap (vph)   3.0	rance Time (s)		4.5			4.5			4.5			4.5	
Cap (vph) 165 Prot Prot 0.01 Perm 0.01 0.12 Delay, d1 27.3 On Factor 1.00 Everyce C 27.6 Everyce C 27.6 Delay (s) 27.6 Delay (s) 27.6 On Summary 7.4 O Control Delay 7.4 O Volume to Capacity ratio 0.39 O Cycle Length (s) 66.9 On Capacity Utilization 48.6% Prot Capacity Utilization 48.6%	de Extension (s)		3.0			3.0			3.0			3.0	
Prot Perm 0.01 Perm 0.12 0.12 0.12 0.13 0.15 an Factor 1.00 0.3 27.6 Earvice C Delay (s) 27.6 1.00 00 Summary 7.4 0 Volume to Capacity ratio 0.39 00 Control Delay (s) 66.9 00 Capacity (utilization 49.6% 15 Period (min) 15 Period (120) 16 Period (120) 17 Period (120) 18 Period (120) 18 Period (120) 18 Period (120) 18 Period (120) 19 Period (120) 19 Period (120) 19 Period (120) 19 Period (120) 10	Grp Cap (vph)		165			163			1295			1193	
Delay, d1   0.11   0.11   0.12   0.12   0.12   0.12   0.12   0.13   0.13   0.13   0.13   0.13   0.13   0.13   0.13   0.13   0.13   0.15   0.	atio Prot												
0.12  on Factor 1.00  rat Delay, d1 1.00  rat Delay, d2 0.3  eevice C. 27.6  27.6  27.6  27.6  27.6  Constroid Delay 7.4  0 Control Delay 7.4  0 Volume to Capacity ratio 0.39  on Capacity Utilization 48.6  elay (1.00)  1.00  1.0	atio Perm		0.01			c0.04			c0.30			0.29	
belay, d1 27.3  on Factor 1.00  tal Delay, d2 2.7.6  service C 2.7.6  I.Delay (s) 2.7.6  I.Delay (s) C C C C C C C C C C C C C C C C C C C	atio		0.12			0.38			0.39			0.39	
on Factor 1,00  tat Delay, d2 0,3  27.6  eavice C  Delay(s) 27.6  1.CS  O Summary C  O Control Delay (at 10  O Control Delay (b) 1,00  O Control Delay (c) 0,39  O Copecity ratio 0,39  O Capacity Utilization 49.6%  Facilo (finit) 15	nm Delay, d1		27.3			28.0			2.7			2.7	
tal Delay, d2 2.7.6  27.6  27.6  C C  C C  LOS  O Notine to Capacity ratio 0 (Volume to Capacity ratio 0 Copacity (Utilization 15.8  Period (min) 18.6  19.8  10.39  10.40  10.39  10.39  10.39  10.39  10.39  10.39  10.39	ression Factor		1.00			1.00			1.00			1.00	
27.6 Service 27.6 C C C C C C C C C C C C C C C C C C C	mental Delay, d2		0.3			1.5			0.9			0.9	
C 27.6 C C C C C C C C C C C 234 66.9 66.9 49.6% 15 15 15 15 15 15 15 15 15 15 15 15 15	y (s)		27.6			29.5			3.6			3.6	
27.6 C 7.4 0.39 66.9 49.6%	of Service		ပ			ပ			⋖			⋖	
C 7.4 0.39 66.9 49.6% 15	oach Delay (s)		27.6			29.5			3.6			3.6	
7.4 0.39 66.9 49.6%	oach LOS		ပ			ပ			∢			∢	
7.4 0.39 66.9 49.6% 15	section Summary												
0.39 66.9 49.6% 15	1 2000 Control Delay			7.4	일	:M 2000 L	evel of S	ervice		∢			
66.9 49.6% 15	12000 Volume to Capacity ra	atio		0.39									
49.6% 15	ated Cycle Length (s)			6.99	Su	m of lost	time (s)			9.0			
15	section Capacity Utilization			49.6%	<u>ವ</u>	U Level of	f Service			¥			
	ysis Period (min)			15									
c Critical Lane Group	ritical Lane Group												

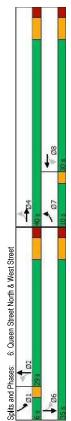
185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2026> Weekday AM Peak Hour 5. Metcalfe Street South/Site Access 1 & Robinson Street

Movement         EBI         EBI         EBI         WBI         WBI         MBI         NBI         NBI         NBI         SBI         SBI         SBI         SBI         Control Column (web/n)         0         164         4         18         71         13         2         0         11         10         0         0           Grade         Oracle		1	Ť	1	-	ţ	1	•	4-	4	۶	-	•
1	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Lane Configurations		4			4			4			4	
1) 0 164 4 18 71 13 2 0 11 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Traffic Volume (veh/h)	0	164	4	9	7	13	2	0	Ξ	9	0	0
Free   Free   Free   Shop   Stop   O'%	Future Volume (Veh/h)	0	164	4	18	71	13	7	0	Ξ	10	0	0
0.83 0.83 0.84 0.74 0.74 0.25 0.25 0.62 0.62 0.62 0.62 0.63 0.83 0.83 0.84 0.74 0.74 0.25 0.25 0.25 0.62 0.62 0.62 0.62 0.63 0.83 0.83 0.83 0.83 0.83 0.83 0.83 0.8	Sign Control		Free			Free			Stop			Stop	
0.83 0.83 0.84 0.74 0.74 0.25 0.25 0.25 0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.62	Grade		%0			%0			%0			%0	
None None None 114 203 354 362 200 398 356 17 16 50 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.25	0.25	0.25	0.62	0.62	0.62
None None None None 114 203 354 362 200 398 356 114 217 214 213 354 362 200 398 356 114 217 218 35 4.0 3.3 35 4.0 3.3 35 4.0 3.0 398 356 110 38 35 4.0 3.3 35 4.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	Hourly flow rate (vph)	0	198	2	24	96	18	80	0	44	16	0	0
None None None None 107  114 203 354 362 200 398 356 20 20 398 356 356 359 356 359 356 359 356 359 356 359 356 359 356 359 359 359 359 359 359 359 359 359 359	Pedestrians												
None None None None 107 364 362 200 398 356 4.1 4.1 4.1 5.03 354 362 200 398 356 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 100 100 24 8 16 0 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.00 0.02 0.07 0.03 0.00 0.00 0.00 0.00 0.00 0.00	Lane Width (m)												
None   None   None   None	Walking Speed (m/s)												
None None None 107 107 107 114 203 354 362 200 398 356 114 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 100 100 100 100 100 100 100 100 100 10	Percent Blockage												
None	Right turn flare (veh)												
114 203 354 362 200 398 356 356 4.1 4.1 203 354 362 200 398 356 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.2 7.	Median type		None			None							
114   203   354   362   200   398   356   365	Median storage veh)												
Hamber 114 203 354 362 200 398 356 20 36 356 356 356 356 356 356 356 356 356	Upstream signal (m)		107										
114 203 354 362 200 398 356 356 4.1 4.1 4.1 203 354 362 200 398 356 356 4.1 4.1 7.1 6.5 6.2 7.1 6.5 7.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6	pX, platoon unblocked												
114 203 354 362 200 398 356 4.1 4.1 4.1 4.1 7.1 6.5 6.2 7.1 6.5 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 7.1 6.	vC, conflicting volume	114			203			354	362	200	398	356	105
114 4.1 203 354 362 200 398 356 356 4.1 4.1 7.1 6.5 6.2 7.1 6.5 7.1 6.	vC1, stage 1 conf vol												
114 203 364 362 200 396 356 4.1 4.1 7.1 6.5 6.2 7.1 6.5 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 7.1 6.5 6.2 7.1 6.5 7.1 6.5 7.1 6.5 7.1 6.5 7.1 6.5 7.1 6.2 7.1 6.	vC2. stage 2 conf vol												
4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 100 9.5 9.5 100 9.5 9.7 100 9.5 9.7 100 9.5 9.5 100 9.5 9.7 100 9.5 9.	vCu, unblocked vol	114			203			354	362	200	398	356	105
22 2.2 3.5 4.0 3.3 3.5 4.0 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 100 9.8 10.8 10.8 10.8 10.8 10.8 10.8 10.0 0.00 0.0	tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
22 22 3.5 4.0 100 100 100 100 100 100 100 100 100 1	tC, 2 stage (s)												
100   98   99   100   95   97   100   1475   1369   98   99   100   95   97   100   1475   1369   98   99   100   95   97   100   1475   1369   136	F(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
H475 H816 SB1 S55 840 S26 S60 S60 S60 S60 S60 S60 S60 S60 S60 S6	p0 queue free %	100			86			66	100	92	97	100	100
# EB1 WB1 NB1 SB1 203 138 52 16 0 24 8 16 5 18 44 0 1475 1369 790 526 city 0.00 0.02 0.07 0.03 5) 0.0 14 1.7 0.8 5) 0.0 1.5 9.9 12.1 A A B Inmany  2.2 ICU Level of Service (min) 15	cM capacity (veh/h)	1475			1369			593	222	840	526	260	946
203 138 52 16 5 44 0 24 8 16 5 74 0 6 24 8 16 6 6 24 8 16 74 0 74 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
0 24 8 16 5 18 44 0 1475 1369 790 528 scity 0.00 0.02 0.07 0.03 5 10 0.0 4 17 0.8 5 10 0.15 9.9 12.1 7 (s) 0.0 1.5 9.9 12.1 A A B mmary  2.2 A B mmary  2.2 CU Level of Service (min) 15	Volume Total	203	138	52	16								
1475 1369 730 526  acity 0.00 0.02 0.07 0.03  Seth (m) 0.0 0.4 1.7 0.8  (s) 0.0 1.5 9.9 12.1  A B B  A B  A B  A B  A B  A B  A B	Volume Left	0	54	∞	16								
ocity 0.00 0.02 0.07 0.03 95th (m) 0.0 0.15 9.9 12.1  (s) 0.0 1.5 9.9 12.1  (s) 0.0 1.5 9.9 12.1  A B B  mmany 2.2  ICU Level of Service (min) 15	Volume Right	S	18	4	0								
beth 0.00 0.02 0.07 0.03  95th (m) 0.0 0.4 1.7 0.8  9) 0.0 1.5 9.9 1.21  7(s) 0.0 1.5 9.9 1.21  A B B  7(s) 0.0 1.5 9.9 12.1  A B  7(s) 2.0 2.2  CU Level of Service (min)  15	HS3	1475	1369	790	526								
95th (m) 0.0 0.4 1.7 0.8 91 0.0 1.5 9.9 12.1 7 (s) 0.0 1.5 9.9 12.1 A B B A B B A B B A B B A B B A B C B A C B B A B B B B A B B B B B B B B B B B B B B B B B B B	Volume to Capacity	0.00	0.02	0.07	0.03								
s) 0.0 1.5 9.9 12.1 A A B Y(s) 0.0 1.5 9.9 12.1 A B Tunary 2.2 Pacity Utilization 27.7% ICU Level of Service (min) 15	Queue Length 95th (m)	0.0	0.4	1.7	0.8								
(s) 0.0 1.5 9.9 12.1  A B  mmany 2.2  pacity Utilization 27.7% ICU Level of Service (min) 15	Control Delay (s)	0.0	1.5	6.6	12.1								
7 (s) 0.0 1.5 9.9 12.1  A B  Inmany 2.2  Circle Level of Service (min) 15	Lane LOS		∢	∢	ω								
A B  mmary 2.2 pacity Utilization 27.7% ICU Level of Service (min) 15	Approach Delay (s)	0.0	1.5	6.6	12.1								
1.2.2. Utilization 27.7% ICU Level of Service 15	Approach LOS			∢	В								
2.2 Utilization 27.7% ICU Level of Service 15	Intersection Summary												
Utilization 27.7% ICU Level of Service 15	Average Delay			2.2									
	Intersection Capacity Utilizal	ion		27.7%	೨	U Level o	f Service			∢			
	Analysis Period (min)			15									

<TOTAL 2026> Weekday AM Peak Hour 08-29-2024 Timings 6: Queen Street North & West Street

	1	1	1	ţ	•		۶	-	
Lane Group	EB	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		AT.		4Th	F	T,	*	T.	
Traffic Volume (vph)	212	22	53	22	31	247	43	224	
Future Volume (vph)	212	22	59	22	31	247	43	224	
Tum Type	pm+pt	¥	Perm	Ϋ́	Perm	¥	pm+pt	NA	
Protected Phases	7	4		∞		2	-		
Permitted Phases	4		∞		2		9		
Detector Phase	7	4	∞	∞	2	2	-	9	
Switch Phase									
Minimum Initial (s)	2.0	15.0	15.0	15.0	23.0	23.0	4.0	29.0	
Minimum Split (s)	9.5	28.0	30.0	30.0	29.0	29.0	0.9	35.0	
Total Split (s)	10.0	40.0	30.0	30.0	29.0	29.0	0.9	35.0	
Total Split (%)	13.3%	53.3%	40.0%	40.0%	38.7%	38.7%	8.0%	46.7%	
Yellow Time (s)	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		0.9		0.9	0.9	0.9	2.0	0.9	
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	Max	Мах	None	Max	
Act Effct Green (s)		15.4		15.4	25.4	25.4	33.0	29.0	
Actuated g/C Ratio		0.27		0.27	0.45	0.45	0.59	0.51	
v/c Ratio		0.53		0.14	0.09	0.44	0.10	0.44	
Control Delay		14.7		12.7	9.7	11.4	4.7	8.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	1.8	
Total Delay		14.7		12.7	9.7	11.4	4.7	10.1	
SOT		Ω		Ω	⋖	Ω	⋖	В	
Approach Delay		14.7		12.7		11.2		9.5	
Approach LOS		Ф		В		В		Α	
Intersection Summary									
Cycle Length: 75									
Actuated Cycle Length: 56.4									
Natural Cycle: 75									
Control Type: Semi Act-Uncoord	ord								
Maximum v/c Ratio: 0.53									
Intersection Signal Delay: 11.8	80			프	Intersection LOS: B	LOS: B			
Intersection Capacity Utilization 70.7%	207 nc			೨	CU Level of Service C	of Service	ပ		
Analysis Period (min) 15									



185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

<TOTAL 2026> Weekday AM Peak Hour 08-29-2024

HCM Signalized Intersection Capacity Analysis 6: Queen Street North & West Street

	1	Ť	1	-	ţ	1	•	•	•	٠	-	*
Movement	田田	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4Th			4Th		ji.	£		Nº.	£,	
Traffic Volume (vph)	212	22	62	53	22	14	31	247	49	43	224	88
Future Volume (vph)	212	22	79	59	22	14	31	247	49	43	224	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		9.0			9.0		9.0	0.9		2.0	0.9	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Fr		0.97			0.98		1.00	0.98		1.00	0.95	
Fit Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3317			3414		1770	1816		1770	1778	
FIt Permitted		0.75			0.79		0.52	1.00		0.47	1.00	
Satd. Flow (perm)		2559			2720		696	1816		869	1778	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.78	0.78	0.78
Adj. Flow (vph)	241	62	96	32	9	15	38	301	9	22	287	126
RTOR Reduction (vph)	0	20	0	0	Ξ	0	0	∞	0	0	16	0
Lane Group Flow (vph)	0	344	0	0	96	0	38	353	0	55	397	0
Turn Type	pm+pt	Ϋ́		Perm	¥		Perm	¥		pm+pt	¥	
Protected Phases	7	4			∞			7		<del>-</del>	9	
Permitted Phases	4			∞			2			9		
Actuated Green, G (s)		15.4			15.4		25.4	25.4		29.8	29.8	
Effective Green, g (s)		15.4			15.4		25.4	25.4		29.8	29.8	
Actuated g/C Ratio		0.27			0.27		0.44	0.44		0.52	0.52	
Clearance Time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		889			732		430	908		490	976	
v/s Ratio Prot								0.19		0.00	c0.22	
v/s Ratio Perm		c0.13			0.04		0.04			0.05		
v/c Ratio		0.50			0.13		0.09	0.44		0.11	0.43	
Uniform Delay, d1		17.7			15.8		9.5	11.0		6.9	8.4	
Progression Factor		90.			100		1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.0			0.1		0.4	1.7		0.1	1.4	
Delay (s)		18.2			15.9		9.6	12.7		7.0	6.6	
Level of Service		മ			മ		⋖	മ		∢	⋖	
Approach Delay (s)		18.2			15.9			12.4			9.6	
Approach LOS		В			В			В			∢	
Intersection Summary												
HCM 2000 Control Delay			13.4	ĭ	3M 2000	HCM 2000 Level of Service	Service		В			
HCM 2000 Volume to Capacity ratio	acity ratio		0.50									
Actuated Cycle Length (s)			57.2	જ	ım of lost	Sum of lost time (s)			16.0			
Intersection Capacity Utilization	ation		%2'02	೨	U Level o	of Service			ပ			
Analysis Period (min)			15									
c Critical Lane Group												

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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HCM Unsignalized Intersection Capacity Analysis <TOTAL 2026> Weekday AM Peak Hour 7: Metcalfe Street South & West Street

ns hvh) shvh) ph)	EBL ;	FBT	000	į	FC/V							
onfigurations Volume (veh/h) Volume (veh/h) ontrol our Factor flow rate (vph) rians 3 Speed (m/s)	;		ב	WBF	N N	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh/h) Volume (Veh/h) ontrol our Factor flow rate (vph) rians 3 Speed (m/s)	,	4			4			T			4	
Volume (Veh/h) ontrol our Factor flow rate (vph) fridin (m) 3 Speed (m/s)	Ξ	101	34	9	8	က	0	0	0	-	16	14
our Factor flow rate (vph) finans fridth (m) 3 Speed (m/s)	Ξ	101	8	9	84	က	0	0	0	-	16	14
our Factor flow rate (vph) rians ridth (m) 9 Speed (m/s)		Free			Free			Stop			Stop	
		%0			%0			%0			%0	
	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
Pedestrians Lane Width (m) Walking Speed (m/s)	13	122	41	9	98	3	0	0	0	4	64	56
Lane Width (m) Walking Speed (m/s)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	68			163			356	270	142	268	288	88
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
ed vol	83			163			356	270	142	268	288	88
	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
stage (s)												
	2.2			2.2			3.5	4.0	33	3.5	4.0	33
p0 queue free %	66			100			100	100	100	8	6	98
cM capacity (veh/h) 15	1506			1416			515	629	902	829	613	971
Direction, Lane # EF	EB 1	WB 1	NB 1	SB 1								
Volume Total 1	176	95	0	124								
Volume Left	13	9	0	4								
ne Right	41	က	0	26								
	1506	1416	1700	739								
	<u>.</u>	0.00	0.01	0.17								
oth (m)	0.2	0.1	0.0	4.8								
lay (s)	9.0	0.5	0.0	10.9								
	⋖	∢	∢	В								
/ (s)	9.0	0.5	0.0	10.9								
Approach LOS			∢	В								
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			20.7%	<u>0</u>	ICU Level of Service	Service			∢			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON
Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2031> Weekday AM Peak Hour 1: Queen Street North & Union Street

	5	100				8	15		2	¥.	2	ii ii
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		4			4			4			4	
raffic Volume (veh/h)	_	16	Ξ	15	∞	23	2	332	48	78	387	16
-uture Volume (Veh/h)	-	16	1	15	∞	23	2	332	48	78	387	16
		Stop			Stop			Free			Free	
		%0			%0			%0			%0	
Peak Hour Factor	0.86	98.0	0.86	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
Hourly flow rate (vph)	-	19	13	25	14	33	9	377	22	31	425	18
.ane Width (m)												
Valking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
								None			None	
Median storage veh)												
Jpstream signal (m)								315				
X, platoon unblocked												
<ul><li>C, conflicting volume</li></ul>	928	940	434	935	922	404	443			432		
/C1, stage 1 conf vol												
/C2, stage 2 conf vol												
Cu, unblocked vol	928	940	434	932	922	404	443			432		
	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
	3.5	4.0	33	3.5	4.0	33	2.2			2.2		
on due ue free %	100	93	86	88	92	94	66			6		
cM capacity (veh/h)	708	255	622	221	261	646	1117			1128		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
	33	78	438	474								
	-	52	9	31								
	13	33	22	18								
	329	344	1117	1128								
/olume to Capacity	0.10	0.23	0.01	0.03								
Queue Length 95th (m)	5.6	6.9	0.1	0.7								
Control Delay (s)	17.1	18.5	0.2	0.8								
	ပ	ပ	∢	⋖								
Approach Delay (s)	17.1	18.5	0.2	8.0								
Approach LOS	ပ	ပ										
ntersection Summary												
Average Delay			2.4									
ntersection Capacity Utilization	١		54.3%	<u></u>	U Level o	CU Level of Service			∢			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

<total 2031=""> Weekday AM Peak Hour</total>	3 08-29-2024
HCM Unsignalized Intersection Capacity Analysis	2: Queen Street North & Marshall Lane/Site Access 3

Movement Lane Configurations												
Lane Configurations	EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
		4			4			4			4	
Traffic Volume (veh/h)	10	0	33	10	-	22	50	351	∞	50	381	=
Future Volume (Veh/h)	10	0	33	9	-	22	20	351	∞	70	381	Ξ
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.25	0.25	0.25	0.40	0.40	0.40	0.84	0.84	0.84	0.87	0.87	0.87
Hourly flow rate (vph)	40	0	132	52	7	22	74	418	9	23	438	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)								177				
pX, platoon unblocked												
vC, conflicting volume	1018	996	444	1094	896	423	451			428		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1018	996	444	1094	896	423	451			428		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
作(s)	3.5	4.0	33	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	100	28	83	66	91	86			86		
cM capacity (veh/h)	190	244	614	146	243	631	1109			1131		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	172	82	452	474								
Volume Left	40	52	54	23								
Volume Right	132	22	10	13								
cSH	404	307	1109	1131								
Volume to Capacity	0.43	0.27	0.02	0.02								
Queue Length 95th (m)	16.6	8.4	0.5	0.5								
Control Delay (s)	20.4	20.9	0.7	9.0								
Lane LOS	ပ	ပ	V	∢								
Approach Delay (s)	20.4	20.9	0.7	9.0								
Approach LOS	ပ	ပ										
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization	ation		37.3%	೦	U Level c	CU Level of Service			⋖			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2031> Weekday AM Peak Hour 3: Queen Street North & Site Access 2 08-29-2024

373 7 6 418 373 7 6 418 578 6 418 608 0.88 0.88 608 0.88 455 9 7 475 608 609 609 609 603 603 603 603 603 603 603 603 603 603	WBR NBT
7 6 418 7 6 418 7 6 418 8 0.88 0.88 9 7 475 8 464 420 4.1 2.2 99 1093 ICU Level of Service	
Free  0.82 0.88 0.88 0.88 0.96 4.40 4.1 2.2 99 1093	വ വ
0.82 0.88 0.88 0.88 0.88 0.89 0.89 0.96 464 464 464 471 2.2 99 1093 1093	Stop
9 7 475  None 0.96 464 4.1 2.2 99 1093 ILUBARICE	
0.96 464 420 4.1 2.2 99 1093	7
0.96 464 420 4.1 2.2 99 1093 ICU Level of Service	
0.96 464 420 4.1 2.2 99 1093 ICU Level of Service	
0.96 464 420 4.1 2.2 99 1093 ICU Level of Service	
0.96 464 4.1 2.2 99 1093 ICU Level of Service	
0.96 464 4.1 2.2 99 1093 ICU Level of Service	
0.96 464 420 4.1 2.2 99 1093	
0.96 464 420 4.1 2.2 99 1093 ICU Level of Service	
464 420 4.1 2.2 99 1093	0.96
420 4.1 2.2 99 1093 ICU Level of Service	460
420 4.1 2.2 99 1093 ICU Level of Service	
4.1 2.2 99 1093 ICU Level of Service	.,,
2.2 99 1093 ICU Level of Service	6.2
2.2 99 1093 ICU Level of Service	
1093 ICU Level of Service	3.3
1093	66
ICU Level of Service	611
ICU Level of Service	NB 1
ICU Level of Service	464
ICU Level of Service	0
ICU Level of Service	6
ICU Level of Service	00/1
ICU Level of Service	0.27
ICU Level of Service	0.0
ICU Level of Service	0.0
ICU Level of Service	
ICU Level of Service	0.0
ICU Level of Service	
ICU Level of Service	
ICU Level of Service	

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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Synchro 11 Report Page 4

Timings <TOTAL 2031> Weekday AM Peak Hour 4: Queen Street North & Robinson Street 08-29-2024

	SBT	4	320	320	¥	9		9		5.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Max	53.1	0.79	0.42	4.8	0.0	4.8	¥	4.8	¥									
۶	SBL		28	78	Perm		9	9		2.0	22.5		69.3%		1.0					Мах																	Ą	
•	NBT	4	331	331	¥	2		2		2.0	22.5	52.0	69.3%	3.5	10	0.0	4.5			Мах	53.1	0.79	0.42	4.5	1.5	0.9	⋖	9.0	⋖							n LOS: A	CU Level of Service A	
1	NBL			43	Perm		2	2			22.5									Max																Intersection LOS: A	CU Level	
¥	WBT	4	21	21		∞		∞			22.5				1.0	0.0	4.5			_	8.3	0.12	0.52	20.7	0.0	20.7	S	20.7	S							_		
-	WBL		15		Perm		∞	8			22.5				1.0					None																		
Ť	EBT	4	∞		¥	4		4			22.5			3.5	1.0	0.0	4.5			_	8.3	0.12	0.25	15.6	0.0	15.6	Ω	15.6	В								9	
1	EBL		9	9	Perm		4	4		5.0	22.5	23.0	30.7%	3.5	1.0					None												67.5		Uncoord	2	y: 7.5	ilization 53.2%	10
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 67.5	Natural Cycle: 55	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.52	Intersection Signal Delay: 7.5	Intersection Capacity Utilization 53.2%	Analysis Period (min) 15

Splits and Phases: 4: Queen Street North & Robinson Street



HCM Signalized Intersection Capacity Analysis <TOTAL 2031> Weekday AM Peak Hour 4: Queen Street North & Robinson Street

Movement         EBI         EBI         EBI         WBI         WBI         NBI         NBI         NBI         NBI         SBI         SBI         SBI         Aph         Ap	rement EE Configurations fire Volume (vph) fire	5 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		15 15 1900	WBT	WBR	NBL	NBT	NBR	SBL 78	SBT	SBR
figurations	the Configurations for Young the Volume (vph) (v	1 0 0 0 1 1 0 0 0 0 1		15 15 1900	21			+		78	T	
lume (vph)         6         8         28         15         21         45         43         331         100         78         320           lume (vph)         6         8         28         15         21         45         43         311         100         78         320           lume (vph)         190         1900 <td>fire Volume (vph)  ure Volume (vph)  193  ## Flow (vphp)  194  ## Flow (vphp)  ## Flow (prot)  ## Flow (prot)  ## Flow (prot)  ## Flow (vph)  ## Flow (vph)  ## Reduction (vph)  ## Concert Flow (vph)</td> <td>2002020</td> <td></td> <td>15 15 1900</td> <td>21</td> <td></td> <td></td> <td>1</td> <td></td> <td>82</td> <td></td> <td></td>	fire Volume (vph)  ure Volume (vph)  193  ## Flow (vphp)  194  ## Flow (vphp)  ## Flow (prot)  ## Flow (prot)  ## Flow (prot)  ## Flow (vph)  ## Flow (vph)  ## Reduction (vph)  ## Concert Flow (vph)	2002020		15 15 1900	21			1		82		
Junne (vph)         6         8         28         15         21         45         43         31         100         78         320           Lime (vph)         190         1900	ure Volume (vph) 190 al Elow (vphg) 190 al Lost inne (s) 191 al Lost inne (s) 191 Frotected 191 Frotected 2. Flow (prot) 199 Permitted 2. Flow (prot) 199 February (prot) 199 Flow (vph) 199 Flow (vph) 199 Flow (vph) 199 Flow (vph) 199	2002020		1900		42	43	331	100		320	23
time (s)         1900	al Flow (vphp) al Lost time (s) al Lost time (s) brotected d. Flow (prof) ermitted d. Flow (perm) sk-hour factor, PHF Flow (vph) Comme Elaw (vph)		0.73 0.73 0 0	1900	71	45	43	331	100	78	320	23
time (s)         4.5         4.	al Lost time (s) e Util Factor Protected d. Flow (prot) shour factor, PHF Flow (vph) APR Reduction (vph) Consum Elaw (vph)		0.73		1900	1900	1900	1900	1900	1900	1900	1900
Factor         1,00         <	e Util. Factor Protected d. Flow (prot) e Emmitde d. Flow (prot) e Manual (perm) e Heben (perm) e Heben (perm) A Reduction (pph) of Reduction (pph)		0.73		4.5			4.5			4.5	
ted (0.99) (0.99) (0.97) (0.99	Protected d. Flow (prot) Permitted L. Flow (perm) L. Flow (perm) Reduction (right) P. Reduction (right) P. Course Elevan (right)		0.73		0.1			1.00			1.00	
tied (1.99) (1.9			0.73		0.93			0.97			0.99	
w (prot)         (f683)         1707         16802         1832           w (prot)         (f683)         1707         16802         1832           w (perm)         1582         1583         1538         1538           r factor, PHF         0.73         0.73         0.60         0.60         0.84         0.84         0.83         0.83         0.83           or follow (vph)         8         11         38         25         35         75         51         34         10         94         386         0         0         26         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         0         0         566         <			0.73		0.99			1.00			0.99	
tred (b) 93 (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.93) (0.94) (0.9			0.73		1707			1802			1832	
(yph)         (1582)         1589         (1683)         (1538)           (yph)         8         0.73         0.73         0.06         0.06         0.06         0.06         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.08         0.0         0.23         0.0         0.			0.73		0.93			0.93			0.83	
Tractor, PHF         0.73         0.73         0.73         0.60         0.60         0.84         0.84         0.84         0.83         0.82			0.73		1599			1683			1538	
(vph)         8         11         38         25         35         75         51         394         19         94         386           up Flow (vph)         0         23         0         0         67         0         8         0         0         2           a behalded (vph)         0         23         0         68         0         0         2         0         0         2           a behalded (vph)         0         23         0         68         0         0         2         0         0         500         0         2         0         0         2         0         0         2         0         0         0         2         0         0         2         0         0         2         0         0         2         0         0         2         0         0         0         2         0         0         0         2         0         0         2         0         0         2         0         0         2         0         0         0         0         2         0         0         0         0         0         0         0         0         0			0 0 38	09.0	09.0	09.0	0.84	0.84	0.84	0.83	0.83	0.83
up Flow (vph)         0         34         0         67         0			0 0	22	35	75	51	394	119	98	386	28
up Flow (vph)         0         23         0         68         0         556         0         0           Phases         Perm         NA         Perm         NA         Perm         Perm         Perm           Phases         4         8         2         2         6           Phases         4         8         2         5         6           Phases         4         8         8         2         6           Green (s)         7.2         7.2         5.2         6           Green (s)         7.2         7.2         5.2         6           Green (s)         4.5         4.5         4.5         6           Amount (s)         4.5         4.5         4.5         7           Amount (s)         4.5         4.5         4.5         4.5           Amount (s)         4.5			0	0	29	0	0	∞	0	0	7	0
Phases				0	89	0	0	556	0	0	206	0
Phases				Perm	¥		Perm	ΑN		Perm	Ą	
Phases	Protected Phases	4			œ			5			9	
Green, G (s)         7.2         7.2         5.2.2           Green, G (s)         7.2         7.2         5.2.2           Green, G (s)         7.1         7.2         5.2.2           Green, G (s)         4.5         4.5         4.5         4.5           Akension (s)         3.0         4.5         4.5         4.5           Akension (s)         3.0         4.5         4.5         4.5           Akension (s)         1.0         1.08         1.284         7.5           Prod         Prod         1.08         1.284         7.5           Perm         0.01         c.0.04         c.0.33         8.64           Perm         0.1         0.0         0.43         9.0           Perm         0.1         0.0         0.43         9.0           Perm         0.1         0.0         1.00         1.1           Perm         0.1         0.0         1.00         1.00           Island         1.0         1.00         1.00         1.00           A contraction         0.4         1.0         0.0         1.0           A constraint         0.2         A         A         A	Permitted Phases 4			œ			2			9		
Green, g(s)         7.2         7.2         52.2           g/C Ratio         0.11         0.76         4.5	Actuated Green, G (s)	7.2			7.2			52.2			52.2	
g/C Ratio         0.11         0.76           a Filter         0.11         0.76           a Filter         4.5         4.5           Prof.         4.5         4.5           Prof.         168         1284         7.3           Perm         0.01         0.04         0.43         2.9           Perm         0.14         0.04         0.43         2.9           Delay, d1         27.8         28.6         2.9         3.9           A Filt         30.2         3.0         3.9         4.1           Lick         1.00         1.00         1.00         4.1           Lick         28.2         30.2         3.9         4.2           A Lick         28.2         30.2         A         A           O Volume to Capacity ratio         0.43         2.0         A           A Sum of observice	Effective Green, g (s)	7.2			7.2			52.2			52.2	
Time (s)   4.5   4.5   4.5     Attaine (s)   3.0   3.0     Attaine (s)   3.0   3.0     Attaine (s)   4.5     Attaine (s)   4.5	Actuated g/C Ratio	0.11			0.11			0.76			92.0	
Attension (s)         3.0         3.0         3.0           Cap (vph)         166         168         1284           Perm         0.01         c0.04         c0.33           Perm         0.14         0.40         0.43           Perm         0.14         0.40         0.43           Delay, d1         2.78         2.86         2.9           on Factor         1.00         1.00         1.00           tal Delay, d2         0.4         1.6         1.1           Delay, d2         0.2         3.9         2.8.2           Delay (s)         2.8.2         30.2         3.9           LOS         C         A         A           Do Service         C         A         A           Control Delay         7.9         HCM 2000 Level of Service         A           O/sele Length (s)         6.84         Sum of lost time (s)         9.0           On Capacity Utilization         6.32         A         A           A enricol (min)         15.32         ICU Level of Service         A	Clearance Time (s)	4.5			4.5			4.5			4.5	
Cap (vph)         166         168         1284         7 Prof.           Prof.         Prof.         0.04         0.033           Perm         0.14         0.040         0.043           Delay, d1         27.8         28.6         2.9           on Factor         1.00         1.00         1.00           no Factor         0.4         1.6         1.0           service         28.2         30.2         3.9           service         C         A         1.0           Lobelay (s)         28.2         30.2         3.9           Lobelay (s)         C         C         A           Included (s)         C         C         A           Included (s)         0.04         HCM 2000 Level of Service         A           O'Control Delay         7.9         HCM 2000 Level of Service         A           O'Control Delay         7.9         HCM 2000 Level of Service         A           O'Control Capacity Intilization         53.2         ICU Level of Service         A           A con Capacity Utilization         15         A         A           A condition of the control of Service         A         A	Vehicle Extension (s)	3.0			3.0			3.0			3.0	
Prot         C0.01         c0.04         c0.33           Perm         0.14         0.40         0.43           Delay, d1         27.8         28.6         2.9           on Factor         1.00         1.00         1.00           tal Delay, d2         0.4         1.6         1.1           service         C         C         A           C Delay (s)         28.2         30.2         3.9           LOS         C         A         A           n Summary         C         C         A           o Volume to Capacity ratio         0.43         Sum of lost time (s)         9.0           on Capacity Utilization         53.2%         ICU Level of Service         A           on Capacity Utilization         53.2%         ICU Level of Service         A	Lane Grp Cap (vph)	166			168			1284			1173	
Perm         0.01         c.0.04         c.0.33           Delay, d1         27.8         0.40         0.43           on Factor         1.00         1.00         1.00           no Factor         1.00         1.00         1.00           tal Delay, d2         0.4         1.6         1.1           service         C         C         A           C Delay (s)         28.2         30.2         3.9           LLOS         C         A         A           no Summan         C         C         A           no Control Delay         7.9         HCM 2000 Level of Service         A           O. Volume to Capacity ratio         0.43         Sum of lost time (s)         80           On Capacity (s)         68.4         Sum of lost time (s)         A           On Capacity (ulifization         53.2%         ICU Level of Service         A           A period (min)         15         ICU Level of Service         A	v/s Ratio Prot											
14	v/s Ratio Perm	0.01			c0.04			c0.33			0.33	
Pelay, d1         27.8         28.6         2.9           on Factor         1.00         1.00         1.00           fall Delay, d2         28.2         30.2         3.9           service         C         C         A           cervice         C         C         A           Delay (s)         28.2         30.2         3.9           Lock         C         C         A           no Summary         Control Delay         7.9         HCM 2000 Level of Service         A           Of Volume to Capacity ratio         0.43         Sum of lost time (s)         9.0           on Capacity Utilization         53.2%         ICU Level of Service         A           and Capacity Utilization         15         A           A serviced (min)         A         A	v/c Ratio	0.14			0.40			0.43			0.43	
on Factor 1.00 1.00 1.00  tal Delay, d2 2.2 3.2 3.2  Delay (s) 28.2 3.2 3.9  For including the control Delay (s) 28.2 3.9  O Volume to Capacity ratio 0.43  O Capacity (s) 28.4 Sum of lost time (s) 9.0  A son capacity utilization 53.2% (CU Level of Service A or Capacity Utilization 153.2% (CU Level of Service A or Cap	Uniform Delay, d1	27.8			28.6			2.9			2.9	
tal Delay, d2         0.4         1.6         1.1           service         28.2         30.2         3.9           belay (s)         28.2         C         A           LOS         C         A         A           LOS Summary         7.9         HCM 2000 Level of Service         A           O Control Delay         7.9         HCM 2000 Level of Service         A           O Volume to Capacity ratio         0.43         Sum of lost time (s)         9.0           Cybe Length (s)         68.4         Sum of lost time (s)         9.0           Pariod (min)         15         ICU Level of Service         A	Progression Factor	1.00			1.00			1.00			1.00	
28.2 30.2 3.9  Service C C A A College C C A A College C C A A College C C A A College C C C C C A A College C C C C C C C C C C C C C C C C C C	Incremental Delay, d2	0.4			1.6			=			1.2	
C C C A A A A A A A A A A A A A A A A A	Delay (s)	28.2			30.2			3.9			4.0	
28.2 30.2 3.9 4 C C C A A T,9 HCM 2000 Level of Service A 68.4 Sum of lost time (s) 9.0 53.2% (CU Level of Service A 15	Level of Service	ပ			ပ			⋖			⋖	
C C A A  7.9 HCM 2000 Level of Service A A ratio 0.43 Sum of lost time (s) 9.0 68.4 Sum of lost vice A 15.2% ICU Level of Service A 15.1%	Approach Delay (s)	28.2			30.2			3.9			4.0	
7.9 HCM 2000 Level of Service 0.43 ratio 0.43 Sum of lost time (s) 53.2% ICU Level of Service 15	Approach LOS	ပ			ပ			¥			A	
7.9 HCM 2000 Level of Service 0.43 catio 0.43 Sum of lost time (s) 53.2% ICU Level of Service 15	Intersection Summary											
ratio 0.43 Sum of lost time (s) 68.4 Sum of lost time (s) 53.2% ICU Level of Service 15	HCM 2000 Control Delay		7.9	오	M 2000 L	evel of Se	ervice		A			
68.4 Sum of lost time (s) 53.2% ICU Level of Service 15	HCM 2000 Volume to Capacity ratio		0.43									
53.2% ICU Level of Service 15	Actuated Cycle Length (s)		68.4	Sur	n of lost t	ime (s)			9.0			
15	Intersection Capacity Utilization		53.2%	<u>ರ</u>	J Level of	Service			∢			
	Analysis Period (min)		15									

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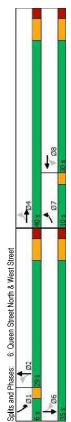
<total 2031=""> Weekday AM Peak Hour</total>	n Street 08-29-2
HCM Unsignalized Intersection Capacity Analysis	5: Metcalfe Street South/Site Access 1 & Robinson Street

	1	Ť	1	1	ţ	1	•		•	٠	-	•
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	0	181	2	50	282	13	2	0	13	10	0	0
Future Volume (Veh/h)	0	181	2	70	78	13	7	0	13	10	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.25	0.25	0.25	0.62	0.62	0.62
Hourly flow rate (vph)	0	218	9	27	105	18	8	0	25	16	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)		107										
pX, platoon unblocked												
vC, conflicting volume	123			224			389	398	221	441	392	114
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	123			224			389	398	221	441	392	114
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	33	3.5	4.0	3.3
p0 queue free %	100			86			66	100	8	97	100	100
cM capacity (veh/h)	1464			1345			561	529	819	486	533	939
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	224	150	09	16								
Volume Left	0	27	∞	16								
Volume Right	9	18	25	0								
cSH	1464	1345	77.1	486								
Volume to Capacity	0.00	0.02	0.08	0.03								
Queue Length 95th (m)	0.0	0.5	2.0	0.8								
Control Delay (s)	0.0	1.5	10.1	12.7								
Lane LOS	0	+ ۲ ک	40 t	13.7								
Approach Celay (s)	5	3	2	- 0								
Approach LOS			۵	Ω								
Intersection Summary												
Average Delay Intersection Capacity Utilization			29.2%	ᅙ	ICU Level of Service	Service			∢			
Analysis Period (min)			3									

<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

<TOTAL 2031> Weekday AM Peak Hour 08-29-2024 Timings 6: Queen Street North & West Street

-	SBT	£3	224	224	A	9		9		29.0	35.0	35.0	46.7%	4.0	2.0	0.0	0.9			Мах	29.0	0.51	0.44	6.6	2.5	12.4	В	11.6	В									
۶	SBL	¥	43	43	pm+pt	-	9	-		4.0	0.9	0.9	8.0%	2.0	0.0	0.0	2.0	Lead	Yes	None	33.0	0.59	0.10	2.7	0.0	2.7	∢										O	
4	NBT	¢3	247	247	¥	2		2		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	25.4	0.45	0.44	13.3	0.0	13.3	മ	13.1	ш							LOS: B	ICU Level of Service C	
•	NBL	F	31	31	Perm		2	2		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	25.4	0.45	0.09	11.2	0.0	11.2	ш									Intersection LOS: B	U Level o	
Ţ	WBT	AT.	22	22	¥	∞		∞		15.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	None	15.4	0.27	0.14	14.2	0.0	14.2	ш	14.2	ш							<u>u</u>	೨	
-	WBL		53	53	Perm		∞	80		15.0	30.0	30.0	40.0%	4.0	2.0			Lag	Yes	None																		
1	EBT	AT.	22	22	¥	4		4		15.0	28.0	40.0	53.3%	4.0	2.0	0.0	0.9			None	15.4	0.27	0.53	17.2	0.0	17.2	<u>m</u>	17.2	ш									
1	EBL		212	212	pm+pt	7	4	7		2.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None														pıq		<b>~</b>	m 70.7%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Tum Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 56.4	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.53	Intersection Signal Delay: 13.8	Intersection Capacity Utilization 70.7% Analysis Pariod (min) 15	Alidiyala i Gilou (illiii) io



<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

<TOTAL 2031> Weekday AM Peak Hour 08-29-2024 HCM Signalized Intersection Capacity Analysis 6: Queen Street North & West Street

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Movement	EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		A.D.			A.D.		*	42		#	£3	
Traffic Volume (vph)	212	22	62	53	22	14	31	247	49	43	224	86
Future Volume (vph)	212	22	79	59	22	14	31	247	46	43	224	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
Lane Util, Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Ŧ		0.97			0.98		1.00	0.98		1.00	0.95	
Fit Protected		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3317			3414		1770	1816		1770	1778	
Fit Permitted		0.75			0.79		0.52	1.00		0.47	1.00	
Satd. Flow (perm)		2559			2720		696	1816		869	1778	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.78	0.78	0.78
Adj. Flow (vph)	241	62	06	35	09	15	38	301	09	22	287	126
RTOR Reduction (vph)	0	20	0	0	Ξ	0	0	∞	0	0	16	0
Lane Group Flow (vph)	0	344	0	0	96	0	38	353	0	22	397	0
Turn Type	pm+pt	NA		Perm	NA		Perm	N		pm+pt	ΑN	
					•			•				

and dead of the control of the contr	3		:				
Delay (s)	18.2	15.9	9.6 12.7		7.0	6.6	
Level of Service	œ	മ	A B	~	∢	∢	
Approach Delay (s)	18.2	15.9	12.4			9.6	
Approach LOS	В	В	_	В		A	
Intersection Summary							
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	9	В			
HCM 2000 Volume to Capacity ratio	0.50						
Actuated Cycle Length (s)	57.2	Sum of lost time (s)		16.0			
Intersection Capacity Utilization	70.7%	ICU Level of Service		ပ			
Analysis Period (min)	15						
c Critical Lane Group							

0.43 8.4 1.00 1.4 9.9 A 9.6

0.44 11.00 1.7 12.7 B B 12.4

0.09 9.2 1.00 0.4 9.6 A

0.04 0.13 15.8 1.00 0.1 15.9 B

0.50 0.50 17.7 1.00 0.6 18.2 B

29.8 29.8 0.52 6.0 3.0 926 c0.22

25.4 25.4 0.44 6.0 3.0 3.0 806 0.19

25.4 25.4 0.44 6.0 3.0 430

15.4 15.4 0.27 6.0 3.0 732

15.4 15.4 0.27 6.0 3.0 688

Tum Type
Protected Phases
Protected Phases
Actuated Green, G (s)
Effective Green, g (s)
Actuated g/C Ratio
Actuated g/C Ratio
Actuated g/C Ratio
Cherance Time (s)
Lane Gip Cap (vph)
W.R Ratio Prot
Are Ratio
Duftom Delay, d1
Progression Factor
Informental Delay, d2

29.8 29.8 0.52 2.0 3.0 3.0 490 0.00 0.05 0.11 6.9 1.00 1.00 7.0

<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2031> Weekday AM Peak Hour 7: Metcalfe Street South & West Street

Movement	1. Intercalle offeet outility vest offeet	אווו א	100	3									1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Feb.		1	Ť	1	1	ţ	1	•	+	•	٠	-	•
Type purations         Type pu	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
The (verly 1) 11 101 34 6 84 3 0 0 0 1 16 me (verly 1) 11 101 34 6 84 3 0 0 0 1 1 16 me (verly 1) 11 101 34 6 84 3 0 0 0 1 1 16 me (verly 1) 11 101 34 6 84 3 0 0 0 0 1 1 16 me (verly 1) 13 122 41 6 86 3 0 0 0 0 0 0 4 64 64 64 64 64 64 64 64 64 64 64 64 6	Lane Configurations		4			4			4			4	
The color of the	Traffic Volume (veh/h)	Ξ	101	34	9	8	က	0	0	0	-	16	4
Free   Free   Stop	Future Volume (Veh/h)	Ξ	101	8	9	84	က	0	0	0	Ψ.	16	#
Factor 0.83 0.83 0.89 0.9% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0	Sign Control		Free			Free			Stop			Stop	
Factor 0.83 0.83 0.83 0.98 0.98 0.96 0.61 0.61 0.61 0.25 0.25 (m)  (m)  (m)  (m)  (m)  (m)  (m)  (m)	Grade		%0			%0			%0			%0	
rate (vph) 13 122 41 6 86 3 0 0 0 4 64 (mt) (mt) eed (mts) eed (mt	Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
ted (mis) ckage are (veh) ckage are (veh) ginal (m) gina	Hourly flow rate (vph)	13	122	41	9	98	က	0	0	0	4	<b>64</b>	29
(m) bore (mis) chage (mis) (mis) chage (mis) (mi	Pedestrians												
ckage executivis)  None None None None None None None Non	Lane Width (m)												
ckage         None         None           are (veh)         None         None           age veh)         105         None           age veh)         105         163         356         270         142         268         288           age veh)         105         163         356         270         142         268         288           and volume         89         163         356         270         142         268         288           L conf vol         89         163         356         270         142         268         288           Accordinal Red vol         89         163         356         270         142         268         288           Accordinal Red vol         89         163         356         270         142         268         288           Accordinal Red vol         1506         1416         100	Walking Speed (m/s)												
age (veh)  Juniocked	Percent Blockage												
ase veh)         None         None           grad (m)         105         163         356         270         142         268         288           unblocked unblocked         89         163         356         270         142         268         288           t conf vol         4.1         4.1         4.1         6.5         6.2         7.1         6.5           see vol         4.1         4.1         4.1         6.5         6.2         7.1         6.5           see vol         4.1         4.1         6.5         6.2         7.1         6.5           see vol         99         100         100         100         100         99         90           see vol         99         124         7.1         6.5         6.2         7.1         6.5           see vol         99         124         4.1         5.1         6.5         6.7         6.5         6.7           see vol         99         124         4.1         6.2         7.1         6.5         6.1         6.5         6.2         7.1         6.5           see vol         150         146         5.1         6.2         7.1	Right turn flare (veh)												
grael (m) 105   10	Median type		None			None							
ginal (m)         105           ginal (m) bocked         105           unbocked         163         356         270         142         268         288           t cont vol         1         4.1         4.1         4.1         2.6         2.2         2.8         2.8           2 cont vol         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           2 cont vol         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           3 cont vol         4.1         4.1         7.1         6.5         6.2         7.1         6.5           4 cont vol         4.1         4.1         7.1         6.5         6.2         7.1         6.5           5 cont vol         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           5 cont vol         1506         124         7.1         6.5         6.2         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         6.5         7.1         7.1	Median storage veh)												
unblocked         163         356         270         142         268         288           t conf voll         4.1         4.1         4.1         4.1         2.2         2.2         2.2         2.2         2.2         2.2         2.2         2.2         2.2         3.5         4.0         3.3         3.5         4.0           see %         99         100         100         100         100         100         100         99         90           (veh/n)         1506         1416         515         6.2         7.1         6.5         90         90           (veh/n)         1506         1416         515         629         905         678         613           ane #         EB 1         WB 1         NB 1         SB 1         7         6.5         6.2         7.1         6.5           int         41         3         0         4         8         8         8         8         9         90           (veh/n)         1506         146         178         8         8         8         8         8         8         8           tht         41         3         0         4	Upstream signal (m)		105										
ng volume         89         163         356         270         142         268         288           2 conf vol         89         163         356         270         142         268         288           3 conf vol         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           5 conf vol         2.2         3.5         4.0         3.3         3.5         4.0           4 conf vol         1506         1416         515         6.2         7.1         6.5         4.0           5 conf vol         1506         181         881         8.1         8.1         4.0         9.0         9.0         9.0           6 conf vol         1506         181         881         8.1	pX, platoon unblocked												
Confivol   Confirmation	vC, conflicting volume	88			163			356	270	142	268	288	88
2 conf vol         89         163         356         270         142         268         288           kee vol         4.1         4.1         7.1         6.5         6.2         7.1         6.5           (s)         2.2         2.2         3.5         4.0         3.3         3.5         4.0           ee %         99         100	vC1, stage 1 conf vol												
ked vol         89         163         356         270         142         268         288           1)         4.1         4.1         6.5         6.2         7.1         6.5         88         288           (s)         2.2         2.2         3.5         4.0         3.3         3.5         4.0           ee%         99         100         100         100         100         99         90           (Veh/h)         1506         WB 1         NB 1         SB 1         A         4.0         33         3.5         4.0           and #         EB 1         WB 1         NB 1         SB 1         A         4.0         99         90	vC2, stage 2 conf vol												
(s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 (e. 7.1 6.	vCu, unblocked vol	83			163			326	270	142	268	288	88
(s) 2.2 3.5 4.0 3.3 3.5 4.0 (no. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
ee% 99 100 100 99 90 100 100 100 99 90 90 100 10	tC, 2 stage (s)												
ee % 99 100 100 99 90 100 100 100 99 90 100 10	tF (s)	2.2			2.2			3.5	4.0	33	3.5	4.0	3.3
(veh/h)         1506         1416         515         629         905         678         613           and         176         95         0         124 <td>p0 queue free %</td> <td>66</td> <td></td> <td></td> <td>100</td> <td></td> <td></td> <td>100</td> <td>100</td> <td>100</td> <td>66</td> <td>6</td> <td>8</td>	p0 queue free %	66			100			100	100	100	66	6	8
al 176 95 0 124  In 176 95 0 124  Int 41 3 0 56  Int 1506 1416 1700 739  Sapacity 0.01 0.00 0.01 0.17  Int 95th (m) 0.2 0.1 0.0 4.8  Summary  A A B B  Belay (s) 0.6 0.5 0.0 10.9  Summary  A B B  Belay (s) 0.6 0.5 0.0 10.9  Summary  A B B  Belay (s) 0.6 0.5 0.0 10.9  Summary  A B B  Belay (s) 0.6 0.5 0.0 10.9  Summary  A B B  Belay (s) 0.6 0.5 0.0 10.9  A B B  Belay (s) 0.6 0.0 10.9  A B B  Belay (s) 0.6 0.0 10.9  A B B  Belay (s) 0.6 0.0 10.9  A B B  Belay (s) 0.0 0.0 10.9  A B B  Belay (s) 0.0 0.0 10	cM capacity (veh/h)	1506			1416			515	629	902	879	613	971
tr 176 95 0 124 tr 41 3 0 56 tr 44 1 3 0 56 tr 1506 1416 1700 739 zapacity 0.01 0.00 0.01 0.17 tr 95h (m) 0.2 0.1 0.0 48 sy (s) 0.6 0.5 0.0 10.9 OS A A B B elay (s) 0.6 0.5 0.0 10.9 OS A A B B Summary A B B Summary 3.8 tr 0.0 10.9 10.9 tr 0.0 1	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
t 13 6 0 4  Int 41 13 6 0 4  Int 1506 11 13 0 56  Sapacity 0.011 0.00 0.01 0.17  Jth 95th (m) 0.2 0.1 0.0 48  sy(s) 0.6 0.5 0.0 10.9  OS 0.6 0.5 0.0 10.9  Summary A A B  Summary A B  A A B  B B  Summary A B  A B  B B  Summary A B  A B  A B  A B  A B  Summary A B  A B  A B  A B  A B  A B  A B  A B	Volume Total	176	95	0	124								
ht 41 3 0 56  160 1416 1700 739  Sapacity 0.01 0.00 0.01 0.17  191 95th (m) 0.2 0.1 0.0 4.8  9y (s) 0.6 0.5 0.0 10.9  OS 0.5 0.0 10.9  Summary  A A B  Summary  A B  Summary  15 NCU Level of Service	Volume Left	13	9	0	4								
1506 1416 1700 739  strip 5th (m) 0.01 0.01 0.17  ath 95th (m) 0.2 0.1 0.0 4.8  ay (s) A A B B  cleav (s) 0.6 0.5 0.0 10.9  Summary  Summary  3.8  Capacity Utilization 2.0.7% ICU Level of Service	Volume Right	41	က	0	26								
Japacity 0.01 0.00 0.01 0.17  Jat 95th (m) 0.2 0.1 0.0 4.8  A A A B  elay (s) 0.6 0.5 0.0 10.9  OS A A B  Summary A B  A A B  B B  Commany A B  Commany A B  A B  B B  Commany A B  Commany	CSH	1506	1416	1700	739								
9th 95th (m) 0.2 0.1 0.0 4.8  sy (s) 0.6 0.5 0.0 10.9  OS 0.5 0.0 10.9  OS 0.6 0.5 0.0 10.9  OS A B  Summary  Ap B  Summary 3.8  ICU Level of Service riod (min)	Volume to Capacity	0.01	0.00	0.01	0.17								
ay (s) 0.6 0.5 0.0 10.9  A A A B  Belay (s) 0.6 0.5 0.0 10.9  OS A B  Summary 3.8  Capacity Utilization 20.7% ICU Level of Service riod (min)	Queue Length 95th (m)	0.2	0.1	0.0	4.8								
A A A B   B	Control Delay (s)	9.0	0.5	0.0	10.9								
elay (s) 0.6 0.5 0.0 10.9  OS A B  Summary 3.8  Ico Level of Service ried (min) 15	Lane LOS	∢	⋖	∢	В								
A B 3.8 20.7% ICU Level of Service 15	Approach Delay (s)	9.0	0.5	0.0	10.9								
3.8 20.7% ICU Level of Service 15	Approach LOS			∢	В								
3.8 20.7% ICU Level of Service 15	Intersection Summary												
20.7% ICU Level of Service 15	Average Delay			3.8									
	Intersection Capacity Utilization	_		20.7%	<u> </u>	J Level of	f Service			∢			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON
Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2036> Weekday AM Peak Hour 1: Queen Street North & Union Street 08-29-2024

0.87

0.87

0.84

0.84

0.40

0.40

0.25

0.25

Stop 0% 0.40 None

None 177

Grade
Peak Hour Factor
Houty flow rate (vph)
Houthy flow rate (vph)
Houthy flow rate (vph)
Walking Speed (mis)
Walking Speed (

472

499

467

1064

1188

492

1062

1112

472

499

467

6.5

492

1062 6.5 2.2 98 090

2.2 98 1065

3.3 91 596

99 213

3.5 80 123

3.3

4.0 214

3.5 75 162

tC, single (s)
tC, 2 stage (s)
tF (s)
p0 queue free %
cM capacity (veh/h)

522 23 23 15 1090 0.02 0.02 0.6 A A A

498 26 10 10 1065 0.02 0.0 0.7 0.7

172 40 40 132 361 0.48 19.7 23.7 C

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coure Length 95th (m)
Lane LOS
Lane LOS

13

28

22

22

9 9

33

9 9

Lane Configurations
Traffic Volume (veh/h)
Future Volume (Veh/h)
Sign Control

421 421 0% 0% 484

388 388 388 0% 0.84 462

<TOTAL 2036> Weekday AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

2: Queen Street North & Marshall Lane/Site Access 3

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	4	Ť	1	/	ļ	1	1	•	•	٠	-	•
Movement	EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	_	16	Ξ	16	တ	52	2	365	25	30	426	18
Future Volume (Veh/h)	-	16	11	16	6	52	5	365	25	30	426	18
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.86	0.86	0.86	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
Hourly flow rate (vph)	-	19	13	27	15	45	9	415	29	33	468	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								315				
pX, platoon unblocked												
vC, conflicting volume	1050	1030	478	1023	1010	444	488			474		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1050	1030	478	1023	1010	444	488			474		
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 %	66	95	88	98	8	93	66			97		
cM capacity (veh/h)	177	225	287	191	231	614	1075			1088		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	33	84	480	521								
Volume Left	_	27	9	33								
Volume Right	13	42	29	50								
cSH	294	302	1075	1088								
Volume to Capacity	0.11	0.28	0.01	0.03								
Queue Length 95th (m)	3.0	8.8	0.1	8.0								
Control Delay (s)	18.8	21.2	0.2	6.0								
Lane LOS	ပ	ပ	∢	∢								
Approach Delay (s)	18.8	21.2	0.2	6.0								
Approach LOS	ပ	ပ										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			58.3%	<u> </u>	CU Level of Service	Service			В			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Synchro 11 Report Page 1

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

CU Level of Service

5.3 39.5% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2036> Weekday AM Peak Hour 3: Queen Street North & Site Access 2 08-29-2024

																																								А	
-	SBT	4	460	460	Free	%0	0.88	523						None																										of Service	
٨	SBL		9	9			0.88	7									0.94	511			444	4.1		2.2	66	1045														CU Level of Service	
•	NBR		7	7			0.82	6																																_	
\$	NBT	T.	412	412	Free	%0	0.82	502						None		66											SB 1	530	7	0	1045	0.01	0.2	0.2	⋖	0.2			0.3	39.0%	15
1	WBR		2	2			0.75	7									0.94	206			439	6.2		3.3	66	579	NB 1	511	0	6	1700	0.30	0.0	0.0		0.0					
1	WBL	*	4	4	Stop	%0	0.75	2									0.94	1044			1013	6.4		3.5	86	246	WB 1	12	2	7	370	0.03	0.8	15.0	ပ	15.0	ပ			_	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF (s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	HS	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

Timings <TOTAL 2036> Weekday AM Peak Hour 4: Queen Street North & Robinson Street 08-29-2024

-	SBT	4	352	352	¥	9		9		2.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Max	52.7	0.78	0.47	9.6	0.0	5.6	⋖	9.6	∢								
۶	SBL		98	98	Perm		9	9		2.0	22.5			3.5						Max																	m
•	NBT	4	365	365	¥	7		7		2.0	22.5			3.5		0.0	4.5			Max	52.7	0.78	0.47	5.1	1.9	7.0	⋖	7.0	¥							-0S: A	Service
1	NBL		47	47	Perm		2	7		2.0	22.5				1.0					Max																Intersection LOS: A	CU Level of Service B
<b>↓</b>	WBT	4	23	23	¥	œ		<u></u> ∞			22.5				1.0	0.0	4.5			None	9.8	0.13	0.54	21.0	0.0	21.0	O	21.0	ပ							<u>nt</u>	<u>ರ</u>
-	WBL		16	16	Perm		œ	<u></u> ∞			22.5				1.0					None																	
Ť	EBT	4	∞	œ	Ą	4		4		2.0	22.5				1.0	0.0	4.5			None	9.8	0.13	0.24	15.3	0.0	15.3	Ω	15.3	В								
1	EBL		9	9	Perm		4	4		2.0	22.5		30.7%	3.5	1.0					None														9			27.8%
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)		Total Split (%)		All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ros	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 67.4	Natural Cycle: 60	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.54	Intersection Signal Delay: 8.3	Intersection Capacity Utilization 57.8% Analysis Period (min) 15

Splits and Phases: 4: Queen Street North & Robinson Street



185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Signalized Intersection Capacity Analysis <TOTAL 2036> Weekday AM Peak Hour 4: Queen Street North & Robinson Street

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2036> Weekday AM Peak Hour 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement												
oucitoning of a	EBL	EB	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane configurations		4			4			4			÷	
raffic Volume (vph)	9	∞	78	16	23	49	47	365	110	98	352	25
uture Volume (vph)	ဖ	∞	78	16	23	49	47	365	110	98	352	52
deal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
otal Lost time (s)		4.5			4.5			4.5			4.5	
ane Util. Factor		1.00			1.00			1.00			1.00	
Ţ.		0.91			0.92			0.97			0.99	
It Protected		0.99			0.99			0.1			0.99	
Satd. Flow (prot)		1683			1707			1802			1832	
It Permitted		0.93			0.93			0.92			0.81	
satd. Flow (perm)		1572			1597			1669			1502	
Peak-hour factor, PHF	0.73	0.73	0.73	09.0	09.0	09.0	0.84	0.84	0.84	0.83	0.83	0.83
dj. Flow (vph)	<u></u> ∞	Ξ	88	27	38	82	26	435	131	104	424	30
RTOR Reduction (vph)	0	34	0	0	71	0	0	∞	0	0	2	0
ane Group Flow (vph)	0	23	0	0	92	0	0	614	0	0	556	0
	Perm	¥		Perm	¥		Perm	Ϋ́		Perm	¥	
Protected Phases		4			∞			7			9	
Permitted Phases	4			∞			2			9		
Actuated Green, G (s)		7.5			7.5			51.8			51.8	
Effective Green, g (s)		7.5			7.5			51.8			51.8	
ctuated g/C Ratio		0.11			0.11			0.76			0.76	
Searance Time (s)		4.5			4.5			4.5			4.5	
ehicle Extension (s)		3.0			3.0			3.0			3.0	
ane Grp Cap (vph)		172			175			1265			1139	
/s Ratio Prot												
/s Ratio Perm		0.01			c0.05			0.37			c0.37	
//c Ratio		0.13			0.43			0.49			0.49	
Jniform Delay, d1		27.5			28.4			3.2			3.2	
Progression Factor		1.00			1.00			1.00			1.00	
ncremental Delay, d2		0.4			1.7			1.3			1.5	
Oelay (s)		27.8			30.1			4.5			4.7	
evel of Service		ပ			ပ			∢			∢	
spproach Delay (s)		27.8			30.1			4.5			4.7	
Approach LOS		ပ			ပ			∢			∢	
ntersection Summary												
1CM 2000 Control Delay			8.2		:M 2000 L	HCM 2000 Level of Service	ervice		⋖			
1CM 2000 Volume to Capacity ratio	ratio		0.48									
ctuated Cycle Length (s)			68.3	S	Sum of lost time (s)	time (s)			9.0			
ntersection Capacity Utilization			27.8%	<u> </u>	CU Level of Service	f Service			В			
nalysis Period (min)			15									
Critical Lane Group												

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Movement	田田	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	0	181	2	22	98	13	က	0	14	9	0	0
Future Volume (Veh/h)	0	181	2	22	98	13	က	0	14	10	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.83	0.83	0.83	0.74	0.74	0.74	0.25	0.25	0.25	0.62	0.62	0.62
Hourly flow rate (vph)	0	218	9	30	116	18	12	0	26	16	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)		107										
pX, platoon unblocked												
vC, conflicting volume	134			224			406	415	221	462	409	125
vC1, stage 1 conf vol												
vC2. stage 2 conf vol												
vCu, unblocked vol	134			224			406	415	221	462	409	125
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
£ (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			86			86	100	93	26	100	100
cM capacity (veh/h)	1451			1345			546	516	819	467	520	926
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	224	164	89	16								
Volume Left	0	30	12	16								
Volume Right	9	18	26	0								
SSH	1451	1345	752	467								
Volume to Capacity	0.00	0.02	0.09	0.03								
Queue Length 95th (m)	0.0	0.5	2.4	0.8								
Control Delay (s)	0.0	1.6	10.3	13.0								
Lane LOS		∢	ш	В								
Approach Delay (s)	0.0	1.6	10.3	13.0								
Approach LOS			В	В								
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization	_		29.7%	೨	CU Level of Service	f Service			⋖			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

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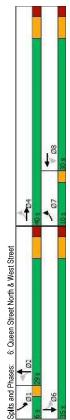
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<TOTAL 2036> Weekday AM Peak Hour 08-29-2024 Timings 6: Queen Street North & West Street

<TOTAL 2036> Weekday AM Peak Hour 08-29-2024

HCM Signalized Intersection Capacity Analysis 6: Queen Street North & West Street

_	SBT	<del>(</del> 2	247	247	NA	9		9		29.0	35.0	35.0	46.7%	4.0	2.0	0.0	0.0			Max	29.0	0.51	0.49	10.5	3.6	14.1	Ф	13.1	В									
٠	SBL	ji.	47	47	pm+pt	-	9	-		4.0	0.9			2.0	0.0	0.0	2.0	Lead	Yes		33.0				0.0	5.8	⋖										Ω	
1	NBT	43	273	273				2		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Гag	Yes	Max	25.4	0.45	0.48	14.0	0.0	14.0	മ	13.7	В							LOS: B	CU Level of Service D	
•	NBL	F	33	34	Perm		2	7		23.0	29.0											0.45	0.10	11.4	0.0	11.4	Ω									Intersection LOS: B	CU Level o	
<b>↓</b>	WBT	AT.	61	61	¥	∞		∞		15.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	None	15.4	0.27	0.16	14.2	0.0	14.2	Ω	14.2	В							_	_	
-	WBL		32		Perm		∞	∞		15.0	30.0	30.0	40.0%	4.0	2.0			Lag	Yes	None																		
Ť	EBT	A.D.	22	22	Ϋ́	4		4					23				0.9			None	15.4	0.27	0.53	17.2	0.0	17.2	В	17.2	В									
1	EB		212	212	pm+pt	7	4	7		5.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None														ord		.5	ion 76.6%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 56.4	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.53	Intersection Signal Delay: 14.5	Intersection Capacity Utilization 76.6%	Analysis Period (min) 15



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Movement         EBL         EBT         EBR         WBI         WBT         WBI         NBT         NBT         NBT         SBI         SBI         SBI         SBI         SBI         SBI         SBI         SBI         TAT         TA	tume (sph)         EBI         EBI         EBI         WBL         WBT         WBR         NBI         NBI         NBI         SBI           Implications         212         55         79         32         61         15         34         273         55         47           Imme (sph)         212         55         79         32         61         15         34         273         55         47           Imme (sph)         212         55         79         32         61         15         34         273         55         47           Imme (sph)         210         1900		1	Ť	-	/	ţ	1	1	+	•	۶	-	•
figurations         4Th         15         4Th         15         4Th         4	figurations         4Th         3         4Th         4	Movement	EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Linne (vph)         212         55         79         32         61         15         34         273         55         47         247           Munne (vph)         212         55         79         32         61         15         34         273         55         47         247           (vph)         1900 </td <td>Lime (vph)         212         55         79         32         61         15         34         273         55         47           V(vph)         100         190<td>Lane Configurations</td><td></td><td>A.L.</td><td></td><td></td><td>A.L.</td><td></td><td>*</td><td>43</td><td></td><td>*</td><td>43</td><td></td></td>	Lime (vph)         212         55         79         32         61         15         34         273         55         47           V(vph)         100         190 <td>Lane Configurations</td> <td></td> <td>A.L.</td> <td></td> <td></td> <td>A.L.</td> <td></td> <td>*</td> <td>43</td> <td></td> <td>*</td> <td>43</td> <td></td>	Lane Configurations		A.L.			A.L.		*	43		*	43	
lume (vph)         212         55         79         32         61         15         34         273         55         47         247           reviptibil         1900	lume (vph)         212         55         79         32         61         15         34         273         55         47           rephol)         1900	Traffic Volume (vph)	212	22	62	32	61	15	34	273	22	47	247	107
time (s) 6.0 1900 1900 1900 1900 1900 1900 1900 19	time (s) 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	Future Volume (vph)	212	22	79	32	61	12	34	273	22	47	247	107
time (s)         6.0         6	time (s) 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         0.95         0.05         1.00         <	Factor         0.95         0.95         1.00         1.00         1.00           red         0.97         0.98         1.00         0.97         1.00           red         0.97         0.99         1.00         0.97         1.00           red         0.97         0.99         1.00         0.97         1.00           red         0.74         0.99         1.00         0.97         1.00           red         0.74         0.99         1.00         0.97         1.00           red         0.74         0.78         0.95         1.00         0.93         1.00           redor, PHF         0.88         0.88         0.92         0.92         0.92         0.82         0.82         0.78           v(ph)         241         62         90         35         66         16         41         33         67         60           duction (vph)         0         16         0         12         0         0         170         0.43         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	Total Lost time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
ted 0.97 0.99 0.99 1.00 0.95 1.00 0.95 ted 0.99 0.99 0.99 1.00 0.95 1.00 0.95 ted 0.99 0.99 0.99 1.00 0.99 1.00 0.95 ted 0.74 0.74 0.770 1.816 1.770 1.770 1.770 1.816 1.770 1	ted 0.97 0.98 1.00 0.97 1.00 0.97 1.00 0.97 1.00 0.99 1.	Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
ted         0.97         0.99         0.95         1.00         0.95         1.00           ted         0.74         3.77         3.416         1.77         1816         1.77         1.78           ted         0.74         0.28         0.88         0.88         0.89         0.50         1.00         0.43         1.77           ted         0.78         0.88         0.88         0.89         0.92         0.92         0.82         0.82         0.82         0.87         1.77	ried         0.97         0.99         0.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.95         10.00         0.43         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         1816         17.70         18.70	Frt		0.97			0.98		1.00	0.97		1.00	0.95	
V(pot)         3317         3416         1770         1816         1770         1778           V(pem)         2347         0.78         0.50         100         0.43         100           V(pem)         2545         0.28         0.82         0.82         0.82         0.82         0.82         0.78         0.78         0.79           V(pem)         241         62         90         35         66         16         41         333         67         60         317           Opplow (vph)         0         344         0         0         12         0         0         8         0         0         16           Phases         P         0         0         12         0         0         0         18         0         0         16           Phases         P         <	v (prot)         3317         3416         1770         1816         1770           ted         0.748         0.788         0.69         0.43         1770           ted         0.748         0.788         0.826         1.00         0.43           ted         0.245         2704         933         1816         779           ted         0.88         0.88         0.92         0.92         0.92         0.82         0.82         0.82         0.78           (vph)         241         62         90         35         66         16         41         333         67         60           duction (vph)         0         344         0         12         0 <td>Fit Protected</td> <td></td> <td>0.97</td> <td></td> <td></td> <td>0.99</td> <td></td> <td>0.95</td> <td>1.00</td> <td></td> <td>0.95</td> <td>1.00</td> <td></td>	Fit Protected		0.97			0.99		0.95	1.00		0.95	1.00	
ted         0,74         0,78         0,50         1,00         0,43         1,00           Velpermi)         2345         2704         933         1816         0.78         0,78           Velpermi)         2345         0.88         0.92         0.92         0.82         0.87         0.78           (vph)         241         62         90         35         66         16         41         333         67         60         178           (vph)         241         62         90         35         66         16         41         333         67         60         178           Obstraction (vph)         0         44         0         0         12         0         438         9         0         16           Phases         7         4         8         6         6         6         6         6         16         41         332         6         6         178         178         178         178         178         178         178         178         178         178         178         178         178         178         178         178         178         178         178         179	ted         0,74         0,78         0,50         100         0,43           v(pen)         2,445         0,88         0,92         0,92         0,92         0,93         1816         7,99           v(ph)         241         0,88         0,89         0,92         0,92         0,92         0,92         0,93         1816         0,78         0,78           v(ph)         241         0,6         0         0         12         0	Satd. Flow (prot)		3317			3416		1770	1816		1770	1778	
V(perm)         2545         2704         933         1816         799         1778           ricedor, PHF         0.88         0.88         0.82         0.93         0.93	V(perm)         2545         2704         933         1816         799           Fractor, PHF         0.88         0.88         0.92         0.92         0.92         0.82         0.88         0.78	Fit Permitted		0.74			0.78		0.50	1.00		0.43	1.00	
rfactor, PHF         0.88         0.78	reactor, PHF         0.88         0.88         0.89	Satd. Flow (perm)		2545			2704		933	1816		799	1778	
(vph)         241         62         90         35         66         16         41         333         67         60         317           dipflow (vph)         0         36         0         0         12         0         0         16         41         333         67         60         16         438           bridses         pm+pt         NA         Perm         NA         Perm         NA         pm+pt         NA         Pm         438         0         0         0         16         438         0         0         0         16         438         0         0         0         16         438         0         0         0         16         438         0         0         0         16         438         0         0         0         16         438         0         0         0         16         438         0         0         0         16         0         0         16         0         0         16         18         0         0         0         16         0         18         18         0         0         0         16         0         0         16         0         0	(vph)         241         62         90         35         66         16         41         333         67         60           oduction (vph)         0         50         0         12         0         0         9         9         0         0           permy Flow (vph)         pm+pt         NA         Perm         NA         Perm         NA         pm+pt           Phases         7         4         Perm         NA         Perm         NA         pm+pt           Phases         7         4         Perm         NA         Perm         NA         Perm           Phases         7         4         Perm         NA         Perm         NA         Perm           Green, G(s)         15.4         25.4         25.4         25.4         25.4         29.8           Green, G(s)         6.0         6.0         6.0         6.0         6.0         6.0         20.8           Green, G(s)         3.0         3.0         3.0         3.0         3.0         3.0         3.0           Atension (s)         3.0         3.0         3.0         3.0         3.0         3.0         3.0           Time	Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.78	0.78	0.78
duction (vph)         0         50         0         12         0         0         8         0         0           up Flow (vph)         0         344         0         105         0         41         392         0         60           Phases         7         4         Perm         NA         Perm         NA         Perm         Perm         Perm         NA         Perm         Perm         Perm         Perm         NA         Perm         Perm         Perm         NA         Perm         Perm         Perm         NA         Perm         Perm         Perm         NA         Perm         Perm         Perm         Perm         NA         Perm         Perm         Perm         Perm         NA         Perm         Perm         Perm         NA         Perm	duction (vph) 0 50 0 0 12 0 0 8 0 0 0 doctored (vph) 0 50 0 0 105 0 41 392 0 60 0 0 pp Flow (vph) 0 344 0 0 105 0 41 392 0 60 0 0 105 0 105 0 41 392 0 60 0 0 105 0 105 0 105 0 0 105 0 0 105 0 0 105 0 0 105 0 0 105 0 0 105 0 0 105 0 0 105 0	Adj. Flow (vph)	241	62	06	32	99	16	41	333	29	99	317	137
up Flow (vph)         0         344         0         105         0         41         392         0         60           seed of Mineses         pm+pt         NA         Perm         NA         Perm         NA         pm+pt           Phases         4         8         8         2         2         6         6           Phases         4         8         8         2         2         6         6           Green, G(s)         154         154         254         254         254         29,8           Green, G(s)         154         154         254         254         254         29,8           Green, G(s)         6.0         6.0         6.0         6.0         6.0         6.0         8.0           Atension (s)         3.0         3.0         3.0         3.0         3.0         2.0           Atension (s)         6.0         6.0         6.0         6.0         6.0         6.0         6.0           Atension (s)         3.0         3.0         3.0         3.0         3.0         3.0         3.0           Atension (s)         4.0         4.0         4.0         4.0         4.0	up Flow (vph)         0         344         0         105         0         41         392         0         60           seed of phases         pm+pt         NA         Perm         NA         Perm         NA         pm+pt           Phases         4         8         2         2         6         6         6         6         7           Phases         4         8         8         2         2         7         1           Phases         4         8         8         2         2         6	RTOR Reduction (vph)	0	20	0	0	12	0	0	∞	0	0	16	0
pm+pt         NA         Perm         NA         Perm         Pop           Phases         7         4         8         2         1           Phases         7         4         8         2         1           Green, G(s)         154         8         2         6         6           Green, G(s)         154         154         254         254         29.8           Green, G(s)         154         154         254         254         29.8           Green, G(s)         6.0         6.0         6.0         6.0         6.0         6.5           Green, G(s)         6.0         6.0         6.0         6.0         6.0         6.5           Arension (s)         3.0         3.0         3.0         3.0         3.0         3.0           Arension (s)         3.0         3.0         3.0         3.0         3.0         3.0           Arension (s)         6.85         7.28         4.14         8.06         4.57           Perm         0.14         0.14         0.10         0.0         0.0           Arension (s)         17.7         15.9         9.2         11.3         7.0      <	Phases         pm+pt         NA         Perm         NA         Perm pt           Phases         7         4         8         2         1           Phases         7         4         8         2         1           Phases         7         4         8         2         1           Gleen, G(s)         154         154         254         254         29.8           Green, G(s)         154         154         254         254         29.8           Green, G(s)         154         254         254         29.8           Green, G(s)         6.0         6.0         6.0         6.0         20.8           Archites         6.0         3.0         3.0         3.0         3.0         3.0           Attansion (s)         3.0         3.0         3.0         3.0         3.0         3.0           Attansion (s)         3.0         3.0         3.0         3.0         3.0         3.0           Attansion (s)         6.85         7.28         4.14         806         4.57           Perm         0.01         0.04         0.04         0.04         0.01           Perm         17.7 </td <td>Lane Group Flow (vph)</td> <td>0</td> <td>344</td> <td>0</td> <td>0</td> <td>105</td> <td>0</td> <td>41</td> <td>392</td> <td>0</td> <td>90</td> <td>438</td> <td>0</td>	Lane Group Flow (vph)	0	344	0	0	105	0	41	392	0	90	438	0
Phases         7         4         8         2         1           Phases         4         8         2         2         1           Phases         4         8         2         2         6           Gene, G (s)         15.4         15.4         25.4         25.4         29.8           Green, G (s)         15.4         15.4         25.4         29.8         29.8           Green, G (s)         15.4         15.4         25.4         29.8         29.8           Scentiscon (s)         3.0         3.0         3.0         3.0         2.0           ST (c)         6.0         6.0         6.0         6.0         2.0         2.0           Cap (vph)         685         728         414         806         457           Prot         0.14         0.04         0.04         0.2         0.0           Cap (vph)         685         728         414         806         457           Permit         0.14         0.10         0.04         0.10         0.0         0.0           A (s)         0.14         0.10         0.49         0.13         0.10           A (s)         1.00 <td>Phases 7 4 8 8 2 2 1 Phases 4 8 8 2 2 1 Phases 4 8 8 2 2 1 Phases 4 154 8 8 2 2 1 Phases 4 154 8 15.4 25.4 25.4 29.8 Scen, g(s) 15.4 15.4 25.4 25.4 29.8 Scen, g(s) 13.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0</td> <td>Turn Type</td> <td>pm+pt</td> <td>ΑN</td> <td></td> <td>Perm</td> <td>ΑĀ</td> <td></td> <td>Perm</td> <td>¥</td> <td></td> <td>pm+pt</td> <td>ΑĀ</td> <td></td>	Phases 7 4 8 8 2 2 1 Phases 4 8 8 2 2 1 Phases 4 8 8 2 2 1 Phases 4 154 8 8 2 2 1 Phases 4 154 8 15.4 25.4 25.4 29.8 Scen, g(s) 15.4 15.4 25.4 25.4 29.8 Scen, g(s) 13.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Scen, g(s) 13.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Turn Type	pm+pt	ΑN		Perm	ΑĀ		Perm	¥		pm+pt	ΑĀ	
Phases         4         8         2         6           Gleen, (s)         (s)         15.4         15.4         25.4         25.4         29.8           Gleen, (s)         15.4         15.4         25.4         25.4         29.8           Gleen, (s)         15.4         25.4         25.4         29.8           gl, (Retio)         0.27         0.27         0.44         0.42         29.8           gl, (Retio)         6.0         6.0         6.0         6.0         2.0         2.0           Adension (s)         3.0         3.0         3.0         3.0         3.0         3.0           Adension (s)         6.0         6.0         6.0         6.0         6.0         6.0         6.0         1.0           Perm         c.0.14         0.04         0.04         0.0         0.0         1.0	Phases         4         8         2         6           Green (s)         (15.4         15.4         25.4         25.4         25.8           Green (s)         15.4         15.4         25.4         25.4         29.8           Green (s)         15.4         15.4         25.4         25.4         29.8           Green (s)         15.4         15.4         25.4         29.8         29.8           Frime (s)         6.0         6.0         6.0         6.0         5.0         20.2           Atansion (s)         3.0         3.0         3.0         3.0         3.0         3.0           Atansion (s)         6.8         728         4.14         0.44         5.2         2.0           Atansion (s)         6.8         728         4.14         0.0         3.0         3.0           Atansion (s)         6.8         728         4.14         0.0         4.57         0.0           Perm         0.50         7.0         0.04         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0 <td< td=""><td>Protected Phases</td><td>7</td><td>4</td><td></td><td></td><td>∞</td><td></td><td></td><td>7</td><td></td><td>-</td><td>9</td><td></td></td<>	Protected Phases	7	4			∞			7		-	9	
Green, G (s)         15.4         15.4         25.4         25.4         29.8           3chen, G (s)         15.4         25.4         25.4         25.4         29.8           3chen, G (s)         6.0         6.0         6.0         6.0         6.0         2.0           Attension (s)         6.0         6.0         6.0         6.0         6.0         2.0           Attension (s)         6.0         6.0         6.0         6.0         6.0         2.0           Attension (s)         6.0         7.28         4.14         806         4.57           Prof         7.0         6.0         6.0         6.0         2.0         2.0           Attension (s)         6.0         7.28         4.14         806         4.57           Perm         6.0.1         6.0         6.0         6.0         6.0         6.0           Perm         6.0         6.0         6.0         6.0         6.0         6.0         6.0           Attention         6.0         6.0         6.0         6.0         6.0         6.0         6.0           Attention         6.0         6.0         6.0         6.0         6.0         6.0	Green, G (s)         15.4         15.4         25.4         25.9           Steen, G (s)         15.4         25.4         25.4         29.8           Steen, G (s)         15.4         25.4         25.4         29.8           Steen, G (s)         6.0         6.0         6.0         6.0         2.0           Attime (s)         6.0         6.0         6.0         6.0         6.0         2.0           Cape (vpt)         6.65         7.28         414         806         457           Perm         0.04         0.04         0.04         0.0         0.0         0.0           Pelay (1)         1.77         14.9         9.2         1.1         0.0         0.0           Atter (s)         1.00         1.00         1.00         1.00         1.00         1.00         1.00           Atter (s)         1.8.2         1.6.0	Permitted Phases	4			∞			2			9		
Gracen g (s)         15.4         25.4         25.4         29.8           Grade (s)         6.07         0.27         0.44         0.44         0.52           gC Ratio         6.0         6.0         6.0         6.0         6.0         2.0           Atension (s)         3.0         3.0         3.0         3.0         3.0         3.0           Atension (s)         6.85         7.28         4.14         806         457           Prot         C.0.14         0.04         0.04         457           Perm         0.50         0.14         0.10         0.0           Perm         0.50         0.14         0.10         0.0           Interpretary         1.00         1.00         1.00         1.00           Interpretary         1.00         1.00         1.00         1.00           Interpretary         1.82         16.0         9.7         13.4         7.2           Interpretary         1.82         16.0         9.7         13.0         1.00           Interpretary         1.82         1.60         1.30         1.00         1.00           Interpretary         1.83         1.8         B         A	Size (s)         (15.4)         15.4         25.4         25.4         29.8           9C Ratio         0.27         0.27         0.44         0.45         0.55           Attime(s)         6.0         6.0         6.0         6.0         2.0           Attime(s)         6.85         3.0         3.0         3.0         3.0         3.0           Cap (vph)         685         728         414         806         457         0.01           Port         c.0.14         0.04         0.04         0.04         0.01         0.01           Perm         0.50         0.14         0.10         0.49         0.13         0.01           Abellops, do         1.07         1.00         1.00         1.00         0.01	Actuated Green, G (s)		15.4			15.4		25.4	25.4		29.8	29.8	
g/C Ratio         0.27         0.27         0.44         0.44         0.52           s I Time (s)         6.0         6.0         6.0         6.0         2.0           c All Resiscine (s)         3.0         3.0         3.0         3.0         3.0           C Cap (vph)         685         7.28         414         806         457           Prot         0.01         0.04         0.04         457         0.01           Prot         0.50         0.14         0.04         457         0.0           Prot         1.00         0.14         0.04         457         0.0           A Edy         1.00         0.14         0.10         0.0         0.0           A Edy         1.00         0.14         0.10         0.10         0.1         0.0           A Edy         1.00         0.1         1.00         1.00         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1         0.0         0.1	g/C Ratio         0.27         0.27         0.44         0.44         0.52           s Immediate         6.0         6.0         6.0         6.0         2.0           Assistanciar (s)         6.0         6.0         6.0         6.0         2.0           Cap (vph)         685         728         414         806         457           Prot         728         414         806         457           Prot         0.14         0.04         0.04         0.01           Prot         0.14         0.04         0.04         0.01           Perm         0.17         1.30         0.14         0.05         0.01           Perm         0.04         0.04         0.01         0.01         0.01         0.01         0.05	Effective Green, g (s)		15.4			15.4		25.4	25.4		29.8	29.8	
Time (s)         6.0         6.0         6.0         6.0         2.0           Atension (s)         3.0         3.0         3.0         2.0           Atension (s)         685         728         414         86         457           Prof.         728         414         80         457           Prof.         0.14         0.04         0.04         0.01           Perm         0.014         0.04         0.00         0.01           Delay, d.f.         17.7         15.9         9.2         11.3         7.0           on Factor         1.00         1.00         1.00         1.00         0.1           na Each         1.2         1.00         1.00         1.00         1.00           service         B         B         A         B         A           Delay, (s)         18.2         16.0         9.7         13.0         A           LCS         18.2         16.0         9.7         13.0         A           Delay (s)         18.2         16.0         9.7         13.0         A           Ackel Length (s)         13.6         HCM 2000 Level of Service         B         A         B	PTime (s)         6.0         6.0         6.0         6.0         2.0           Attension (s)         3.0         3.0         3.0         2.0           Attension (s)         685         728         414         806         457           Prot         704         0.04         0.02         0.01         457         0.05         0.01           Perm         0.50         0.14         0.04         0.06         0.01         0.06         0.1         0.06         0.1         0.06         0.1         0.06         0.1         0.06         0.1         0.0         0.1	Actuated g/C Ratio		0.27			0.27		0.44	0.44		0.52	0.52	
Attension (s)         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         4.7         4.7         4.7         4.7         4.7         4.7         0.04         0.04         0.04         0.01         0.0	cape (wh)         3.0         3.0         3.0         3.0         3.0           Cap (wh)         685         728         414         806         457           Perm         c0.14         0.04         0.04         0.05         0.01           Perm         0.50         0.14         0.10         0.06         0.01           Behyd         1.77         15.9         9.2         1.13         7.0           on Factor         1.00         1.00         1.00         1.00         1.01           ist Delay, d2         0.6         0.1         0.1         0.1         1.00           ist Delay, d2         1.6         9.7         13.4         7.2           cervice         B         B         A         A           Delay (s)         18.2         16.0         9.7         13.4         7.2           LOS         B         B         B         A         A           Do Summary         13.6         HCM 2000 Level of Service         B         A           Ocardio Delay         13.6         HCM 2000 Level of Service         B         B           Ovalue to Capacity ratio         57.2         Sum of lost time (s)         16.0 <td>Clearance Time (s)</td> <td></td> <td>0.9</td> <td></td> <td></td> <td>0.0</td> <td></td> <td>0.9</td> <td>0.9</td> <td></td> <td>2.0</td> <td>0.9</td> <td></td>	Clearance Time (s)		0.9			0.0		0.9	0.9		2.0	0.9	
Cap (vph)         688         728         414         806         457           Proft         Co.14         0.04         0.22         0.01           Perf         Co.14         0.04         0.06         0.01           Perf         0.50         0.14         0.10         0.06           Delay d1         17.7         15.9         9.2         11.3         7.0           Islabelay d2         0.6         0.1         0.0         1.00         1.00         1.00           Islabelay d2         18.2         16.0         9.7         13.4         7.2           Evive         B         B         A         B         A           Delay (s)         18.2         16.0         9.7         13.4         7.2           Delay (s)         B         B         A         B         A           Discounted Delay         13.6         HCM 2000 Level of Service         B         B         B           Ovoted Length (s)         6.53         Sum of lost time (s)         16.0         D         D           Ovote Length (si)         76.5%         I/CU Level of Service         D         D         D         D	Cap (vph)         686         728         414         806         457           Proft         0.014         0.04         0.02         0.01           Perm         0.14         0.04         0.04         0.06           March         17.7         15.9         9.2         10.13           March         17.7         15.9         9.2         11.3         7.0           March         10.0         1.00         1.00         1.00         1.00         1.00           March         18.2         16.0         9.7         13.4         7.2         1.00           LOS         B         B         A         B         A         A           Delay (s)         B         13.0         13.0         B         A         A           Modeline to Capacity ratio         0.53         Sum of lost time (s)         16.0         B         B         A           Period (min)         45.6         No. Ucleusel of Service         D         D         D         D	Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Prot co.14 0.04 0.02 0.01  Perm 0.50 0.14 0.04 0.04 0.06  0.50 0.14 0.04 0.06  0.50 0.14 0.10 0.49 0.06  0.14 0.10 0.49 0.13  0.15 0.13 0.13 0.13  Early 18.2 16.0 9.7 11.3 7.0  Early 18.2 16.0 9.7 13.4 7.2  Early 18.2 16.0 9.7 13.6 A B A CONTROLLE CONTROLL	Prot tot to 0.14 0.04 0.02 0.01  Perm 0.14 0.04 0.04 0.06  Perm 0.50 0.14 0.10 0.06  O.50 0.14 0.10 0.06  O.14 0.10 0.10 0.06  O.15 0.13 0.13 0.13  Delay d1 17.7 15.9 9.2 11.3 7.0  O.10 1.00 1.00 1.00 1.00 1.00  IR2 16.0 9.7 13.4 7.2  Delay (s) 18.2 16.0 9.7 13.4 7.2  Delay (s) 18.2 16.0 13.0  O.Control Delay 13.6 HCM 2000 Level of Service B B A B A B A B A B A B A B A B A B A	Lane Grp Cap (vph)		685			728		414	908		457	926	
Perm         60.14         0.04         0.04         0.06           Pelay, d1         0.50         0.14         0.04         0.06           Pelay, d1         1.7         1.8         9.2         11.3         7.0           No Factor         1.00	Perm         60.14         0.04         0.04         0.09         0.06         0.06         0.06         0.06         0.07         0.07         0.06         0.07         0.06         0.07         0.07         0.06         0.13         7.0         8         0.13         7.0         1         0.0         1.00 <td>v/s Ratio Prot</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.22</td> <td></td> <td>0.01</td> <td>c0.25</td> <td></td>	v/s Ratio Prot								0.22		0.01	c0.25	
0.50   0.14   0.10   0.49   0.13   0.14   0.10   0.49   0.13   0.14   0.10   0.49   0.13   0.14   0.10   0.49   0.13   0.14   0.10   0.49   0.14	0.50	v/s Ratio Perm		c0.14			0.04		0.04			90.0		
lelay, d1 17.7 15.9 9.2 11.3 7.0 8 11.2 11.3 17.0 8 11.2 11.3 17.0 8 11.2 11.3 17.0 8 11.2 11.3 17.0 8 11.2 11.3 17.0 8 11.2 11.3 17.0 17.1 17.1 17.1 17.1 17.2 17.2 17.2 17.2	letay, d1 17.7 15.9 9.2 11.3 7.0 8 11.2 11.3 7.0 8 11.2 11.3 7.0 8 11.2 11.3 7.0 8 11.2 11.3 7.0 8 11.2 11.3 7.0 8 11.2 11.3 11.3 11.3 11.3 11.3 11.3 11.3	v/c Ratio		0.50			0.14		0.10	0.49		0.13	0.47	
on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Uniform Delay, d1		17.7			15.9		9.5	11.3		7.0	8.7	
Interpolary, d2	Interest	Progression Factor		90.			90		90	9		00.	1.00	
18.2   16.0   9.7   13.4   7.2   11.0	18.2   16.0   9.7   13.4   7.2   10.0	Incremental Delay, d2		9.0			0.1		0.5	2.1		0.1	1.7	
18.2 16.0 13.0 14.0 16.0 16.0 16.0 16.0 16.0 16.0 16.0 16	18.2 16.0 4 13.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	Delay (s)		18.2			16.0		9.7	13.4		7.2	10.4	
18.2 16.0 13.0 B B B B B B B B B B B B B B B B B B B	18.2 16.0 13.0 B B B B C C C C C C C C C C C C C C C C	Level of Service		മ			Ф		⋖	В		∢	Ф	
B B B B B 13.6 HCM 2000 Level of Service 0.53 57.2 Sum of lost time (s) 76.6% ICU Level of Service 15.	13.6 HCM 2000 Level of Service 0.53 Sum of lost time (s) 76.6% ICU Level of Service 15	Approach Delay (s)		18.2			16.0			13.0			10.1	
13.6 HCM 2000 Level of Service 0.53 57.2 Sum of lost time (s) 76.6% ICU Level of Service 15	13.6 HCM 2000 Level of Service 0.53 Sum of lost time (s) 76.6% ICU Level of Service 15	Approach LOS		В			В			Ф			В	
13.6 HCM 2000 Level of Service 0.53 57.2 Sum of lost time (s) 76.6% ICU Level of Service 15	13.6 HCM 2000 Level of Service 0.53 57.2 Sum of lost time (s) 76.6% ICU Level of Service 15	Intersection Summary												
0.53 Sum of lost time (s) 57.2 Sum of lost time (s) 76.6% ICU Level of Service 15	0.53 Sum of lost time (s) 76.6% ICU Level of Service 15	HCM 2000 Control Delay			13.6	H	3M 2000	Level of S	ervice		В			
57.2 Sum of host time (s) 76.6% ICU Level of Service 15	57.2 Sum of lost time (s) 76.5% ICU Level of Service 15	HCM 2000 Volume to Capa	acity ratio		0.53									
76.6% ICU Level of Service 15	76.6% ICU Level of Service 15	Actuated Cycle Length (s)			57.2	જ	m of lost	time (s)			16.0			
Analysis Period (min) 15	Analysis Period (min) 15 c. Critical ane Groun	Intersection Capacity Utiliza	ation		%9.92	೨	U Level o	f Service			۵			
	Critical and Groun	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2036> Weekday AM Peak Hour 7: Metcalfe Street South & West Street

(Veh/h) (Veh/h) (veh/h) (veh/h) (veh/h)	4	† E	1	<b>/</b>	ţ	1	•	•	•	•	-	•
ent and of the control of the contro		FRT							3			
onfigurations /olume (veh/h) introl out Factor 0. low rate (vph)	EBL	3	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (veh/h) volume (Veh/h) introl our Factor tow rate (vph) ians		Ą			4			4			4	
Volume (Veh/h) introl our Factor low rate (vph) ians	=	101	34	9	93	4	0	0	0	-	8	15
introl our Factor 0. low rate (vph) ians	=	101	34	9	93	4	0	0	0	-	92	15
our Factor 0. Iow rate (vph) ians		Free			Free			Stop			Stop	
our Factor 0. Iow rate (vph) ians		%0			%0			%0			%0	
	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
Pedestrians	13	122	41	9	92	4	0	0	0	4	72	9
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	66			163			374	780	142	278	298	97
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
on par	66			163			374	280	142	278	298	97
	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
stage (s)												
	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	66			100			100	100	100	66	88	98
cM capacity (veh/h) 14	1494			1416			492	621	902	899	909	959
Direction: Lane # FF	FB 1	WB 1	NB 1	SB 1								
	176	105	c	136								
	3	9	0	4								
	14	4	0	09								
	161	1416	1700	726								
ne to Capacity (	0.01	0.00	0.01	0.19								
oth (m)	0.2	0.1	0.0	5.5								
Control Delay (s)	9.0	0.5	0.0	11.1								
	V	<	∢	Ф								
Jelay (s)	9.0	0.5	0.0	11.1								
Approach LOS			∢	В								
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utilization			21.0%	<u> </u>	ICU Level of Service	Service			∢			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON Trans-Plan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2026> Weekday PM Peak Hour 1: Queen Street North & Union Street

<TOTAL 2026> Weekday PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

2: Queen Street North & Marshall Lane/Site Access 3

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None

None 177 412

541

406

1022

1054

533

1019

1064

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

412

541

406

022 6.5

1019

2.2 98 1147

2.2 99 1028

3.3 644

100 228

3.5 89 184

3.3 93 547

4.0 100 229

3.5 80 181 569 28 16 1147 0.02 0.6 0.7 A A A

421 9 1028 0.01 0.2 0.3 A A

> 70 20 50 50 376 3.19 5.4 16.7 C

76 36 40 279 0.27 8.6 22.7 C C C

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coureu Length 95th (m)
Lane LOS
Lane LOS

462 462 462 0% 0% 0.88

369 369 0% 0.92 401

25

9 9

**3** 28

0.88

0.92

0.92

0.56

0.56

0.25

0.25 36

Movement   EBL   EBT   EBR   WBL   WBT   WBR   NBL	Gan							
(m) 5 3 15 15 17 11 35 18 19 19 19 19 19 19 19 19 19 19 19 19 19	רטי			IBL NBT	NBR	SBL	SBT	SBR
hh) 5 3 15 15 11 35 hh) 5 3 15 15 11 35 hh) 6 4 18 18 13 43 h) 6 4 18 18 13 43 h) 6 4 18 18 13 43 h) 6 1092 1054 536 1063 1044 418 he 1092 1054 536 1063 1044 418 he 11092 1054 536 1063 1044 418 he 1092 1054 505 he 1103 1030 1130 h 1103 1130 1130 h 1104 1103 1130 h 1105 105 0.6 0.6 h 1105 105 0.6 0.6 h 1106 0.6 0.6 h 1107 107 107 107 107 107 107 107 107 10	4	4		4			4	
(m) 5 3 15 15 11 35 30p 80p 80p 90% 00% 00% 00% 00% 00% 00% 00% 00% 00%	15		32		19	22	471	3
Stop Stop Stop Stop Stop Stop Stop Stop	15		35			22	471	3
(m) 2.3 (a) 6.84 (b) 84 (b) 82 (b) 82 (b) 82 (b) 83 (c) 84	do	Stop		Free			Free 0%	
ed 1092 1054 536 1063 1044 418  1092 1054 536 1063 1044 418  1092 1054 536 1063 1044 418  1092 1054 536 1063 1044 418  1092 1054 536 1063 1044 418  1092 1054 536 1063 1044 418  1093 1054 536 1063 1044 418  1094 1095 1097 1097 1097 1097 1097 1097 1097 1097	0.84					0.88	0.88	0.88
ed 1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1055 1054 536 1063 1044 418   1055 1056 1059   1045 1046   1046   1045 1046   1045 1046   1045 1046   1045 1046   1045 1046   1	18				21	25	535	3
ed 1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1092 1094 93 106 106 108 109								
ed 1092 1054 536 1063 1044 418  lal 1092 1054 536 1063 1044 418  lal 1092 1054 536 1063 1044 418  7.1 6.5 6.2 7.1 6.5 6.2  3.5 4.0 3.3 3.5 4.0 3.3  166 217 544 186 220 635 1  EB 1 WB 1 SB 1  EB 1 WB 1 SB 1  28 74 448 563  6 18 43 21 3  19 331 1020 1130  0.09 0.22 0.02 0.02  C C C A A  ITA 19.0 0.6 0.6  C C C C C  Willization  44.8% ICUI Level of Service								
1092   1054   536   1063   1044   418								
ed 1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   1092 1054 536 1063 1044 418   106 217 544 186 220 635 1 166 217 544 186 220 635 1 18 19 25   1								
ed 1092 1054 536 1063 1044 418   104								
me 1092 1054 536 1063 1044 418  ne 1092 1054 536 1063 1044 418  1092 1054 536 1063 1044 418  7.1 6.5 6.2 7.1 6.5 6.2  3.5 4.0 3.3 3.5 4.0 3.3  166 217 544 186 220 635 1  EB 1 WB 1 SB 1  28 74 448 563  6 18 19 25  6 18 19 25  6 18 19 26  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C C A A A  17.4 19.0 0.6 0.6  C C C A A A  17.4 19.0 0.6 0.6  C C C A A A  17.4 19.0 0.6 0.6  C C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.4 19.0 0.6 0.6  C C C C C C C C C C C C C C C C C C C				None			None	
ed 1092 1054 536 1063 1044 418  10 1092 1054 536 1063 1044 418  11 1092 1054 536 1063 1044 418  12 10 1092 1054 536 1063 1044 418  13 10 109 10 10 10 10 10 10 10 10 10 10 10 10 10								
1092				315				
1092	536			238		420		
1092 1054 536 1063 1044 418 7.1 6.5 6.2 7.1 6.5 6.2 3.5 4.0 3.3 3.5 4.0 3.3 96 98 97 90 94 93 166 217 544 186 220 635 EB 1 WB 1 NB 1 SB 1 28 74 448 563 6 18 19 25 18 43 21 3 319 331 1030 130 0.09 0.22 0.02 0.02 (m) 2.3 6.7 0.5 0.5 C C A A A 17.4 19.0 0.6 0.6 C C A A A 17.4 19.0 0.6 0.6	8			8		2		
1092 1054 536 1063 1044 418 7.1 6.5 6.2 7.1 6.5 6.2 3.5 4.0 3.3 3.5 4.0 3.3 16 217 544 186 220 635 16 217 544 186 220 635 18 74 448 281 18 43 21 3 19 331 1030 1130 0.09 0.22 0.02 0.02 0.09 0.22 0.02 0.02 0.09 0.22 0.02 0.02 0.09 0.22 0.02 0.00 0.00 0.00 0.00 0.00 0.00								
7.1 6.5 6.2 7.1 6.5 6.2 3.5 4.0 3.3 3.5 4.0 3.3 96 98 97 90 94 93 166 217 544 186 220 635 EB1 WB1 NB1 SB1 28 74 448 563 6 18 19 25 18 43 21 33 319 331 1030 1130 0.09 0.22 0.02 0.02 0.09 0.22 0.02 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.23 0.25 0.20 0.25 0.25 0.20 0.20 0.20 0.25 0.20 0.20 0.20 0.25 0.20 0.20 0.20 0.25 0.20 0.20 0.20 0.25 0.20 0.20 0.20 0.25 0.20 0.20 0.20 0.20 0.25 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.20	536			538		429		
3.5 4.0 3.3 3.5 4.0 3.3 3.5 4.0 3.3 96 98 97 90 94 93 93 166 217 5.44 186 220 6.35    EB1 WB1 NB1 SB1	6.2			4.1		4.1		
3.5 4.0 3.3 3.5 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 3.3 1.6 4.0 4.8 56.3 1.6 4.8 56.3 1.6 4.8 56.3 1.6 4.8 56.3 1.6 4.8 56.3 1.6 4.8 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0								
96 98 97 90 94 93 166 217 544 186 220 635 EB1 WB1 NB1 SB1 28 74 448 583 6 18 19 25 18 43 21 3 319 331 1030 1130 0.09 0.22 0.02 0.02 0.09 0.22 0.02 0.09 0.22 0.02 0.09 0.22 0.02 0.09 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.22 0.02 0.00 0.00	3.3			2.2		2.2		
(m) 2.3 6.7 6.4 186 220 6.35  EB.1 WB.1 NB.1 SB.1  2.8 7.4 448 56.3  6 18 19 25  18 43 21 33  3.19 331 1030 1130  0.09 0.22 0.02 0.02  (m) 2.3 6.7 0.5 0.5  C C A A A  17.4 19.0 0.6 0.6  C C A A A  17.5 19.0 0.6  C C A A  17.5 19	26			86		86		
ition Lane #         EB1         WB1         NB1         SB1           ne Total         28         74         448         563           ne Left         6         18         19         25           ne Le Capacity         319         331         1030         1130           ne to Capacity         0.09         0.22         0.02         0.02           ne to Capacity         2.3         6.7         0.5         0.5           LOS         17.4         19.0         0.6         0.6           LOS         C         C         A         A           oach Delay (s)         17.4         19.0         0.6         0.6           oach Los         C         C         C         A         A           section Summary         C         C         C         C           section Capacity Unitization         44.8%         A         A	244			30		1130		
ne Total 28 74 448 563 ne Left 6 18 19 25 ne Right 18 43 21 3 ne Right 18 331 1030 1130 ne to Capacity 0.09 0.22 0.02 0.02 ne Le Length 95th (m) 2.3 6.7 0.5 0.5 LOS C C C A A A A A A A A A A A A A A A A	NB 1	1						
ne Left 6 18 19 25  ne Right 18 43 21 3  ne to Capacity 0.09 0.22 0.02 0.02  ne to Capacity 9 17.4 19.0 0.6 0.6  Los cach Delay (s) 17.4 19.0 0.6 0.6  asch LOS C C A A A A Cach Construction of the cach Construction of the cach Construction of the cach Construction of the cach Cach Cach Cach Cach Cach Cach Cach	448	13						
ne Right 18 43 21 33 11000 1130	19	55						
319 331 1030 1130 The to Capacity 0.09 0.22 0.02 0.02 The Length 95th (m) 2.3 6.7 0.5 0.5 LOS LOS C A A A Cach Delay (s) 17.4 19.0 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 0.6 The cach Delay (s) 17.4 19.0 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0	21	3						
0.09 0.22 0.02 0.02 0.02 0.02 0.02 0.02	1030	0						
2.3 6.7 0.5 0.5 0.5 17.4 19.0 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0	0.02	2						
(s) 17.4 19.0 0.6 0.6 (c) C A A A A 19.0 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0	0.5	.5						
(s) C C A A A 174 19.0 0.6 0.6 C C C C C C C C C C C C C C C C C C C	9.0	9.						
/ (s) 17.4 19.0 0.6 0.6 mmary 2.2 2.2 2.4 8%	∢	4						
C C mmary 2.2 acity Utilization 44.8%	9.0	9						
nmary 2.2 acity Utilization 44.8%	O							
2.2 pacity Utilization 44.8%								
pacity Utilization 44.8%	2.2							
	44.8%	ICU Level of	Service		∢			
Analysis Period (min) 15	15							

185 Robinson Street, Community of Slmcoe (Norfolk County), ON TransPlan Inc.

Synchro 11 Report Page 1

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185 Robinson S	ransPlan
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Synchro 11 Report Page 2

munity of SImcoe (Norfolk County), ON

CU Level of Service

3.0

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2026> Weekday PM Peak Hour 3: Queen Street North & Site Access 2 08-29-2024

WEL WBR N  WEL WBR N  Stop  Stop  1 3 8 1 3 3 8 1 3 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	1	4	•	١	-	
onfigurations	Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Volume (vehth)         8         1         387         13         5         478           Volume (vehth)         8         1         387         13         5         478           Ontrol         0%         0%         0%         0%         0%           Our Factor         0.50         0.50         0.86         0.88         0.88         0.88           Iow rate (vph)         16         2         450         15         6         54.3           Isbaced (mis)         16         2         455         2         4.1         4.1         4.1         4.1         4.1         4.1         4.1         4.1         4.1         4.1         4.1	Lane Configurations	>		43			٠,	
Volume (Vehn)         8         1         387         13         5         478           Autroil         Stop         Free         Free         Free         Free           Our Factor         0.50         0.50         0.86         0.88         0.88         0.88           Indian         Own         15         5         543         543         543         543         544         545         543         545         543         545         543         545         543         545         547         547         547         547         547         547         547         547         547         547         547         547         547         547         548         548         548         548         548         548         548         548         548         548         548	Traffic Volume (veh/h)	∞	-	387	13	2	478	
our Factor         Stop         Free         Free           our Factor         0.50         0.50         0.86         0.88         0.88           flow rate (vph)         16         2         450         15         6         543           flow rate (vph)         16         2         450         15         6         543           flow change         no spread (ms)         9         0.88         0.88         0.88         0.88           no strange (veh)         no strange (ms)         9         0.93         0.93         0.93           no strange veh)         93         0.93         0.93         0.93         0.93           no strange veh)         99         0.93         0.93         0.93         0.93           get storage veh)         99         0.93         0.93         0.93         0.93           flicting volume         10.12         4.86         4.65         4.1         0.93         0.93           get storage (s)         6.4         6.2         4.1         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93         0.93	Future Volume (Veh/h)	œ	-	387	13	2	478	
our Factor 0.50 0.50 0.86 0.88 0.88 0.88 0.88 0.88 0.88 0.8	Sign Control	Stop		Free			Free	
Hour Factor 0.50 0.56 0.86 0.88 0.88  Hour Factor 0.50 0.50 0.56 0.88 0.88  Width (m)  Width (m)  My Speed (mis)  An type am storage (with)  An type am type am type am storage (with)  An type am type am type am storage (with)  An type am type am type am type am type am type am storage (with)  An type am	Grade	%0		%0			%0	
y flow rate (vph)         16         2         450         15         6         543           strians         Width (m)         None         None         None           ms blockage         Lum flare (veh)         None         None         None           an storage veh)         99         0.93         0.93         0.93           anstorage veh)         976         378         386         41           alton unbocked         0.93         0.93         0.93         0.93           stage I conf vol         976         378         386         4.1           stage I conf vol         6.4         6.2         4.1         4.1           stage I conf vol         976         378         386         9.9           stage (s)         3.5         3.3         2.2         4.1           stage (s)         3.5         3.5         4.1         1.08         9.9           spacity (veh,h)         2.66         6.1	Peak Hour Factor	0.50	0.50	0.86	0.86	0.88	0.88	
strians.  wideth (mi)  nt Blockage  turn flare (veh)  nnt Blockage  turn flare (veh)  san signal (m)  san signal (m)  san signal (m)  satisge 1 conf vol  stage 2 conf vol  stage 2 conf vol  stage 2 conf vol  stage (s)  s	Hourly flow rate (vph)	16	2	450	15	9	543	
Width (m)         Width (m)           an Speed (m/s)         None         None           turn flare (veh)         None         None           an stoage veh)         99         0.93           an stoage veh)         99         0.93           san stoage veh)         99         0.93           sate or on vol         976         378         386           sate free %         94         100         99           stage (s)         3.5         3.3         2.2           eue free %         94         100         99           stage (s)         3.5         3.3         2.2           eue free %         94         100         99           stage (s)         3.5         3.3         2.2           eue free %         94         100         99           eue free %         94 <td>Pedestrians</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Pedestrians							
ng Speed (m/s)  Intri Blockage	Lane Width (m)							
int Blockage  Inturn flare (veh)  Inturn flare #  Inturn flare	Walking Speed (m/s)							
turn flare (veh)  In straige eth)  an straige (s)  stage 2 conf vol  stage 6 son vol  stage 6 son vol  stage 8 son vol  stage 8 son vol  stage 1 son vol  stage 9 son vol  stage 8 son vol  stage 8 son vol  stage 9 son vol	Percent Blockage							
an type    an storage with    an	Right turn flare (veh)							
ans storage veh)  an storage veh)  an storage veh)  alternation unbocked  astage 1 conf vol  stage 2 conf vol  stage 2 conf vol  stage (s)  sta	Median type			None			None	
aean signal (m)  aean signal (m)  atago 1 0.93 0.93 0.93  atago 1 0.93 0.93  atago 2 oord vol  atago 2 conf vol  atago 3 conf vol  atago 2 conf vol  atago 2 conf vol  atago 2 conf vol  atago 3 conf vol  atago 2 conf vol  atago 2 conf vol  atago 2 conf vol  atago 3 conf vol  atago 2 con  atag	Median storage veh)							
latoon unblocked 0.93 0.93 0.93 0.93 on onliciting volume 1012 458 465 on onliciting volume 1012 458 3.86 4.1 3.86 4.1 4.1 3.86 4.1 4.1 5.89 6.2 4.1 6.2 4.1 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2	Upstream signal (m)			66				
Astage   1012   458   465   46	pX, platoon unblocked	0.93	0.93			0.93		
stage 2 conf vol  stage 2 conf vol  unidocked vol 6.4 6.2 4.1  stage (s) 3.5 3.3 2.2  stage (s) 3.5 3.3 2.2  stage (s) 3.5 6.21 4.1  stage (s) 3.5 3.3 2.2  spacity (veh.h) 258 621 1089  spacity (veh.h) 1.7 0.01 0.01  space Capacity (s) 0.0 0.2 A  color A  space Los  space Los  space Los  space Los  space Capacity Utilization 15 15 0.01  space Delay (s) 0.0 0.2  capacity Capacity Utilization 15 15 0.01  space Delay (s) 0.0 0.2  cection Capacity Utilization 39.1% ICU Level of Service	vC, conflicting volume	1012	458			465		
stage 2 conf vol  multipocked vol   976   378   386  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.4 6.2   4.1  6.5 3.3   2.2  6.5 99  8pacity (vehh)   256   6.9  8pacity (vehh)   258   549  8pacity (vehh)   1.7 0.0  8pacity (vehh)   1.7 0.0  1.7 0.0 0.1  1.8 6.5 549  8pacity (vehh)   1.7 0.0  1.7 0.0 0.1  1.8 0.0 0.2  1.9 0.0 0.2  1.0 0.2  2 A  A  A  A  A  A  A  A  A  A  B  A  B  A  B  A  B  A  B  A  B  B	vC1, stage 1 conf vol							
Stage (s)   378   386	vC2, stage 2 conf vol							
stage (s) 6.4 6.2 4.1  stage (s) 3.5 3.3 2.2  eue free % 94 100 99  spacity (vehh) 2.68 6.21 1089  spacity (compact) 2.76 1700 1089  spacity (compact) 2.76 1700 1089  spacity (compact) 2.76 1700 0.1  space LOS C A  A  A  A  A  A  A  A  A  A  A  A  A	vCu, unblocked vol	926	378			386		
stage (s)  3.5  3.6  3.6  3.7  3.7  3.8  4 100  99  99  99  99  99  99  99  99  99	tC, single (s)	6.4	6.2			4.1		
3.5 3.3 2.2 spacity (vehh) 28 6 4 100 99 spacity (vehh) 28 6 5 1089 tion, Lane # WB 1 NB 1 SB 1 1089 ne Left 16 0 6 ne Right 27 15 0 0 ne Left 27 0.01 1089 ne to Capacity 0.07 0.27 0.01 LOS 0.07 0.27 0.01 LOS 0.0 0.2 LOS 0.0 0.2 LOS 0.0 0.2 LOS 0.0 0.2 cection Summany 0.0 0.0 0.2 ection Capacity Utilization 15 15 0.0 0.1 15 15 16 0.0 0.2	tC, 2 stage (s)							
spacity (vehfn)         258         4 100         99           spacity (vehfn)         258         621         1089           fion, Lane #         WB 1         NB 1         SB 1         1089           nen Total         18         455         549         6           ne Lotal         16         6         6         7           ne Right         27         170         0.03         0.01         0.27         0.01           ne to Capacity         0.07         0.27         0.01         0.2         A         A           LOS         19.0         0.0         0.2         A         A         A           acet LOS         C         A         A         A         A           acetan Summary         0.0         0.2         A         C         A           acetan Summary         0.4         0.0         C         A         A           acetan Summary         0.4         0.2         C         A         A           acetan Capacity Utilization         39.1%         I/CU Level of Service	tF (s)	3.5	3.3			2.2		
spacify (veh/h)         258         621         1089           tion, Lane #         WB1         NB1         SB1         1089           tion, Lane #         WB1         NB1         SB1         1089           ne Total         18         465         549         6           ne Left         2         15         0         6           ne Right         276         1700         1089         ne ne ne capacity           ne to Capacity         0.7         0.27         0.01         0.01         0.02           LOS         C         A         A         C         A         C           LOS         C         A         C         A         C         C         A           aceton Summary         0.0         0.2         C         C         C         C         C           spec Delay         39 1%         ICU Level of Service         C         C         C         C           sts Period (min)         15         C         C         C         C         C         C	p0 queue free %	94	100			66		
tion, Lane #         WB 1         NB 1         SB 1           ne Total         18         455         549           ne Left         16         0         6           ne Right         276         1700         1089           ne to Capacity         0.07         0.27         0.01           ne to Capacity         0.07         0.27         0.01           ot Delay (s)         19.0         0.0         0.2           LOS         C         A         A           acet LOS         C         A         A           acet LOS         C         0.0         0.2           acetion Summary         0.4         0.0         0.2           acetion Capacity Utilization         39.1%         ICU Level of Service           sis Perior Cimin         15         0.0         0.2	cM capacity (veh/h)	258	621			1089		
ne Total 18 465 549 ne Left 16 0 6 ne Right 276 1700 1089 ne to Capacity 0.07 0.27 0.01 ne Length 95th (m) 1.7 0.0 0.1 Odelay (s) 19.0 0.0 0.2 C A A A Acach Delay (s) 19.0 0.0 0.2 acach LOS C A A A Acach Color C A A Acach C A A Acach C A A Acach C A A A Acach C A A A Acach C A A A A A A A A A A A A A A A A A A		WB 1	NB 1	SB 1				
ne Left 16 0 6  ne Right 27 15 0  2 15 0  2 16 0  ne to Capacity 0.07 0.27 0.01  ot Delay (s) 19.0 0.0 0.2  and Delay (s) 19.0 0.0 0.2  action Summary 0.0 0.0  ection Summary 0.0 0.0  15 0.0 0.0  A A  A A  A A  Bog Delay  ge Delay  sis Perior Capacity Utilization 39.1% ICU Level of Service	Volume Total	18	465	549				
ne Right 2 15 0 276 1700 1089 276 1700 1089 277 170 0.01 27 0.02 2 A 4 4 LOS 20ch LOS 2 C 3 A 4 6 Consider Summary 39 Delay 39 Delay 39 Delay 39 156 39,1% 40 CU Level of Service	Volume Left	16	0	9				
re to Capacity 276 1700 1089 re to English (m) 0.7 0.27 0.01 rol Delay (s) 0.0 0.1 rol Delay (s) 0.0 0.2 rol D	Volume Right	2	15	0				
0.07 0.27 0.01 1.7 0.0 0.1 19.0 0.0 0.2 C A 19.0 0.0 0.2 C A 19.0 0.0 0.2 C A 19.0 0.0 0.2 C A 19.0 0.0 1.2 C A 19.0 0.0 1.2 19.0 0.0 1.2 C A 19.0 0.0	SSH	276	1700	1089				
1.7 0.0 0.1 19.0 0.0 0.2 C A A 19.0 0.0 0.2 C C 0.0 0.2 Ulization 39.1% ICU Level of Service	Volume to Capacity	0.07	0.27	0.01				
19.0 0.0 0.2 C A C C C A Iny 0.0 0.2 C C Iny 0.4 Ulization 39.1% ICU Level of Service	Queue Length 95th (m)	1.7	0.0	0.1				
C A 19.0 0.0 0.2 C 2 A 19.0 0.0 0.2 C 2 A 19.0 0.0 0.4 CU Level of Service 15.0 C 15.0	Control Delay (s)	19.0	0.0	0.2				
19.0 0.0 0.2 C C sry 0.4 Outlization 39.1% ICU Level of Service	Lane LOS	ပ		∢				
C 0.4 0.4 ICU Level of Service 15	Approach Delay (s)	19.0	0.0	0.2				
0.4 0.4 ICU Level of Service 15 15 15 15 15 15 15 15 15 15 15 15 15	Approach LOS	ပ						
0.4 Utilization 39.1% ICU Level of Service 15	Intersection Summary							
Utilization 39.1% ICU Level of Service	Average Delay			0.4				
15	Intersection Capacity Utilization			39.1%	<u> </u>	J Level of	Service	V
	Analysis Period (min)			15				

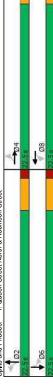
185 Robinson Street, Community of SInroce (Norfolk County), ON TransPlan Inc.

Timings 4: Queen Street North & Robinson Street

<TOTAL 2026> Weekday PM Peak Hour 08-29-2024

-	SBT	4	407	407	¥ Y	9		9		5.0	22.5	22.5	20.0%	3.5	1.0	0.0	4.5			Max	23.9	0.64	0.53	9.1	0.0	9.1	⋖	9.1	A								
۶	SBL		71	71	Perm		9	9		2.0	22.5	22.5	20.0%	3.5	1:0					Max																	0
	NBT	4	335	335	¥	7		7		2.0	22.5				1.0	0.0	4.5			Мах	23.9	0.64	0.41	6.4	0.3	9.9	⋖	9.9	∢							LOS: A	CU Level of Service C
1	NBL		16	16	Perm		2	7		2.0	22.5	22.5	20.0%	3.5	1.0					Max																Intersection LOS: A	J Level of
ļ	WBT	4	12	12	Ϋ́	œ		∞		2.0	22.5	22.5	20.0%	3.5	1.0	0.0	4.5			None	7.4	0.20	0.40	10.3	0.0	10.3	<u>a</u>	10.3	В							<u>ii</u>	<u> </u>
-	WBL		40	40	Perm		œ	∞		2.0	22.5									None																	
Ť	EBT	4	15	15	ΑĀ	4		4		2.0	22.5	22.5	20.0%	3.5	1.0	0.0	4.5			None	7.4	0.20	0.17	8.3	0.0	8.3	⋖	8.3	∢								
1	田田		6	6	Perm		4	4		2.0	22.5			3.5	1.0					None														pord		7	ion 70.9%
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 45	Actuated Cycle Length: 37.5	Natural Cycle: 55	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.53	Intersection Signal Delay: 8.2	Intersection Capacity Utilization 70.9% Analysis Period (min) 15

Splits and Phases: 4: Queen Street North & Robinson Street



185 Robinson Street, Community of Slmcoe (Norfolk County), ON TransPlan Inc.

HCM Signalized Intersection Capacity Analysis <TOTAL 2026> Weekday PM Peak Hour 4: Queen Street North & Robinson Street

<TOTAL 2026> Weekday PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis <TO 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.35

34

0.50

0.50

0.89

0.89

0.87

0.87

Stop 0% 0.50

40

12

12

<u>ස</u> ස

25

Lane Configurations
Traffic Volume (veh/h)
Future Volume (Veh/h)
Sign Control

106 106 0.89 119

147 147 147 0% 0.87 169

40

Accompany         EBI         EBI         EBI         EBI         EBI         EBI         BBI         NBI         NBI         NBI         NBI         NBI         NBI         SBI         SBR           Accomplications         3         15         23         40         12         55         16         335         65         71         40         8           Traffic Volume (vph)         1900		1	Ť	*	-	ţ	1	1	•	•	٠	-	•
ph         p	nent	EBE	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ph)         9         15         23         40         12         55         16         335         65         71         407           ph)         190 <t< td=""><td>Configurations</td><td></td><td>4</td><td></td><td></td><td>4</td><td></td><td></td><td>4</td><td></td><td></td><td>÷</td><td></td></t<>	Configurations		4			4			4			÷	
ph)         9         15         23         40         12         55         16         335         65         71         407           9         190         1900 </td <td>: Volume (vph)</td> <td>6</td> <td>15</td> <td>23</td> <td>40</td> <td>15</td> <td>22</td> <td>16</td> <td>335</td> <td>65</td> <td>71</td> <td>407</td> <td>∞</td>	: Volume (vph)	6	15	23	40	15	22	16	335	65	71	407	∞
1300 1300 1300 1300 1300 1300 1300 130	· Volume (vph)	တ	15	23	40	12	22	16	335	92	71	407	œ
1,00   1,00	-low (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
1,00	ost time (s)		4.5			4.5			4.5			4.5	
(vph) 0.93 0.93 0.98 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 0.89 0.89 0.89 0.89 0.89 0.89 0	Util. Factor		1.00			1.00			1.00			1.00	
1,00   0.99   0.98   1.00   0.99   1.00   0.99   1.00			0.93			0.93			0.98			1.00	
1723   1702   1820   1845	-It Protected		0.99			0.98			1.00			0.99	
0.82 0.83 0.86 0.89 0.89 0.89 0.89 0.89 0.89 0.89 0.89	Satd. Flow (prot)		1723			1702			1820			1845	
1613	mitted		0.93			0.85			0.98			0.89	
:         0.82         0.82         0.82         0.85         0.89         0.	Flow (perm)		1613			1479			1780			1649	
11   18   28   53   16   73   18   376   73   82     0	hour factor, PHF	0.82	0.82	0.82	0.75	0.75		0.89	0.89	0.89	0.87	0.87	0.87
1	low (vph)	Ξ	92	78	23	16		92	376	73	82	468	6
Perm NA Perm	(Reduction (vph)	0	23	0	0	61		0	9	0	0	-	0
Perm NA   Perm NA   Perm NA   Perm NA   Perm NA     4   8   8   2   2   2   2     6   3   6   3   2   3   2     6   3   6   3   2   3   2     6   4   5   4   5   4   5   2     7   4   4   4   5   4   5   2     7   4   5   4   5   4   5   2     7   7   4   1   1   1   1     7   7   7   1   1   1     7   7   7   1   1     8   8   2   3   3     7   7   7   1   1     8   8   1   3     13   9   15   0     13   9   15   0     14   13   14   14     15   15   15   15     8   8   8     9   9   15     16   16   16   16     17   16   16   16     18   16   16   16     18   16   16   16     19   16   16   16     10   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   16   16   16     10   17   16   16     10   17   16   16     10   17   16   16     10   17   16   16     10   17   17   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18     10   18   18   18     10   18   18   18     10   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18   18     10   18   18     10   18   18     10   18   18     10   18   18     10   18   18     10	Group Flow (vph)	0	34	0	0	81	0	0	457	0	0	558	0
4 6.3 6.3 2.0 6 6.3 6.3 23.0 6.3 6.3 23.0 6.3 6.3 23.0 6.3 6.3 23.0 6.3 6.3 23.0 6.5 0.16 0.60 7.0 0.16 0.60 7.0 0.02 0.05 0.26 7.0 0.03 0.03 0.43 7.0 1.00 1.00 7.0 0.8 1.3 8.3 Sum of lost time (s) 9.0 7.6 HCM 2000 Level of Service C 7.9 HCM 2000 Level o	ype	Perm	¥		Perm	ΑĀ		Perm	A		Perm	ΑN	
4   8   8   2   6     6.3   6.3   2.30     6.3   6.3   2.30     6.3   6.3   2.30     6.3   6.3   2.30     6.3   6.3   2.30     6.3   6.3   2.30     7.6   Capacity ratio   0.51     1.6   Capacity ratio   0.51     1.7   Capacity ratio   0.51     1.8   Capacity ratio   0.50     1.8   Ca	ted Phases		4			<b>∞</b>			5			9	
6.3 6.3 23.0 6.3 6.3 23.0 6.4 6.4 6.3 23.0 0.16 0.16 0.16 4.5 4.5 4.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 0.26 0.02 0.05 0.26 0.13 0.33 0.43 1.37 14.1 4.1 1.00 1.00 1.00 1.00 0.2 0.08 1.3 1.3 15.0 15.0 5.4 B B B A A 13.9 15.0 EM A 13.9 15.0 EM A 13.9 15.0 EM B 13.9 15.0 Service C 10.0 0.51 14.1 20.0 Evel of Service C 1.0 0.51 1.0 0.5	ted Phases	4			∞			2			9		
6.3 6.3 23.0 6.3 6.3 23.0 6.0 6.0 6.0 6.0 7.0 6.0 6.0 7.0 6.0 6.0 7.0 6.0 7.3 6.0 7.3 7.0 7.6 HCM 2000 Level of Service CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	ed Green, G (s)		6.3			6.3			23.0			23.0	
0.16 0.16 0.60 4.5 4.5 4.5 3.0 3.0 3.0 265 243 1068 0.02 0.03 0.26 0.13 0.33 0.44 13.0 1.00 1.00 0.2 0.8 1.3 13.9 15.0 5.4 B B B A 13.9 B C D Level of Service C 15.0 70.9% CU Level of Service C	ve Green, g (s)		6.3			6.3			23.0			23.0	
4.5     4.5       3.0     3.0       265     243     1068       0.02     0.05     0.26       0.13     0.23     0.43       1.7     14.1     4.1       1.00     0.28     1.3       0.2     0.8     1.3       1.3     15.0     5.4       B     B     A       1.3     15.0     5.4       B     B     A       1.3     15.0     5.4       B     A     A       B     A     A       B     A     A       B     A     A       B     A     A       B     A     A       B     B     A       B     A     A       C     1.00     0.51       C     1.3     0.51       Town of lost time (s)     9.0       7.6     HCM 2000 Level of Service     C       7.6     HCM 2000 Level of Service     C	ed g/C Ratio		0.16			0.16			09:0			09.0	
3.0 3.0 3.0 3.0 3.0 2.6 2.4 3 1068 2.0 2.6 0.2 6.0.5 0.2 6.0.5 0.2 6.0.3 0.43 1.3 7 1.4 1 4.1 1.0 0.2 1.3 0.4 3.1 1.3 1.5 0.4 1.3 0.4 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	ince Time (s)		4.5			4.5			4.5			4.5	
265 243 1068  0.02	e Extension (s)		3.0			3.0			3.0			3.0	
0.02	Srp Cap (vph)		265			243			1068			066	
0.02 0.026 0.13 0.26 0.13 0.43 1.37 14,1 4,1 1.00 1.00 1.00 0.2 0.08 1.13 1.39 15,0 5,4 1.8 B B A A 1.3.9 15,0 5,4 1.3.9 15,0	io Prot												
0.13 0.33 0.43 13.7 14.1 4.1 1.00 1.00 1.00 0.2 0.8 1.3 13.9 15.0 5.4 13.9 B B A A 13.9 15.0 5.4 13.9 B B A 13.9 15.0 5.4 13.9 Sum of lost time (s) 9.0 70.9% ICU Level of Service C 15.0 70.9% ICU Level of Service C	io Perm		0.05			c0.02			0.26			c0.34	
13.7 14.1 4.1 4.1 1.00 0.00 0.2 0.8 1.3 0.8 1.3 0.8 1.3 0.8 1.3 0.8 1.3 0.8 1.3 0.5 1.0 0.5 1.	tio		0.13			0.33			0.43			0.56	
1.00 1.00 1.00 1.00 1.33 1.39 1.50 5.4 B B B A A A A A A A A A A A A A A A A	n Delay, d1		13.7			14.1			4.1			4.6	
13.9 16.0 5.4 13.9 16.0 5.4 13.9 16.0 5.4 13.9 16.0 5.4 13.9 16.0 5.4 13.9 16.0 16.0 5.4 13.9 16.0 16.0 16.0 16.0 16.0 16.0 16.0 16.0	ssion Factor		1.00			1.00			1.00			1.00	
13.9 15.0 5.4 B B A A A A A A A A A A A A A A A A A A	nental Delay, d2		0.2			0.8			1.3			2.3	
H B B A A A A A A A A A A A A A A A A A	(s)		13.9			15.0			5.4			6.9	
13.9 15.0 5.4 B B A A 7.6 HCM 2000 Level of Service A 0.51 Sum of lost time (s) 9.0 70.9% ICU Level of Service C 15	of Service		ω			മ			⋖			⋖	
7.6 HCM 2000 Level of Service A 0.51 Sum of lost time (s) 70.9% ICU Level of Service C 15	ach Delay (s)		13.9			15.0			5.4			6.9	
7.6 HCM 2000 Level of Service 0.51 Sum of lost time (s) 70.9% ICU Level of Service 15	ach LOS		മ			മ			¥			∢	
7.6 HCM 2000 Level of Service 0.51 38.3 Sum of lost time (s) 70.9% ICU Level of Service 15	ection Summary												
0.51 38.3 Sum of lost time (s) 70.9% ICU Level of Service 15	2000 Control Delay			7.6	Ĭ	M 2000 I	evel of S	ervice		⋖			
38.3 Sum of lost time (s) 70.9% ICU Level of Service 15	2000 Volume to Capacit	ty ratio		0.51									
70.9% ICU Level of Service 15	ed Cycle Length (s)			38.3	S	m of lost	time (s)			9.0			
15 ID	ction Capacity Utilizatio	LC.		%6.07	<u>ට</u>	U Level o	f Service			ပ			
tical Lane Group	is Period (min)			15									
	Critical Lane Group												

126 6.2

358 6.5

172 6.2

362

354

175 4.1

134

358

378

172

362

354

175

134

None

None

Grade
Peak Hour Factor
Peak Hour Factor
Peuk Houry flow rate (vph)
Pedestrians
Lane Width (m)
Walking Speed (mis)
Percent Bockage
Right turn flare (veh)
Median type
Median storage veh
Upstream signal (m)
DX, platoon umblocked
vC, conflicting volume
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vC4, umblocked vol

107

3.3 100 924

4.0

3.5 94 555

3.3 97 872

4.0 100 554

3.5 100 591

2.2 98 1401

2.2 100 451

tC, single (s)
tC, 2 stage (s)
tF (s)
p0 queue free %
cM capacity (veh/h)

SB 1 34 34 34 0.06 0.06 11.9 11.9 B

> 162 28 15 1401 0.02 0.5 1.5

Direction, Lane #
Volume Total
Volume Bright
eSH
Volume Right
Volume Right
Chance Length 95th (m)
Coure Length 95th (m)
Lane LOS

26 24 24 0.03 0.8 9.4 A 9.4 A A

> 6 0.00 0.0 0.0

185 Robinson Street, Community of SImcoe (Norfolk County), ON TransPlan Inc.

185 Robinson Street, Community of SImcoe (Norfolk County), ON TransPlan Inc.

CU Level of Service

2.2 30.4% 15

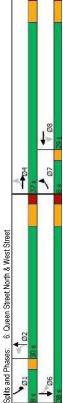
Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

Synchro 11 Report Page 5

<TOTAL 2026> Weekday PM Peak Hour 08-29-2024 Timings 6: Queen Street North & West Street

-	SBT	£,	275	275	ΑĀ	ဖ		9		20.0	38.0	38.0	20.7%	4.0	2.0					Max	32.0	0.50	0.52	12.2	6.5	18.6	മ	17.6	മ									
۶	SBL	*	45	45	pm+pt	-	9	-		2.0	8.0	8.0	10.7%	2.0	0.0	0.0	2.0	Lead	Yes	None	36.0	0.56	0.08	6.7	0.0	6.7	⋖										ш	
	NBT	æ,	237	237	¥	7		2		20.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	Max	27.2	0.42	0.43	15.6	0.0	15.6	മ	15.5	മ							LOS: B	CU Level of Service E	
•	NBL	F	51	21	Perm		2	2		20.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	27.2	0.42	0.15	14.4	0.0	14.4	മ									Intersection LOS: B	:U Level o	
<b>↓</b>	WBT	4Th	94	94	¥	∞		80		20.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	None	20.0	0.31	0.22	12.9	0.0	12.9	Ω	12.9	മ							드	_	
-	WBL		36	36	Perm		<b>∞</b>	∞		20.0	29.0	29.0	38.7%	4.0	2.0			Lag	Yes	None																		
Ť	EBT	AT.	22	22	¥	4		4		20.0	37.0	37.0	49.3%	4.0	2.0	0.0	0.9			None	20.0	0.31	0.37	15.7	0.0	15.7	В	15.7	Ф									
1	EBL		138	138	pm+pt	7	4	7		3.5	8.0	8.0	10.7%	2.0	0.0			Lead	Yes	None														poord		5.9	tion 90.7%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 64	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.52	Intersection Signal Delay: 15.9	Intersection Capacity Utilization 90.7%	Analysis Period (min) 15



<sup>185</sup> Robinson Street, Community of SImcoe (Norfolk County), ON TransPlan Inc.

<TOTAL 2026> Weekday PM Peak Hour HCM Signalized Intersection Capacity Analysis 6: Queen Street North & West Street

Movement         EBI         EBI         EBI         WBI         WBI         WBI         NBI         NBI         NBI         NBI         SBI         TAB         TAB         TAB         SBI         SBI         SBI         SBI         SBI         TAB         TAB         TAB         SBI         SB		1	Ť	1	1	¥	1	•	•	•	٠	-	7
138   57   48   36   94   42   51   237   49   42   275   138   57   48   36   94   42   51   237   49   42   275   138   138   57   48   36   94   42   51   237   49   42   275   275   237   49   42   275	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
138   57   48   36   94   42   51   237   49   42   275     138   57   48   36   94   42   51   237   49   42   275     130   1900   1900   1900   1900   1900   1900   1900   1900     6.0   6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0     7   4   8   8   6   6.86   6.86   6.86   6.85   6.87     8   70   59   42   109   49   60   279   58   447     9   7   4   8   8   7   7   272   272   272     9   7   8   8   7   8   7     9   7   8   8   8   8   7   8     9   9   9   9   9   9     9   9   9	Lane Configurations		AT.			AT.		*	£		*	43	
138   57   48   36   94   42   51   237   49   40   275     1900   1900   1900   1900   1900   1900   1900   1900   1900     6.0   6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0   6.0     6.0   6.0   6.0   6.0   6.0   6.0     7   100   1.00   1.00   1.00     7   20.0   2.5   2.85   2.85   2.85     8   20.0   2.85   0.85   0.85   0.85   0.85     9   1.0   2.85   0.86   0.86   0.86   0.85   0.85   0.85     10   2.82   0.82   0.86   0.86   0.85   0.85   0.85   0.87     10   2.82   0.80   0.80   0.80   0.85   0.85   0.85     10   2.82   0.80   0.80   0.80   0.85   0.85   0.85     10   3.0   0.0   34   0   0   0   3.0   0   0   0.23     10   2.82   0.80   0.80   0.85   0.85   0.85   0.85     10   3.0   0.0   3.0   0.0   3.0   0   0   0   0   0     10   2.82   0.80   0.80   0.80   0.80   0.80   0.80   0.80     10   2.82   0.80   0.80   0.80   0.80   0.80   0.80   0.80     10   3.0   0.31   0.31   0.42   0.42   0.01   0.01     10   3.0   3.0   3.0   3.0   3.0   3.0     10   3.0   0.19   0.10   0.10   0.00     10   0.35   0.19   0.10   0.10   0.10     10   0.35   0.19   0.10   0.10   0.10     10   0.30   0.10   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   1.00   0.10   0.10   0.10     10   10   0.10   0.10   0.10   0.10     10   10   0.10   0.10   0.10   0.10     10   10   0.10   0.10   0.10   0.10     10   10   0.10   0.10   0.10   0.10     10   10   0.10   0.10   0.10   0.10     10   0.10   0.10   0.10   0.10   0.10     10   0.10   0.10   0.10   0.10   0.10   0.10     10   0.10   0.10   0.10   0.10   0.10   0.10     10   0.10   0.10   0.10   0.10   0.10   0.10   0.10	Traffic Volume (vph)	138	22	48	36	8	45	51	237	46	42	275	153
1900   1900	Future Volume (vph)	138	22	48	36	94	45	21	237	46	45	275	153
6.0         6.0 <td>Ideal Flow (vphpl)</td> <td>1900</td>	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
0.95	Total Lost time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
0.97 0.96 0.99 0.99 0.99 0.99 0.99 0.99 0.99	Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
197   198	ŧ		0.97			96.0		1.00	0.97		1.00	0.95	
1770   1815   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770   1763   1770	Fit Protected		0.97			0.99		0.95	1.00		0.95	1.00	
March   Marc	Satd. Flow (prot)		3339			3374		1770	1815		1770	1763	
F 0.82 0.82 0.86 0.86 0.85 0.85 0.81 1763  F 0.82 0.82 0.86 0.86 0.85 0.85 0.81 0.91  1 0 35 0 0 34 0 0 9 0 0 23  1 0 262 0 0 166 0 60 328 0 46 447  2 0.0 262 0 0 166 0 60 328 0 46 447  2 0.0 262 0 0 166 0 60 328 0 46 447  3 0 200 277 2 272 32.8 32.8  3 0 200 277 2 272 32.8 32.8  3 0 200 277 2 272 32.8 32.8  3 0 30 277 2 32.8 32.8  3 0 30 277 2 32.8 32.8  2 0.0 20 0 27 2 272 32.8 32.8  3 0 30 277 2 272 32.8 32.8  4 4 7 8 8 20 0 0 0 2  6 0 6 0 0 27 2 27 2 32.8 32.8  2 0.0 20 0 27 2 27 2 32.8 32.8  3 0 30 27 2 27 2 32.8 32.8  3 0 30 27 2 27 2 32.8 32.8  4 4 7 8 8 20 0 0 0 2  6 0 6 0 0 20 0.51  6 0 0 0 0 0 0 0.01  7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Fit Permitted		0.72			0.83		0.49	1.00		0.47	1.00	
F 0.82 0.82 0.86 0.86 0.86 0.85 0.86 0.89 0.81 0.91 0.91 1.08 1.08 0.86 0.86 0.86 0.86 0.86 0.89 0.89 0.89 0.91 0.91 1.08 1.08 0.89 0.89 0.89 0.91 0.91 1.08 1.08 1.08 1.08 1.08 1.08 1.08 1.0	Satd. Flow (perm)		2459			2845		920	1815		873	1763	
168   70   59   42   109   49   60   279   58   46   302     0	Peak-hour factor, PHF	0.82	0.82	0.82	98.0	98.0	0.86	0.85	0.85	0.85	0.91	0.91	0.91
1)   0   35   0   0   34   0   0   9   0   0   232     1)   1   1   1   1   1   1   1     1   20.0   20.0   20.0   27.2   27.2   27.8     20.0   20.0   27.2   27.2   27.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   20.0   27.2   27.2   32.8   32.8     20.0   3.0   3.0   3.0   3.0     20.0   3.0   3.0   3.0   3.0     20.0   3.0   3.0   3.0     20.0   3.0   3.0   3.0     20.0   3.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0   3.0   3.0     20.0	Adj. Flow (vph)	168	20	29	45	109	46	09	279	28	46	302	168
h) 0 262 0 0 166 0 60 328 0 46  7 4 8 8 2 2 6 6  9 20.0 20.0 27.2 27.2 32.8  20.0 20.0 27.2 27.2 32.8  20.0 20.0 20.0 27.2 27.2 32.8  20.0 20.0 20.0 27.2 27.2 32.8  20.0 3.0 3.0 3.0 3.0 3.0  3.0 3.0 3.0 3.0 3.0  3.0 3.0 3.0 3.0 3.0  20.11 0.06 0.07 0.18 0.09  17.3 16.4 11.7 13.3 8.3  17.6 16.6 16.6 0.0  20.1 0.04 0.04  10.1 0.0 1.00 1.00  2 0.3 0.1 0.1 0.1  2 0.3 0.1 0.1 0.1  2 0.3 0.1 16.6 12.5 15.1 8.4  2 0.3 0.4 0.6 0.1  2 0.3 0.1 10.0 1.00  3 0.1 17.6 16.6 12.5 15.1 8.4  2 0.3 0.4 0.5 0.1  3 0.1 0.9 1.8 0.1  4 0.1 0.0 1.00 1.00 1.00  5 0.1 0.1 0.1  5 0.1 0.1 0.1  6 0.1 0.1 0.1  7 0.1 0.1 0.1  8 0.1 0.1  9	RTOR Reduction (vph)	0	35	0	0	怒	0	0	6	0	0	23	0
pm+pt         NA         Perm         NA         Perm         NA         pm+pt           7         4         8         2         1         1           4         20.0         20.0         27.2         27.2         32.8         1           5.00         20.0         27.2         27.2         27.2         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.0         30.0         32.0	Lane Group Flow (vph)	0	262	0	0	166	0	9	328	0	46	447	0
7         4         8         2         1           4         20.0         20.0         27.2         27.2         32.8           20.0         20.0         27.2         27.2         32.8           20.0         20.0         27.2         27.2         32.8           6.0         6.0         27.2         27.2         32.8           6.0         6.0         6.0         6.0         6.0         6.0           3.0         3.0         3.0         3.0         3.0         3.0         3.0           758         878         878         761         491         491         491           6.0         6.0         6.0         6.0         6.0         6.0         6.0           7.58         878         878         36         761         491         491           6.0	Turn Type	pm+pt	¥		Perm	Ϋ́		Perm	¥		pm+pt	¥	
4         8         2         2         7         6           20.0         20.0         27.2         27.2         27.8         32.8           0.31         0.31         0.31         0.42         0.42         0.51           6.0         6.0         6.0         6.0         6.0         2.0           3.0         3.0         3.0         3.0         3.0         3.0           758         878         386         761         491         0.01           0.11         0.06         0.07         0.04         0.01         0.01           0.35         0.19         0.16         0.03         0.03         0.0           1.00         1.00         1.00         1.00         1.00         0.0           0.3         0.1         0.1         0.0         1.0         0.0           1.76         16.6         1.25         1.5         8.4         A           1.76         16.6         1.25         1.7         8.4         A           1.76         16.6         1.25         1.7         8.4         B           1.76         16.6         1.25         1.7         B         A     <	Protected Phases	7	4			∞			7		_	9	
0         20.0         20.0         27.2         27.2         27.2         27.2         27.2         27.2         27.2         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         32.8         30.0         20	Permitted Phases	4			∞			2			9		
200 200 27.2 27.2 32.8 (2.1) (	Actuated Green, G (s)		20.0			20.0		27.2	27.2		32.8	32.8	
6.0 6.0 6.0 6.0 6.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	Effective Green, g (s)		20.0			20.0		27.2	27.2		32.8	32.8	
s) 6.0 6.0 6.0 6.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	Actuated g/C Ratio		0.31			0.31		0.42	0.42		0.51	0.51	
s)         3.0         3.0         3.0         3.0         3.0         3.0           )         788         878         386         761         491         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.04         0.04         0.04         0.04         0.04         0.04         0.04         0.04         0.04         0.09         0.09         0.09         0.0         0.00         0.00         0.01         0.00         0.01         <	Clearance Time (s)		9.0			0.9		0.9	0.9		2.0	0.9	
758 878 386 761 491  60.11 0.06 0.07 0.01  60.12 0.13 0.19 0.16 0.43 0.09  17.3 16.4 11.7 13.3 8.3  42 0.19 0.10 1.00 1.00 1.00  42 17.6 16.6 12.5 15.1 8.4  B B B A A  17.6 16.6 12.5 15.1 8.4  B B B B A  17.7 18.3 8.3  17.8 18.6 18.7  17.8 18.6 18.7  17.9 18.6 18.8  17.9 18.	Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
0.11 0.06 0.07 0.04 0.01 0.05 0.07 0.04 0.04 0.05 0.05 0.05 0.05 0.09 0.06 0.05 0.09 0.09 0.06 0.09 0.09 0.09 0.09 0.09	Lane Grp Cap (vph)		758			878		386	761		491	892	
d2 0.04 0.06 0.07 0.04 0.09 0.04 0.09 0.03 0.09 0.09 0.16 0.43 0.09 0.09 0.09 0.09 0.09 0.09 0.09 0.1 0.00 0.01 0.09 0.1 0.00 0.1	v/s Ratio Prot								0.18		0.01	c0.25	
0.35 0.19 0.16 0.43 0.09 17.3 16.4 11.7 13.3 8.3 1.00 1.00 1.00 1.00 1.00 1.01 1.01 1.01	v/s Ratio Perm		00.11			90.0		0.07			0.04		
17.3 16.4 11.7 13.3 8.3 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	v/c Ratio		0.35			0.19		0.16	0.43		0.09	0.50	
d2 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1,0	Uniform Delay, d1		17.3			16.4		11.7	13.3		8.3	10.6	
d2 0.3 0.1 0.9 1.8 0.1 17.6 16.6 12.5 15.1 8.4 B B B A 17.6 16.6 14.7 B B B	Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
17.6 16.6 12.5 15.1 8.4 B B B A 17.6 16.6 14.7 B B B	Incremental Delay, d2		0.3			0.1		0.0	1.8		0.1	2.0	
B B B A 17.6 16.6 14.7 B B B	Delay (s)		17.6			16.6		12.5	15.1		8.4	12.6	
17.6 16.6 14.7 B B B B	Level of Service		മ			В		В	В		⋖	В	
B B	Approach Delay (s)		17.6			16.6			14.7			12.2	
	Approach LOS		Ω			В			Ф			Ф	

<sup>16.0</sup> E HCM 2000 Level of Service Sum of lost time (s) ICU Level of Service 14.7 0.48 64.8 90.7% Intersection Summary
HCM 2000 Control Delay
HCM 2000 Volume to Capacity ratio
Actuated Cycle Length (s)
Intersection Capacity Utilization
Analysis Period (min)
c Critical Lane Group

<sup>185</sup> Robinson Street, Community of Slmcoe (Norfolk County), ON TransPlan Inc.

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HCM Unsignalized Intersection Capacity Analysis <TOTAL 2026> Weekday PM Peak Hour 7: Metcalfe Street South & West Street

Here EBI EBI Well  8 177 12 12  8 177 12 12  1082 0.82 0.82 0.80  10 155 15 15  115 15  115 15  1170  4.1 4.1  2.2 2  99 99  1378  EBI WBI NBI SBI  180 210 5 40  110 10 10 10 10  0.0 0.0 0.0 10 3  0.5 0.6 10.3 10.5  A A A B B B  0.5 0.6 10.3 10.5  A A A B B B  0.5 0.6 10.3 10.5  B B B  16 170  170  170  170  170  170  170  170			_		٠	,
tions con con vol. (Vehih) 8 127 12 12 12 12 12 12 12 12 12 12 12 12 12	TOW IOW	ION	COIN TOIN	ā	FOO	000
(weht) 8 127 12 12 12 12 12 12 12 12 12 12 12 12 12	WBL	Z		SBL	) Jac	SBR
(m/s)  (m			4		÷	
(m/s)  tor 0.82 0.82 0.80 0.80  tor 0.82 0.82 0.80 0.80  (m/s)  ge (veh) 10 155 15 15 15 15 15 15 15 15 15 15 15 15	12	<del>-</del>	1 3	က	∞	6
Free (vph) 10 155 15 15 15 16 (m/s) 10 155 15 15 15 16 16 (m/s) 10 10 155 15 15 15 16 (m/s) 10 10 10 10 10 10 10 10 10 10 10 10 10	12	-	1	က	∞	19
(m/s)  (m	Free	ਲ	Stop		Stop	
(m/s)  (m	%0	0	%0		%0	
(m/s) ge (veh) veh) veh) veh) int vol mit vol	0.80	0.91	0.91 0.91	0.75	0.75	0.75
(m/s) ge (vet) None vet) li(m) locked locked clume 195 mf vol mf	15	-	1 3	4	11	22
(veh)  (veh)  None  veh)  (chin)  105  Jocked  (clume  195  170  (chin)  105  170  170  (chin)  185  170  170  170  170  170  170  170  17						
(m/s)  yee (vet)  vet)  (vet)						
yee (veh)  In (m)  In						
(veh)  veh)  lu(m)  lobocked  lobock						
weth)  l(m)  l(m)  locked  loc						
(iii)   105   105   106   110   105   110   105   110   11	None					
(m)   105   106   106   106   106   106   106   106   106   107						
hocked 195 170  nif vol 195 170  vol 195 22  2.2 2.2 2.2  (k) 99 99 99 99 99 99 99 99 1407  hhh) 1378 1407 844 690  city 0.01 0.01 0.01 0.06  s) A A B B B  remmary 1.6						
min'ord 195 170  min'ord 195 170  vol 4.1 4.1 4.1  2.2 2.2 2.2  8, 99 99 99 99  min'ord 1378 1407 884 690  scip, 0.01 0.01 0.06  Sth (m) 0.2 0.3 0.2 1.5  s) A A B B B  r(s) 0.5 0.6 10.3 10.5  v(s) 0.5 0.6 10.3 10.5  mmany 1.6						
mir vol  vol 195  4.1  4.1  4.1  4.1  4.1  4.1  4.1  4.	170	436 4	408 162	408	412	192
mrivol (195 ) (170 ) (1						
Vol   195   170						
#1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.	170		408 162	408	412	192
hhh) 1378 99 99 99 99 99 99 99 99 99 99 99 99 99	4.1	7.1 6			6.5	6.2
## EB1 WB1 NB1 SB1 ## EB1 WB1 NB1 SB1 10 15 1 4 11 13 18 25 10 15 1 4 11 18 21 1 4 11 18 18 18 18 18 18 18 18 18 18 18 18 1						
age belay (seh/h) 1378 99 99 99 99 99 99 99 99 99 99 99 99 99	2.2				4.0	33
apacity (veh/h) 1378 1407  Iton Lane # EB1 WB1 NB1 SB1  Ine Total 180 210 5 40  Ine Total 180 210 5 40  Ine Right 15 5 3 25  Ine to Capacity 0.01 0.01 0.01 0.06  Ine Length 95th (m) 0.2 0.3 0.2 1.5  ILOS A A B B B  Section Summary 1.6  Inc Langth 95th (m) 0.5 0.6 10.3 10.5  A A B B B  Section Summary 1.6	66	100	100 100	66	86	97
tion Lane #         EB1         WB1         NB1         SB1           ne Total         188         210         5         40           ne Left         10         15         1         4           ne Legytt         15         3         25         40           ne Copacity         0.01         0.01         0.01         0.01         0.00         10.05           ne Length 95h (m)         0.2         0.3         0.2         1.5         10.5 <td>1407</td> <td></td> <td></td> <td>543</td> <td>520</td> <td>849</td>	1407			543	520	849
ne Total 180 210 5 40 ne Left 10 15 1 4 ne Right 15 5 84 ne Right 1378 1407 684 690 ne to Capacity 0.011 0.01 0.01 0.06 ne Length 95th (m) 0.2 0.3 0.2 1.5 nd Delay (s) 0.5 0.6 10.3 10.5 nach Delay (s) 0.5 0.6 10.3 10.5 nach LOS A B B nach LOS B B B age Delay 1.6						
ne Left 10 15 1 4  ne Right 15 5 3 25  ne Right 1378 140 0.01  ne to Capacity 0.01 0.01 0.01 0.06  ne Length 95th (m) 0.2 0.3 0.2 1.5  nol Delay (s) 0.5 0.6 10.3 10.5  A A A A B B B Cach Delay (s) 0.5 0.6 10.3 10.5  acch LOS A B B B B Cach LOS B B B B B B B B B B B B B B B B B B B	9 40					
ne Right 15 5 3 25 13.78 1407 684 690 ne to Capacity 0.01 0.01 0.01 0.01 LOS A A B B 10.3 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5	4					
1378 1407 664 690  ne to Capacity 0.01 0.01 0.01 0.06  LOS 0.3 0.5 0.6 10.3 10.5  LOS A A B B B  section Summary 1.66  1.67  1.67						
0.01 0.01 0.00 0.00 0.00 0.00 0.00 0.00						
0.2 0.3 0.2 1.5 0.5 0.6 10.3 10.5 0.6 10.3 10.5 0.6 10.3 10.5 0.6 10.3 10.5 0.5 0.6 10.3 10.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5						
0.5 0.6 10.3 10.5						
A A B B B 0.5 0.6 10.3 10.5 P B B B B B B B B B B B B B B B B B B						
0.5 0.6 10.3 10.5 av						
B B 1.6						
1.6						
1.6						
Intersection Capacity Utilization 22.2% ICU Level of Se	CU Level of Service		V			
15						

-185 Robinson Street, Community of Slmcoe (Norfolk County), ON TransPlan Inc.

<TOTAL 2031> Weekday PM Peak Hour 08-29-2024 HCM Unsignalized Intersection Capacity Analysis 1: Queen Street North & Union Street

	-	1			!	8	ž	-	3		3	(July)
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		4			4			4			4	
raffic Volume (veh/h)	9	က	16	11	13	33	8	408	20	54	518	က
uture Volume (Veh/h)	9	က	16	17	13	38	18	408	70	54	518	3
		Stop			Stop			Free			Free	
		%0			%0			%0			%0	
Peak Hour Factor	98.0	0.86	98.0	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
Hourly flow rate (vph)	7	33	19	59	22	99	70	464	23	56	569	က
edestrians												
Valking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
								None			None	
Median storage veh)												
Jpstream signal (m)								315				
X, platoon unblocked												
	1215	1150	220	1158	1140	476	572			487		
/C1, stage 1 conf vol												
/C2, stage 2 conf vol												
'Cu, unblocked vol	1215	1150	220	1158	1140	476	572			487		
	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
00 queue free %	94	86	96	85	88	88	88			86		
cM capacity (veh/h)	124	190	521	159	192	289	1001			1076		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
	29	117	202	298								
	7	53	70	56								
	19	99	23	က								
	267	286	1001	1076								
/olume to Capacity	0.11	0.41	0.02	0.02								
Queue Length 95th (m)	5.9	15.2	0.5	9.0								
Control Delay (s)	20.1	26.0	9.0	0.7								
	ပ	_	∢	⋖								
Approach Delay (s)	20.1	26.0	9.0	0.7								
	ပ	0										
ntersection Summary												
			3.4									
ntersection Capacity Utilization			48.6%	<u> </u>	CU Level of Service	Service			⋖			
Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

HCM Unsignalized Intersection Capacity Analysis	<total< th=""><th>2031&gt;</th><th><total 2031=""> Weekday PM Peak H</total></th><th>M Peak</th><th>_</th></total<>	2031>	<total 2031=""> Weekday PM Peak H</total>	M Peak	_
2: Queen Street North & Marshall Lane/Site Access 3	~			08-29	o

Movement Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h) Sign Control	١	1	*	1	ţ	1	1		•	۶	-	*
Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h) Sign Control Grade	田田	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (veh/h) Future Volume (Veh/h) Sign Control Grade		4			4			4			4	
Future Volume (Veh/h) Sign Control Grade	10	0	=	Ξ	0	28	6	408	10	52	510	_
Sign Control Grade	9	0	Ξ	Ξ	0	78	6	408	9	52	510	15
Grade		Stop			Stop			Free			Free	
9		%0			%0			%0			%0	
Peak Hour Factor	0.25	0.25	0.25	0.40	0.40	0.40	0.84	0.84	0.84	0.87	0.87	0.87
Hourly flow rate (vph)	40	0	4	78	0	20	Ξ	486	12	59	586	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)								177				
pX, platoon unblocked	96.0	96.0		96.0	96.0	96.0				96.0		
vC, conflicting volume	1236	1172	594	1210	1175	492	603			498		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1226	1159	294	1199	1162	451	603			457		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
F (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	69	100	91	80	100	88	66			6		
cM capacity (veh/h)	128	181	202	138	180	585	975			1060		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	84	86	509	632								
Volume Left	40	78	=	53								
Volume Right	4	20	12	17								
SH	210	304	975	1060								
Volume to Capacity	0.40	0.32	0.01	0.03								
Queue Length 95th (m)	14.4	10.8	0.3	0.7								
Control Delay (s)	33.2	22.4	0.3	0.7								
Lane LOS	□	ပ	⋖	⋖								
Approach Delay (s)	33.2	22.4	0.3	0.7								
Approach LOS	۵	ပ										
Intersection Summary												
Average Delay			4.2									
Intersection Capacity Utilization			20.5%	<u> </u>	CU Level of Service	f Service			⋖			

<TOTAL 2031> Weekday PM Peak Hour 08-29-2024 HCM Unsignalized Intersection Capacity Analysis 3: Queen Street North & Site Access 2

*	SBT	43	527	527	Free	%0	0.88	400	988						None																									
•	NBR SBL			13 5			0.82 0.88											0.91	536			438	4.1		2.2	66	1018													
	NBT		426	426	Free	%0									None		66											SB 1	909	9	0	1018	0.01	0.1	0.2	A	0.2			
1	WBR		_	-			0.75		-									0.91	528			430	6.2		333	100	268	NB 1	536	0	16	1700	0.32	0.0	0.0		0.0			
-	WBL	2	∞	∞	Stop	%0	0.75	5 -	=									0.91	1139			1102	6.4		3.5	92	211	WB 1	12	=	~	223	90.0	4.	22.1	ပ	22.1	ပ		
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (yob)	Hourly flow rate (vpn)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	₽ (s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	LS3	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Information Cummons	mersection summary

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

Synchro 11 Report Page 3

Timings 4: Queen Street North & Robinson Street

<TOTAL 2031> Weekday PM Peak Hour 08-29-2024

<b>→ ≯ ← ∀ ↓ ↓ ↑ ↑</b>	EBL EBT WBL WBT NBL NBT SBL SBT	4	10 16 44 14 17 369 78 448	44 14 17 369 78	Perm NA Perm NA Perm	8 2	8 2	4 4 8 8 2 2 6 6		5.0 5.0 5.0 5.0 5.0 5.0	22.5 22.5 22.5 22.5 22.5 22.5 22.5	23.0 23.0 23.0 52.0 52.0 52.0	30.7% 30.7% 30.7% 69.3% 69.3% 69.3%	3.5 3.5 3.5	1.0 1.0 1.0 1.0 1.0 1.0	0.0 0.0	4.5 4.5			None None Max Max Max	11.7	0.16 0.71	0.65	27.3 6.2	0.0 0.0 2.8 0.0	27.3 8.9	ပ	16.3 27.3 8.9 8.5	B C A A					ord		h Intersection LOS: B	
1					Ī		4	4								0	4			_	=	.0	.0	16	0	16		16						ord		9	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 71.4	Natural Cycle: 60	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.65	Intersection Signal Delay: 11.6	

Splits and Phases: 4: Queen Street North & Robinson Street

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

HCM Signalized Intersection Capacity Analysis <TOTAL 2031> Weekday PM Peak Hour 4: Queen Street North & Robinson Street

<TOTAL 2031> Weekday PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis <TO 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.62 0.62

0.62

0.25

0.25

0.74

0.74

0.83

0.83

Stop 0% 0.25

40

40

<u>ස</u> ස

28 28

117 117 0% 0.74 158

162 162 162 0% 0.83

12

FBL   FBT   FBR   WBL   WBT   WBF   NBL   NBT   NBF   SBL   SBT	EBL EBT EBR WBL  ons 44  ph) 10 16 25 44  ph) 10 16 25 44  ph) 10 16 25 44  10 16 25 44  10 16 25 44  10 10 1900 1900 1900  10 10 1900 1900	WBL 44 44 44 44 44 1900 0.60 0 0 0 0 Perm 8	0.60 0.60 102 0 0 0	NBT	28L 28 7 8 7 7 8 7 7 8 7 7 8 7 7 8 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9	987 SBR 99448 99448 99900 1900 9900 1900 9900 1900 9900 1900 9900 1900 9900
ph/l         10         4	pin) 10 45 25 44 44 10 16 25 44 44 10 16 25 44 44 10 16 25 44 44 10 16 25 44 44 10 16 25 44 44 10 16 25 44 44 11 7 2 34 73 20 60 20 34 11 7 2 34 73 20 60 20 20 34 11 7 2 34 73 20 60 20 20 34 2 25 3 25 3 25 3 25 3 25 3 25 3 25 3	44 44 44 44 1900	0.60 0.60 0.60 0 0	369 369 369 1900 4,5 1,00 0,98 1,00 0,97 1774 1774 1774 2,39 7 7 7 7 7 7 7 7 7 7 8,30 1,00 1,00 1,00 1,00 1,00 1,00 1,00 1	78 78 78 1900 1 10 10 94 94 94 96 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
ph)         10         16         25         44         14         61         17         369         71         78         448           ph)         10         16         25         44         14         61         17         369         71         78         448           ph)         100         1900<	ph) 10 16 25 44 (ph) 100 1900 1900 1900 1900 1900 1900 1900	44 44 1900 0.60 0.60 0 Perm 8	0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	389 389 1900 4.5 1.00 1.00 1820 0.97 1774 0.84 4.39 7 7 537 NA 2 537 537 537 537 537 537 537 537 537 537	78 78 78 79 94 94 6	
ph         10         16         25         44         14         61         17         369         71         78         448           10         190	ph) 10 16 25 44 1 1900 1900 1900 1900 1900 1900 1900 19	44 1900 73 73 73 8 8	0 0 0 0 1	369 1900 4,5 1,00 1,00 1820 1,00 1877 1774 0.97 7 7 537 NA 2 2	78 1 1900 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
1900 1900 1900 1900 1900 1900 1900 190	s) 1900 1900 1900 1900 1900 1900 1900 190	060 73 73 Perm 8	0.60 102 0 0 0	1900 4.5 1.00 0.97 1.07 1.07 1.09 1.09 1.09 1.00 1.37 1.74 0.84 4.39 4.39 4.39 2.57 5.37 8.37 8.37 8.37 8.37 8.37 8.37 8.37 8	1900 1 0.83 0 94 0 0 0 0	
1,00	(vph) 4.5 1.00 0.99 1.723 0.99 1.723 0.99 1.723 0.99 1.723 0.99 1.723 0.99 1.723 0.99 1.723 0.97 0.97 0.16 0.17 0.17 0.18 0.18 0.18 0.18 0.19 0.19 0.10 0.00	0.60 73 0 0 Perm	0.60 0 0 0 0	4.5 1.00 0.98 1.00 1.820 0.97 1774 4.39 7 537 NA NA S	0.83 (	
1,00	100 0.93 0.93 0.99 1723 0.99 1772 0.99 1773 0.73 0.73 0.73 0.73 0.73 0.73 0.73 0	0.60 73 0 0 Perm	0.60 102 0 0 0	1.00 0.98 1.00 1820 0.97 1774 4.39 7 537 NA NA	0 0 Perm	
(vph) 0.93 0.93 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.99 1.00 0.73 0.60 0.60 0.64 0.64 0.64 0.64 0.64 0.64	0.93 0.93 1723 0.99 17123 0.92 17123 0.92 17123 0.92 17123 0.92 1723 0.73 0.73 0.73 0.73 0.73 0.74 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75	0.60 73 73 0 0 Perm	0.60 102 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.98 1.00 1820 0.97 1774 0.84 4.39 7 537 NA 2 2	0 0 Perm	
1,00   0,99   0,98   1,00   0,99   1,00	(vph) 0.99 (vph) 1605 (vph) 0.73 0.73 0.60 (vph) 0 28 0 0 (vph) 0 42 0 0 (vph) 0 45 0 (vph) 0 16 0 (vph) 0 16 0 (vph) 0 263 (vph) 0 263 (vph) 0 0 3 (vph) 0 0 0 0 3 (vph) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.60 73 0 0 Perm 8	0.60 102 0 0	1.00 1820 0.97 1774 0.84 439 7 537 NA 2 2 2	0.83 94 0 0 Perm	
1723   1702   1820   1845     1820   1.038   1.038   1.038   1.038     1605   1.038   1.038   1.038   1.038     1607   1.053   1.050   1.060   0.060   0.084   0.084   0.084   0.083     14	1723 (1723 (1723 (1724) (1605 (1605 (1704) (	0.60 73 0 0 Perm	0.60	1820 0.97 1774 439 7 537 NA NA 2	0.83 94 0 0 Perm	
100	10.92 16.05 17.3 0.73 0.050 17.3 0.73 0.050 18.0 0.28 0 0 0 19.0 0.28 0 0 0 19.0 0.42 0 0 0 19.0 0.42 0 0 19.0 0.16 19.0 0.3 19.0	0.60 73 0 0 Perm	0.60 102 0	0.97 1774 0.84 439 7 537 NA 2 2 50.6	0.83 94 0 0 Perm	
1665   1520	Holos Ho	0.60 73 73 0 0 Perm	0.60 102 0 0	1774 0.84 439 7 537 NA 2 2 50.6	0.83 94 0 0 Perm	
F         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.73         0.74         0.84         0.84         0.84         0.84         0.84         0.83         0.83         0.83         0.83         0.84         0.84         0.84         0.84         0.83         0.84         0.84         0.84         0.84         0.83         0.83         0.84         0.83         0.84         0.	F 0.73 0.73 0.73 0.60  14 22 34 73  15 2 34 73  16 2 0 0  17 0 42 0 0  18 42 0 0  19 11.7  11.7  10 1.6  2 25.9  2 25.	0.60 73 0 0 Perm	0.60 102 0 0	0.84 439 7 537 NA 2 2	0.83 94 0 0 Perm	
14	h) 14 22 34 73 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	73 0 0 Perm 8	102 0 0	439 7 537 NA 2 2 2 50.6	94 0 0 Perm	540 1 544 NA 6
1)	h) 0 28 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Dem 0	00	537 NA 2 2 50.6	Perm 6	1 NA 6 6
h) 0 42 0 0 141 0 0 537 0 0  Perm NA P	h) 0 42 0 0 Perm NA Perm 11.7 11.7 11.7 0.16 4.5 3.0 2.63 0.03 0.03 0.3 2.5.9 0.3 2.5.9 0.3 0.4 2.5.9 0.3 0.4 2.5.9 0.3 0.4 0.3 0.4 0.5 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	Perm 8	0	537 NA 2 2 50.6	Perm 6	66 6 60.0
Perm         NA         Perm         NA         Perm         NA         Perm           4         4         8         2         6           117         117         50.6         6           117         117         50.6         6           117         0.16         0.16         0.71           4.5         4.5         4.5         4.5           3.0         3.0         3.0         3.0           2.6         2.49         1.28         2.4           0.03         0.09         0.30         0.3           0.16         0.57         4.3         1.0           0.10         1.00         1.00         1.00           0.10         1.00         1.00         1.00           0.3         2.9         1.1         2.4           0.3         2.5         3.0         4         5.4           0.5         0.3         0.5         0.43         0.43           0.5         0.3         0.5         0.43         0.43           0.5         0.3         0.5         0.43         0.43           0.5         0.3         0.2         0.43         0.43 <td>Perm NA Perm 4 4 8 4 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11</td> <td></td> <td></td> <td></td> <td></td> <td>NA 6 0.6</td>	Perm NA Perm 4 4 8 4 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11					NA 6 0.6
4	4 4 8 8 11.7 11.7 11.7 11.7 11.7 11.7 11.7	φ 	8 2 2 2 2 2 3	2 50.6	"	9.0
11.7   8   2   6     11.7   11.7   50.6     11.7   11.7   50.6     11.7   11.7   50.6     11.6   0.16   0.71     26.3   3.0   3.0     27.4   4.5   4.5     3.0   3.0   3.0     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   5.0   0.30     5.0   0.57   0.0     5.0   0.57   0.0     6.0   0.57   0.0     6.0   0.57   0.0     6.0   0.57   0.0     7.1   3   0.0   0.50     7.1   5   0.0   0.0     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1   7.1   7.1     7.1   7.1   7.1   7.1   7.1   7.1   7.1   7.1     7.1   7	11.7 8 11.7 1.7 1.1.7 1.1.7 1.1.7 1.1.7 1.1.7 1.1.7 1.1.0 1.	∞ <i>← ← 6</i>	7.7	50.6		9.0
11.7	11.7 11.7 0.16 0.16 4.5 3.0 2.63 0.03 0.16 2.5.6 1.00 2.5.9 C 2	===	7.	50.6	4	9.0
117 117 506 0.16 0.16 0.71 4.5 4.5 4.5 3.0 3.0 3.0 2.63 2.49 1258 0.16 0.57 0.43 0.16 0.57 0.43 0.16 0.57 0.43 0.10 1.00 1.00 0.10 0.57 0.43 0.4 3.0 0.5 C C A A C C C A A C C C A A C C C A A C C C A A C C C A A C C C A A C C C A A C C C C A A C C C C A A C C C C A A C C C C A A C C C C A A C C C C A A C C C C A A C C C A A C C C C C	11.7 0.16 4.5 3.0 2.83 0.03 0.16 2.63 0.16 2.5.6 1.00 0.3 2.5.9 C. C. C	÷	.7	< < -	C	
0.16   0.16   0.71     4.5   4.5   4.5     3.0   3.0   3.0     263   249   1258     263   249   1258     0.03   60.09   0.30     0.16   0.57   0.43     256   27.5   4.3     1.00   1.00   1.00     1.00   2.9   1.1     25.9   30.4   5.4     C	0.16 4.5 3.0 263 0.03 0.16 2.5.6 1.00 0.3 25.9 C C C 25.9 C C 25.9 C C 25.9 C C 25.9 C 25.9 C 25.9 C 25.9 C 25.9 C 33 25.9 C 33 25.9 1.00 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	•		50.6	5	9.0
4.5 4.5 4.5  3.0 3.0 3.0 3.0  3.0 3.0 3.0  3.0 3.0 3.0  0.03 0.03	4.5 3.0 263 263 0.03 0.16 25.6 0.3 25.9 C 25.9 C 25.9 C	.0	16	0.71	0	171
3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	3.0 263 0.03 0.16 25.6 1.00 0.3 25.9 C 25.9 C 25.9 C	7	.5	4.5		4.5
263 249 1258  0.03 c.0.09 0.30  0.16 0.57 0.43  25.6 27.5 4.3  1.00 1.00 1.00  1.00 1.00 1.00  2.5.9 27.9 1.1  25.9 30.4 5.4  C C C A A  Capacity ratio 0.57  In(s) 77.3 Sum of lost time (s) 9.0  Utilization 76.7% ICU Level of Service D	263 0.03 0.16 25.6 1.00 0.3 25.9 C C 25.9 C C		0:	3.0		3.0
0.03 c0.09 0.30 0.16 0.57 0.43 2.56 27.5 4.3 2.50 27.5 4.3 2.5 25.9 1.1 2.5.9 2.4 2.5.9 30.4 5.4 2.5.9 C C C A A 2.5.9 30.4 5.4 2.5.9 C C A A 3.0.4 5.4 A A 2.5.9 C C A A A 4.30 C C C A A A A A A A A A A A A A A A A A	0.03 0.16 25.6 1.00 0.3 25.9 C 25.9 C C 25.9 C	2	49	1258	1,	138
0.03	0.03 0.16 25.6 1.00 0.3 25.9 C 25.9 C 10.5					
0.16   0.57   0.43     25.6   27.5   4.3     1.00   1.00   1.00     2.9   3.04   5.4     25.9   3.04   5.4     26.0   3.04   3.04     27.0   3.04     27.0   3.04   3.04     27.0   3.04   3.04     27.0   3.04   3.04     27.0   3.04   3.04     27.0   3.04   3.04     27.0   3.04	0.16 25.6 1.00 0.3 25.9 C 25.9 C 10.5	90	60	0.30	8	.40
25.6 27.5 4.3 1.00 1.00 1.00 1.00 2.9 1.00 2.5.9 2.9 1.1 25.9 30.4 5.4 25.9 30.4 5.4 25.9 30.4 5.4 26.0 C C C A A  C C C C A A  Lossicy ratio 0.57 CUltration 10.5 Num or fest time (s) 16.7 CUltration 16.7 CUltration 16.7 CUltration 17.7 CUltravel of Service D	25.6 1.00 0.3 25.9 C C C 10.5	0.	22	0.43	0	.57
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 0.3 25.9 C 25.9 C C 10.5	27	5.	4.3		5.0
2.9 1.1 2.5.9 30.4 5.4 2.5.9 30.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 2.5.9 30.4 5.4 2.5.9 30.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4 5.4 2.5.9 30.4	0.3 25.9 C 25.9 C 10.5	1	00	1.00	_	0 <u>.</u>
25.9 30.4 5.4  C C A A  25.9 30.4 5.4  A 25.9 30.4 5.4  A C C C A A  A A C A A  A A C A A  A A C A A  A A A A  A A A A  A A A A  A A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A A  A A	25.9 C 25.9 C C 10.5		6.	Ξ:		2.0
C C A S.4  25.9 30.4 5.4  C C A A  I O.57 HCM 2000 Level of Service B  Capacity ratio 0.57 Sum of lost time (s) 9.0  Utilization 76.7% ICU Level of Service D  15.	C 25.9 C C 10.5	30	1,4	5.4		7.1
25.9 30.4 5.4 7.  C C C A  In the second of Service B  Capacity ratio 0.57 Sum of lost time (s) 8.0  Utilization 76.7% ICU Level of Service D  15.7% ICU Level of Service D  15.7% ICU Level of Service D	25.9 C 10.5		O	∢		⋖
C C A A  10.5 HCM 2000 Level of Service B  Capacity ratio 0.57  h (s) 71.3 Sum of lost time (s) 9.0  Utilization 76.7% ICU Level of Service D  15	10.5	30	1.4	5.4		7.1
lay 10.5 HCM 2000 Level of Service Capacity ratio 0.57 Sum of lost time (s) 17.3 Sum of lost time (s) 16.7% ICU Level of Service 15.7% ICU Level of Service 15.7%	10.5		O	¥		¥
slay         10.5         HCM 2000 Level of Service           Capacity ratio         0.57         0.57           h (s)         71.3         Sum of lost time (s)           Utilization         75.7%         ICU Level of Service           15         15	10.5					
Capacity ratio 0.57 Sum of flost time (s) 71.3 Sum of flost time (s) Vilization 76.7% ICU Level of Service 15	0.57		000 Level of Service		В	
h (s) 71.3 Sum of lost time (s) Utilization 75.7% ICU Level of Service 15	« . I					
Utilization 76.7% ICU Level of Service 15	71.3		lost time (s)	9.6	0	
Analysis Period (min) 15	76.7%		vel of Service	ں	۵	
	Analysis Period (min) 15	15				

3.3 100 877

4.0 100 494

3.5 96 441

3.3 93 843

4.0 100 490

3.5 99 515

2.2 97 1370

2.2 100 1400 202

19 19 0 0 0 441 0.04 1.1 13.5 B B

> 60 56 808 9.07 1.9 A A A A A

214 38 18 1370 0.03 0.7 1.6 A

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coureu Length 95th (m)
Lane LOS
Lane LOS

167 6.2

6.5

498

198 6.2

450

7.1

202

445

498

198

450

442

202

None

None

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

107

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

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185 Robinson 3	TrancPlan Inc

ICU Level of Service

2.4 32.4% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

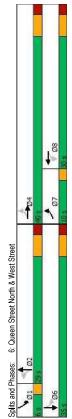
Кероп	Page 6
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Synchro	

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<TOTAL 2031> Weekday PM Peak Hour

HCM Signalized Intersection Capacity Analysis 6: Queen Street North & West Street

-	SBT	42	303	303	NA	9		9		29.0	35.0	35.0	46.7%	4.0	2.0	0.0	0.9			Max	29.0	0.52	0.65	13.0	15.7	28.7	ပ	26.6	ပ								
۶	SBL	¥	46	46	pm+pt	-	9	-		4.0	0.9	0.9	8.0%	2.0	0.0	0.0	2.0	Lead	Yes	None	33.0	0.59	0.11	5.4	0.0	5.4	⋖										
4	NBT	£3	261	261	¥	2		7		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Max	25.4	0.45	0.46	13.3	0.0	13.3	മ	13.2	Ф							LOS: B	
1	NBL	K	26	26	Perm		2	7			29.0				2.0	0.0	0.9	Lag	Yes	Мах	25.4	0.45	0.21	12.7	0.0	12.7	Ω									Intersection LOS: B	
<b>↓</b>	WBT	AT.	103	103	¥	∞		∞		15.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	None	15.0	0.27	0.26	13.1	0.0	13.1	മ	13.1	В							Ħ	
-	WBL		40	40	Perm		œ	œ		15.0	30.0	30.0	40.0%	4.0	2.0			Lag	Yes	None																	
Ť	EBT	AT.	63	63	¥	4		4		15.0	28.0	40.0	53.3%	4.0	2.0	0.0	0.9			None	15.0	0.27	0.44	16.3	0.0	16.3	മ	16.3	Ф								
1	EBF		152	152	pm+pt	7	4	7		2.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None														ord		<u>س</u>	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 56	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.65	Intersection Signal Delay: 19.3	,



185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

> Synchro 11 Report Page 7

Movement         EBI         EBI         EBI         EBI         EBI         EBI         BBI         NBI         NBI         NBI         NBI         NBI         NBI         SBI         SBI         SBI         Lane Configurations         476         477         477         477 <th></th> <th>1</th> <th>Ť</th> <th>1</th> <th>1</th> <th>ţ</th> <th>1</th> <th>1</th> <th>•</th> <th>•</th> <th>۶</th> <th>-</th> <th>7</th>		1	Ť	1	1	ţ	1	1	•	•	۶	-	7
figurations	Movement	EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lime (vph)         152         63         53         40         103         46         56         261         54         46           Lime (vph)         152         63         53         40         103         46         56         261         54         46           (vph)         150         150         150         1900 <td>Lane Configurations</td> <td></td> <td>AT.</td> <td></td> <td></td> <td>AT.</td> <td></td> <td>#</td> <td>43</td> <td></td> <td>F</td> <td>43</td> <td></td>	Lane Configurations		AT.			AT.		#	43		F	43	
lume (γρή)         152         63         53         40         103         46         56         261         54         46           (γρήθ)         1900	Traffic Volume (vph)	152	63	23	40	103	46	26	261	24	46	303	168
(yph)         1900 <t< td=""><td>Future Volume (vph)</td><td>152</td><td>63</td><td>53</td><td>40</td><td>103</td><td>46</td><td>26</td><td>261</td><td>24</td><td>46</td><td>303</td><td>168</td></t<>	Future Volume (vph)	152	63	53	40	103	46	26	261	24	46	303	168
trime (s) 6.0 6.0 6.0 6.0 1.00 1.00 1.00 1.00 1.0	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         0.95         0.05         1.00         1.00           ted         0.97         0.99         1.00         1.00         1.00           ted         0.97         0.99         0.95         1.00         0.97         1.00           ted         0.97         0.99         0.95         1.00         0.97         1.00           ted         0.72         0.89         0.95         1.00         0.97         1.00           ted         0.72         0.89         0.92         0.92         0.92         0.95         1.00           ted         0.72         2.80         0.92         0.82         0.82         0.82         0.78           tedor, OH         173         7.2         60         43         12         50         68         38         10         0.45         0.78	Total Lost time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
ted by the control belay (by to	Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
ted         0.97         0.99         0.55         1,00         0.55           v (prot)         3.340         3.374         1770         1815         1770           v (prot)         3.340         3.374         1770         1815         1770           v (perm)         2.472         0.82         0.88         0.88         0.82         0.89         0.85	Ē		0.97			96.0		1.00	0.97		1.00	0.95	
v(prot)         3340         3374         1770         1815         1770           red         0.72         0.82         0.38         1.00         0.45           red         0.72         2810         711         1815         1870         0.45           red         0.72         2810         0.38         1.00         0.45         0.78	Fit Protected		0.97			0.99		0.95	1.00		0.95	1.00	
ted         0,72         0,82         0,83         1,00         0,44           V(perm)         0,72         0,72         0,71         1815         0,64           V(perm)         0,72         0,88         0,88         0,89         0,82         0,82         0,82         0,82         0,87         0,88         0,87         0,88         0,89         0,78	Satd. Flow (prot)		3340			3374		1770	1815		1770	1763	
V(perm)         2472         2810         711         1815         831           reador, PHF         0.88         0.88         0.92         0.92         0.92         0.82         0.82         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.79         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.78         0.79         0.70         0.70         0.70         0.71         0.71         0.70         0.71         0.71         0.71         0.71         0.71         0.71         0.71         0.71         0.71         0.72         0.72         0.72         0.72	Fit Permitted		0.72			0.82		0.38	1.00		0.45	1.00	
(vpf)         713         72         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.89         0.99         0	Satd. Flow (perm)		2472			2810		711	1815		831	1763	
(vph)         173         72         60         43         112         50         68         318         66         59           duction (vph)         0         38         0         0         37         0         0         8         0         0         0           a duction (vph)         0         38         0         0         8         0         0         9           a break         1         0         1         168         0         8         0         0         9         9           Phases         7         4         Perm         NA         Perm         NA         Perm         Perm         NA         Perm         Perm         Perm         NA         Perm         Perm         Perm         NA         Perm         Perm         NA	Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.78	0.78	0.78
duction (vph)         0         38         0         0         37         0         0         8         0         0           up Flow (vph)         0         267         0         168         0         6         37         0         0         99           Phases         7         4         Perm         NA         NA         Perm         NA         NA         NA         Perm         NA         NA         NA         NA         NA         Perm         NA	Adj. Flow (vph)	173	72	09	43	112	20	99	318	99	29	388	215
up Flow (vph)         0         267         0         168         0         68         376         0         59           Phases         7         4         Perm         NA         Perm         NA         pm+pt           Phases         7         4         8         2         6         6           Green, C(s)         15.0         15.0         15.0         25.4         25.4         29.8         29.8           Green, C(s)         15.0         15.0         15.0         25.4         25.4         25.8         29.8         39.8           Green, C(s)         15.0         15.0         15.0         25.4         25.4         25.8         29.8         39.8           Green, C(s)         15.0         15.0         15.0         20.4         25.4         25.4         25.8         22.0         25.8         22.0         25.8         22.0         25.0	RTOR Reduction (vph)	0	38	0	0	37	0	0	∞	0	0	20	0
Phases         pm-pt         NA         Perm         NA         pm-pt           Phases         7         4         8         2         1           Phases         7         4         8         2         1           Green, G(s)         4         15.0         25.4         25.4         29.8         2           Green, G(s)         15.0         15.0         25.4         25.4         29.8         2           Green, G(s)         15.0         15.0         25.4         25.4         25.4         29.8         2           Green, G(s)         15.0         15.0         20.6         6.0         6.0         6.0         2.0         2.0           Archife (s)         6.0         6.0         6.0         6.0         6.0         2.0	Lane Group Flow (vph)	0	267	0	0	168	0	99	376	0	59	583	0
Phases         7         4         8         2         1           Phases         4         8         2         2         1           Phases         4         8         2         2         6           Phases         4         8         2         2         6           Phases         4         15.0         15.0         25.4         25.4         29.8         2           Green, g(s)         15.0         15.0         15.0         25.4         25.4         29.8         2           GC (CRation)         0.26         0.26         0.45         0.45         0.52         0.5         0.0         0.5         0.5         0.0         0.5         0.5         0.5         0.5         0.5         0.6         0.5         0.5         0.0         0.6         0.6         0.6         0.6         0.6	Turn Type	pm+pt	¥		Perm	¥		Perm	¥		pm+pt	¥	
Phases   4   8   8   2   2   6   6   6     Green, (s)   15.0   15.0   25.4   25.4   25.4   29.8   20.8     Green, (s)   15.0   15.0   25.4   25.4   29.8   20.8     Green, (s)   15.0   15.0   25.4   25.4   29.8   20.8     Green, (s)   15.0   15.0   25.4   25.4   29.8   20.8     Green, (s)   15.0   25.4   25.4   25.9   20.8     Green, (s)   15.0   25.4   25.4   25.8   20.8     Green, (s)   15.0   20.4   20.8   20.8     Green, (s)   15.0   20.4   20.8     Green, (s)   15.0   20.1   20.0     Green, (s)   10.0   20.1   20.0     Green, (d)   10.0   20.0   20.1     Green, (d)   10.0   20.0     Green, (d)   10.0   20.0   20.0     Green, (d)   10.0   20.0     Green, (d)   20.0   20.0     G	Protected Phases	7	4			80			7		_	9	
Gen, G(s)         15.0         15.0         25.4         25.4         25.8         29.8         20.5         C0.5         C0.0	Permitted Phases	4			<b>∞</b>			2			9		
Second Residue   Seco	Actuated Green, G (s)		15.0			15.0		25.4	25.4		29.8	29.8	
yC Ratio         0.26         0.25         0.45         0.45         0.45         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.52         0.53         3.03	Effective Green, g (s)		15.0			15.0		25.4	25.4		29.8	29.8	
Filme (s)   6.0   6.0   6.0   6.0     Attansion (s)   6.0   6.0   6.0     Attansion (s)   6.0   6.0     Attansion (s)   6.5   742   317   811   475     Attansion (s)   6.5   742   317   811   475     Attansion (s)   6.0   0.01     Attansion (s)   0.01     Attansion (s)   0.01     Attansion (s)   0.01     At	Actuated g/C Ratio		0.26			0.26		0.45	0.45		0.52	0.52	
cape (vph)         3.0         3.0         3.0         3.0           Cape (vph)         652         742         317         811         475           Cape (vph)         652         742         317         811         475           Perm         co.11         0.06         0.10         0.01         0.01         0.01         0.01           Perm         co.11         0.06         0.10         0.01         0.01         0.06         0.06           Aleby, d1         172         164         9.6         1.00         4.00         0.01         0.01           cal Delay, d2         0.4         0.2         1.5         1.9         0.1         0.01           cavice         17.7         16.5         11.5         1.9         0.1         0.01           cavice         B         B         B         A         A         0.01         0.	Clearance Time (s)		0.9			0.9		0.9	0.9		2.0	0.9	
Cap (vph)         652         742         317         811         475           Proft         Cap (a)         0.21         0.21         0.01 <t< td=""><td>Vehicle Extension (s)</td><td></td><td>3.0</td><td></td><td></td><td>3.0</td><td></td><td>3.0</td><td>3.0</td><td></td><td>3.0</td><td>3.0</td><td></td></t<>	Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Prot Prot Prot Prot Prot Prot Prot Prot	Lane Grp Cap (vph)		652			742		317	811		475	924	
Perm         6.11         0.06         0.10         0.06           Pelay, d1         7.2         6.8         0.12         0.42           Pelay, d1         17.2         16.4         9.6         1.0         1.0           N Factor         1.00         1.00         1.00         1.00         1.00           Izal Delay, d2         0.4         0.2         1.5         1.9         0.1           Revice         B         B         B         A           Delay (s)         17.7         16.5         12.6         A           LOS         B         B         A         A           D Control Delay         13.9         HCM 2000 Level of Service         B         B           Ox Control Delay         13.9         HCM 2000 Level of Service         B         B           Ox Control Delay         13.9         HCM 2000 Level of Service         B         B           Ox Control Delay         13.9         Number of Capacity action         15.0         In Culture of Service         B           A Control Delay         15.8         Sum of lost time (s)         16.0         In Control Capacity         In Control Capacity           A Control Capacity action         16.0	v/s Ratio Prot								0.21		0.01	c0.33	
belay, d1         0.23         0.21         0.46         0.12         0           on Factor         1.72         16.4         9.6         1.00         6.8           on Factor         1.00         1.00         1.00         1.00         1.00           isal Delay, d2         0.4         0.2         1.5         1.9         0.1           evice         0.4         0.2         1.5         1.9         0.1           evice         17.7         16.5         11.1         12.9         6.9           Delay (s)         17.7         16.5         12.6         A           no Summary         13.9         HCM 2000 Level of Service         B         A           of Control Delay         13.9         HCM 2000 Level of Service         B         A           Overload Lossicy ratio         0.61         Sum of lost time (s)         16.0         B           on Capacity ratio         86.5%         ICU Level of Service         E         E           e-icid (min)         15         LCU Level of Service         E         E	v/s Ratio Perm		0.11			90.0		0.10			90.0		
17.2   16.4   9.6   11.0   6.8	v/c Ratio		0.41			0.23		0.21	0.46		0.12	0.63	
on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Uniform Delay, d1		17.2			16.4		9.6	11.0		8.9	9.6	
Intermediate   1,1	Progression Factor		90			00.		00.	1.00		00	1.00	
17.7   16.5   11.1   12.9   6.9	Incremental Delay, d2		0.4			0.5		1.5	1.9		0.1	3.3	
B B B A A   17.7	Delay (s)		17.7			16.5		1.1	12.9		6.9	12.8	
17.7 16.5 12.6  B B B  13.9 HCM 2000 Level of Service B  0.61 Sum of lost time (s) 16.0  86.5% ICU Level of Service E  15.0	Level of Service		œ			В		ш	В		∢	В	
13.9 HCM 2000 Level of Service 0.61 Sum of lost time (s) 86.5% ICU Level of Service 15	Approach Delay (s)		17.7			16.5			12.6			12.3	
13.9 HCM 2000 Level of Service 0.61 56.8 Sum of lost time (s) 86.5% ICU Level of Service 15	Approach LOS		Ф			В			В			В	
13.9 HCM 2000 Level of Service 0.61 Sum of lost time (s) 86.5% ICU Level of Service 15	Intersection Summary												
0.61 56.8 Sum of lost time (s) 56.8 ICU Level of Service 15	HCM 2000 Control Delay			13.9	H	M 2000	evel of S	ervice		В			
56.8 Sum of lost time (s) 86.5% ICU Level of Service 15	HCM 2000 Volume to Capa	acity ratio		0.61									
86.5% ICU Level of Service 15	Actuated Cycle Length (s)			56.8	ß	m of lost	time (s)			16.0			
<u>a</u>	Intersection Capacity Utiliza	ation		86.5%	ᅙ	U Level o	f Service			ш			
c Critical Lane Group	Analysis Period (min)			15									
	c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2031> Weekday PM Peak Hour 7: Metcalfe Street South & West Street

Movement	/ . Intelcalle direct double & vvest direct	מווומ	עמטי	טווט									207 07 00
enft         EB1         EB1         EB1         EB1         EB1         MB1         MB2         MB2 <th></th> <th>1</th> <th>Ť</th> <th>1</th> <th>1</th> <th>Ţ</th> <th>1</th> <th>1</th> <th></th> <th>•</th> <th>٨</th> <th>-</th> <th>•</th>		1	Ť	1	1	Ţ	1	1		•	٨	-	•
Onfgurations         One particulations         April 14         April 188         5         1         1         3         3         April 14         April 14         14         14         14         14         14         168         5         1         1         3         3         9           Outland (Vehrlin)         Free         0%         0%         0%         0%         0%         0%         0%           Outraction (Vehrlin)         11         169         17         14         171         5         2         2         2         2         2         0%	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Monte (vehith)   9   140   14   168   5   1   1   3   3   9     Volume (vehith)   9   140   14   14   168   5   1   1   3   3   9     Volume (vehith)   9   140   14   14   168   5   1   1   3   3   9     Volume (vehith)   11   169   17   14   171   5   2   2   5   12   36     Volume (vehith)   11   169   17   14   171   5   2   2   5   12   36     Volume (vehith)   11   169   17   14   171   5   2   2   5   12   36     Volume (vehith)   11   169   17   14   171   5   2   2   5   12   36     Volume (vehith)   169   17   14   171   5   2   2   5   12   36     Volume (vehith)   169   176   186   503   404   178   407   410     Volume (vehith)   1400   176   186   503   404   178   407   410     Volume (vehith)   1400   138   520   132     Volume (vehith)   1400   138   520   132     Volume (vehith)   1400   138   520   132     Volume (vehith)   1400   138   520   143     Volume (vehith)   1400   138   520   143     Volume (vehith)   1400   143   1400   143     Volume (vehith)   1400   140   140   140     Volume (vehith)   1400   140     Volume (vehith)   1400   140     Volume (vehith)   1400	Lane Configurations		4			4			4			4	
Volume (Vehh)         9 140         14 168         5 1         1 3         3 9           Autrol         Free         Free         Stop	Traffic Volume (veh/h)	6	140	14	14	168	2	-	-	က	က	6	21
Owner and Chelle (vph)         Free (vph)         Free (vph)         Free (vph)         Free (vph)         Stop (vph)	Future Volume (Veh/h)	6	140	14	14	168	2	-	-	က	က	6	21
our Factor         0.83         0.98         0.64         0.85         0.96         0.95	Sign Control		Free			Free			Stop			Stop	
Hour Factor         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.83         0.80	Grade		%0			%0			%0			%0	
And being speed (m/s)         11         169         17         14         171         5         2         2         5         12         36           stratists         Attalian         Atta	Peak Hour Factor	0.83	0.83	0.83	0.98	0.98	0.98	0.61	0.61	0.61	0.25	0.25	0.25
Worth (ms)         None         None         None         None         A10	Hourly flow rate (vph)	11	169	17	14	171	2	2	2	5	12	36	84
With (m) and Speed (mis) and Speed (mis	Pedestrians												
ri Boesed (mis)  nt Boesed (mis)  nt Boesed (mis)  nt Boesed (mis)  nt Mone  nt None  nt None	Lane Width (m)												
tun flac (veh)  In type  In storage veh)  In storage veh)  In type  In type	Walking Speed (m/s)												
turn flare (veh)         None         None           nst type         None         None           aem signal (m)         105         4           aem signal (m)         105         4           aem signal (m)         105         4           aton unblocked         176         186         503         404         178         407         410           stage 1 cont vol nulbicoked vol         176         441         7.1         6.5         6.2         7.1         6.5         4.0         410         410           stage 1 cont vol nulbicoked vol         176         4.1         4.1         7.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5           stage 1 cont vol         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           stage 2 cont vol         4.1         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           stage (s)         2.2         2.2         3.5         4.0         3.3         4.0         4.0         4.0         9.0         9.0         9.0         9.0         9.0         9.0         9.0 </td <td>Percent Blockage</td> <td></td>	Percent Blockage												
In type In state weth) In state weth In state weth In state weth In state weth In state to carry out out of the state weth In state out weth In state weth I	Right turn flare (veh)												
ne storage veh)  ne storage veh)  ean signal (m)  ean signal (m)  ean storage veh)  105  ean storage veh)  106  ean storage veh)  107  108  ean storage (s)  108  109  109  100  100  100  100  100	Median type		None			None							
sam signal (m)  atom signal (m)  atom the characteria  atom the ch	Median storage veh)												
Authority of the minimulation of the minimulat	Upstream signal (m)		105										
Attage Conf. vol. ratio         176         186         503         404         178         407         410           Attage Loon' vol. vol. ratiosed vol. r	pX, platoon unblocked												
stage Loonf vol         176         186         503         404         178         407         410           stage (s)         4.1         4.1         4.1         7.1         6.5         6.2         7.1         6.5           stage (s)         2.2         3.5         4.0         3.3         3.5         4.0         410         410           stage (s)         2.2         3.5         4.0         3.3         3.5         4.0         4.1         6.5         6.2         7.1         6.5           stage (s)         2.2         3.2         4.0         3.3         3.5         4.0         4.1         6.5         6.2         7.1         6.5           stage (s)         2.2         3.2         4.0         3.3         3.5         4.0         3.3         3.5         4.0         6.5         6.2         7.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5         4.0         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3         9.3	vC, conflicting volume	176			186			203	404	178	407	410	174
tage 2 cont vol mithocked vol 176 186 503 404 178 407 410 mithocked vol 176 4.1 4.1 7.1 6.5 6.2 7.1 6.5 140 tol 186 (s) 4.1 7.1 6.5 6.2 7.1 6.5 140 tol 186 (s) 4.1 7.1 6.5 6.2 7.1 6.5 140 tol 186 (s) 4.1 7.1 6.5 6.2 7.1 6.5 140 tol 186 (s) 4.1 7.1 6.5 6.2 7.1 6.5 140 tol 186 (s) 4.1 7.1 6.5 6.2 7.1 6.5 6.2 7.1 6.5 140 tol 188 (s) 404 5.5 6.8 66 542 5.2 7.2 6.2 7.2 7.2 6.2 7.2 6.2 7.2 7.2 6.2 7.2 6.2 7.2 7.2 6.2 7.2 7.2 6.2 7.2 7.2 6.2 7.2 7.2 6.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7	vC1, stage 1 conf vol												
inblocked vol         176         186         503         404         178         407         410           stage (s)         4.1         4.1         6.5         6.2         7.1         6.5         6.2         7.1         6.5           stage (s)         2.2         2.2         3.5         4.0         3.3         3.5         4.0           eue free %         99         99         100         100         99         98         99         98         99         98         98         99         98         99         98         99         98         98         99         98	vC2, stage 2 conf vol												
loge (s)         4.1         4.1         7.1         6.5         6.2         7.1         6.5           stage (s)         2.2         3.5         4.0         3.3         3.5         4.0         6.5         6.2         7.1         6.5           eue free %         99         99         100         100         99         98         93           pacify (veh/h)         1400         138         28         40         3.3         3.5         4.0         5.2         4.0           ion, Lane #         EB1         NB1         SB1         A         4.0         99	vCu, unblocked vol	176			186			203	404	178	407	410	174
stage (s)         2.2         3.5         4.0         3.3         3.5         4.0           eue free %         99         99         100         100         99         98         93           pacify (vehrh)         1400         1388         404         526         86         542         522           pacify (vehrh)         197         190         9         132         8         520         60         522         522         84         520         60         522         60         522         60 </td <td>tC, single (s)</td> <td>4.1</td> <td></td> <td></td> <td>4.1</td> <td></td> <td></td> <td>7.1</td> <td>6.5</td> <td>6.2</td> <td>7.1</td> <td>6.5</td> <td>6.2</td>	tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
eue free %         22         22         3.5         4,0         3.3         3.5         4,0           eue free %         99         100         100         99         98         99           pon Lane #         EB I         WB I         NB I         SB I         A G         59         98         99         98         99           pon Lane #         EB I         WB I         NB I         SB I         A G         20         98         99         98         99         98         99         90         99         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90         90	tC, 2 stage (s)												
specifiee %         99         100         100         99         98         93           apacity (ve/h/h)         1400         1388         404         526         866         542         522           dfon. Lane #         EB 1         NB 1         SB 1         A 2         12         A 2         52           and child         17         18         9         132         A 3         A 3         A 3           ne Loft         17         5         5         84         A 3         A 3         A 3           ne Light         17         5         6         104         6.7         A 4         5.5         A 4         5.5           ne Leight (s)         0.2         0.2         0.4         5.5         A 4         B B         A 4         B B         B B         A 4         B B         B	tF(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
apacity (vehift)         1400         1388         404         526         866         542         522           atton, Lane #         EB1         WB1         SB1         A04         526         86         542         522           ne Total         197         190         9         132         A	p0 queue free %	66			66			9	9	66	86	93	8
ition Lane #         EB 1         WB 1         NB 1         SB 1           ne Total         197         190         9         132           ne Left         11         14         2         12           ne Left         17         5         84         84           ne to Capacity         0.01         0.01         0.01         0.01           ne to Capacity         0.01         0.01         0.01         0.01           ne Longth 95th (m)         0.2         0.4         5.5           LOS         A         B         B         B           oach Delay (s)         0.5         0.6         10.9         11.3           oach LOS         B         B         B         B           section Capacity Utilization         3.4         ICU Level of Service	cM capacity (veh/h)	1400			1388			404	526	998	545	522	870
ne Total 197 190 9 132 ne Left 11 14 2 12 ne Left 17 5 5 84 ne Right 17 5 5 84 ne to Capacity 0.01 0.01 0.01 0.19 ne to Capacity 0.01 0.01 0.01 0.19 LOS A A B B B oach Delay (s) 0.5 0.6 10.9 11.3 oach LOS B B B section Summary 3.4 ICU Level of Service	Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
ne Left 11 14 2 12  ne Right 5 5 8 84  ne to Capacity 0.01 0.01 0.01 0.01  ne to Capacity 0.01 0.01 0.01 0.01  ne Length 95th (m) 0.2 0.2 0.4 5.5  LOS 0.5 0.6 10.9 11.3  ach Delay (s) 0.5 0.6 10.9 11.3  ach LOS B B B  section Summary 3.4  included a control or con	Volume Total	197	190	6	132								
ne Right 17 5 5 84  ne to Capacity (100 1388 620 704  ne to Capacity (201 0.01 0.01 0.19  ne Length 95th (m) 0.2 0.2 0.4 5.5  rol Delay (s) 0.5 0.6 10.9 11.3  acach Capacity Utilization 3.3	Volume Left	Ξ	4	7	12								
1400   1388   620   704	Volume Right	17	2	2	84								
0.01 0.01 0.01 0.19 0.2 0.2 0.4 5.5 0.5 0.6 10.9 11.3 A A B B B 0.5 0.6 10.9 11.3 B B A B B B A B B B B A B B B B B B B B	SSH	1400	1388	620	704								
0.2 0.4 5.5 0.5 0.6 10.9 11.3 A A B B B 0.5 0.6 10.9 11.3 B B B 3.4 ICU Level of Service	Volume to Capacity	0.01	0.01	0.01	0.19								
0.5 0.6 10.9 11.3 A A B B B 0.5 0.6 10.9 11.3  V 3.4 Utilization 23.7% ICU Level of Service	Queue Length 95th (m)	0.2	0.2	0.4	5.5								
A A B B B  0.5 0.6 10.9 11.3 B B  V  3.4 Utilization 23.7% ICU Level of Service	Control Delay (s)	0.5	9.0	10.9	11.3								
0.5 0.6 10.9 11.3 B B  /  3.4 IUlization 23.7% ICU Level of Service 15	Lane LOS	⋖	∢	ш	ш								
/ B B 3.4 CU Level of Service 15 15 15 15 15 15 15 15 15 15 15 15 15 1	Approach Delay (s)	0.5	9.0	10.9	11.3								
13.4 3.4 CU Level of Service 15.7% ICU Level of Service 15.00 COURTS 1	Approach LOS			В	В								
3.4 CU Level of Service 15.7% ICU Level of Service 15	Intersection Summary												
Utilization 23.7% ICU Level of Service 15	Average Delay			3.4									
	Intersection Capacity Utilization	_		23.7%	<u>ට</u>	U Level o	f Service			¥			
	Analysis Period (min)			15									

185 Robinson Street, Community of Simcoe (Norfolk County), ON
TransPlan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2036> Weekday PM Peak Hour 1: Queen Street North & Union Street

0.87

0.87

0.84

0.84

0.40

0.40

0.25

0.25

Traffic Volume (vehrin)
Future Volume (vehrin)
Sign Control
Grade
Peak Hour Factor
Peak Hour Factor
Peuk Houry flow rate (vph)
Percent Blockage
Walking Speed (mis)
Percent Blockage
Walking Speed (mis)
Percent Blockage
Walking Speed (mis)
Percent Blockage with
Ugstream signal (m)
pX, platoon unblocked
vC, conflicting volume
vC, stage 1 conf vol
vC, stage 2 conf vol
vC, stage 2 conf vol
vC, stage 2 conf vol

None

None 177

0.93

603

0.93

0.93

0.93

594

0.93

0.93

2.2 97 1010

2.2 99 975

3.3 87 552

0.40

3.5 77 124

3.3 91 505

164

3.5 65 113

tC, single (s)
tC, 2 stage (s)
tF (s)
p0 queue free %
cM capacity (veh/h)

632 29 29 17 1010 0.03 0.7 0.8 A A A

975 975 975 0.3 0.3 0.3

84 40 44 191 10.44 16.3 37.8 E E E E

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coureu Length 95th (m)
Lane LOS
Lane LOS

475

603

469 6.2

206 6.5

1203 6.5

15

25

9 9

9 9

28

510 510 0% 0.87 586

450 450 10% 0.84 536

Stop 0.40 0.40

9 9

<TOTAL 2036> Weekday PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

2: Queen Street North & Marshall Lane/Site Access 3

## 1	MATO.	•	Ť	<i>&gt;</i>	<b>\</b>	ţ	1	1	•	•	•	-	`*
6 3 16 18 14 43 20 447 22 24 6 5 3 16 18 14 43 20 447 22 24 6 5 3 16 18 14 43 20 447 22 24 6 5 90 16 18 14 43 20 447 22 24 6 5 90 16 18 18 14 43 20 447 22 24 7 20 24 4 1 20 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		EB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
6 3 16 18 14 43 20 447 22 24 6 Stop Stop Stop Stop Stop Stop Stop Stop			4			4			4			4	
6 3 16 18 14 43 20 447 22 24  850p		9	က	16	9	4	43	70	447	22	54	518	က
Stop   Stop   Stop   Free		9	က	16	18	14	43	70	447	22	54	518	က
0.86 0.86 0.86 0.89 0.89 0.89 0.80 0.81 0.81 0.81 0.82 0.88 0.81 0.81 0.82 0.83 0.81 0.81 0.82 0.83 0.81 0.81 0.82 0.83 0.81 0.81 0.82 0.83 0.81 0.82 0.83 0.81 0.82 0.83 0.81 0.82 0.83 0.83 0.83 0.83 0.83 0.83 0.83 0.83			Stop			Stop			Free			Free	
0.86 0.86 0.86 0.59 0.59 0.88 0.88 0.81 0.81 0.86 0.86 0.89 0.59 0.59 0.89 0.88 0.81 0.81 0.81 0.81 0.81 0.81 0.81			%0			%0			%0			%0	
7 3 19 31 24 73 23 508 25 26  1274 1202 570 1210 1190 520 572 315  1274 1202 570 1210 1190 520 572 533  7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2 2.2  94 98 96 79 87 87 98 97  108 176 521 146 179 556 1001 1035  EB1 WB1 NB1 SB1  29 128 556 598  24 268 1001 1035  C D A A A  49.0% ICU Level of Service A  44.0% ICU Level of Service A  44.0%		98.	0.86	0.86	0.59	0.59	0.59	0.88	0.88	0.88	0.91	0.91	0.91
1274   1202   570   1210   1190   520   572   533   533   534   520   572   533   533   534   534   534   534   534   534   535   534   535		7	က	19	31	74	73	23	208	52	56	269	က
1274   1202   570   1210   1190   520   572   533   533   7.1   6.5   6.2   7.1   6.5   6.2   4.1   4.1   4.1   1.0   5.2   5.2   4.1													
None   315													
None   315													
1274   1202   570   1210   1190   520   572   533   533   7.1   6.5   6.2   7.1   6.5   6.2   4.1   4.1   4.1   1.0   5.2   5.2   4.1   4.1   4.1   1.0   5.2   5.2   4.1   4.1   4.1   4.1   1.0   5.2													
None   315													
1274 1202 570 1210 1190 520 572  1274 1202 570 1210 1190 520 572  7.1 6.5 6.2 7.1 6.5 6.2 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2  94 98 96 79 87 87 98  108 176 521 146 179 556 1001  EB1 WB1 NB1 SB1  29 128 556 598  7 128 556 598  7 128 556 598  7 12 2 2 6  7 12 0.0 0.0 0.6  7 12 0.0 0.0 0.6  7 12 0.0 0.0 0.7  7 1 0.3 0.6 0.7  7 1 0.4 0.0 0.7  7 1 0.3 0.6 0.7  7 1 0.9 A A A  4.0  4.0  4.0  4.0  4.0									None			None	
1274   1202   570   1210   1190   520   572   1274   1202   570   1210   1190   520   572   1274   1202   570   1210   1190   520   572   1274   1202   570   1210   1190   520   572   1210   135   4.0   3.3   3.5   3.5													
1274 1202 570 1210 1190 520 572 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 94 98 96 79 87 87 98 108 176 521 146 179 556 1001 EB1 WB1 NB1 SB1 24 28 56 59 7 31 23 26 7 31 25 56 19 73 25 36 19 73 25 06 7 49 0.0 0.0 216 30.2 0.0 0.0 216 30.2 0.6 0.7 C D A A A 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0									315				
1274 1202 570 1210 1190 520 572 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 9.4 98 96 79 87 87 98 108 176 521 146 179 556 1001 EB1 WB1 NB1 SB1 29 128 556 598 7 31 23 26 19 73 25 3 245 268 1001 1035 0.12 0.6 0.7 C D A A A 4.0 4.9% ICU Level of Service A 4.0 4.09% ICU Level of Service A 4.0													
1274 1202 570 1210 1190 520 572 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 94 98 96 79 87 87 98 108 176 521 146 179 556 1001 1	_	274	1202	220	1210	1190	520	572			533		
1274         1202         570         1210         1190         520         572           7.1         6.5         6.2         7.1         6.5         6.2         4.1           3.5         4.0         3.3         3.5         4.0         3.3         2.2           94         98         96         79         87         98           108         176         521         146         179         556         1001           29         128         5.66         58         7         2.6         1001         11           29         128         5.66         5.88         7         2.6         5.0         1													
1274 1202 570 1210 1190 550 572 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 94 98 96 79 87 87 98 108 176 591 146 179 556 1001 118 178 25 598 1245 268 1001 1035 125 268 1001 1035 126 30.2 0.6 0.7 12 0.6 0.7 13 0.6 0.7 14.0 0.7 15 0.6 0.7 16 30.2 0.6 0.7 16 30.2 0.6 0.7 17 49.9% ICU Level of Service A													
7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 3.4 98 96 79 87 87 98 108 176 521 146 179 556 1001  EB1 MB1 MB1 SB1 29 18 5.6 5.98 19 73 25 26 19 73 25 3 245 268 1001 1035 0.12 0.06 0.7 C D A A A 4.0 4.0% ICU Level of Service A 4.6 4.0	_	274	1202	220	1210	1190	250	572			533		
3.5 4.0 3.3 3.5 4.0 3.3 2.2 94 98 96 79 87 97 98 101 101 101 101 101 101 101 101 101 10		7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5 4.0 3.3 3.5 4.0 3.3 2.2 94 98 96 79 87 87 98 101 101 101 101 101 101 101 101 101 10													
94 88 96 79 87 87 98 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
108 176 521 146 179 556 1001 1  EB1 WB1 NB1 SB1 29 128 556 598 19 73 25 3 245 268 1001 1035 0.12 0.48 0.02 0.03 21 130 0.6 0.7 C D A A A 216 30.2 0.6 0.7 C D A A A 4.0 4.0% ICU Level of Service A 3.6 0.9% ICU Level of Service A 3.6 0.9% ICU Level of Service A 3.7 0.9% ICU Level of Service A		94	88	96	79	87	87	86			6		
EB1 WB1 NB1 SB1 29 128 556 598 7 31 23 26 19 77 25 3 245 268 1001 1035 0.12 0.48 0.02 0.03 3.2 19,3 0.6 0.6 C D A A A 21,6 30.2 0.6 0.7 C D A A A 4.0		108	176	521	146	179	226	1001			1035		
29 128 556 598 7 31 23 26 19 7 32 24 245 268 1001 1035 0.12 0.48 0.02 0.03 3.2 13,2 13,2 13,2 10,6 0.6 C D A A A 21,6 30,2 0.6 0.7 C D A A A 4.0 4.0 4.0 C D A A A 4.0 4.0 C D A A A 4.0	_	B 1	WB 1	NB 1	SB 1								
7 31 23 26 245 26 101 1035 246 2048 1001 1035 3.2 19.3 0.6 0.6 C D A A A C D A A A 4.0 CULevel of Service 4.0 CULevel of Service		59	128	226	298								
19 73 25 3 245 268 1001 1035 0.12 0.48 0.02 0.03 3.2 0.6 0.7 C D A A A 2.1 30.2 0.6 0.7 C D A A A 4.0 A A 4.0 A A 4.0 CU Level of Service		7	31	23	56								
245 268 1001 1035 0.12 0.48 0.02 0.03 3.2 0.6 0.7 C D A A A 2.16 30.2 0.6 0.7 C D D A A 4.0 4.0 4.0 C D A 4.0 4.0 C D A 4.0		19	73	52	က								
0.12 0.48 0.02 0.03 3.2 19,3 0.6 0.6 21.6 30.2 0.6 0.7 C D A A A 21.6 30.2 0.6 0.7 C D 4.0 4.0 House of Service		245	268	1001	1035								
3.2 19.3 0.6 0.6 21.6 30.2 0.6 0.7 C D A A A C D A A 4.0 4.0 49.0% ICU Level of Service		7.12	0.48	0.02	0.03								
216 30.2 0.6 0.7 C D A A A A A A A A A A A A A A A A A A		3.2	19.3	9.0	9.0								
C D A A A 216 30.2 0.6 0.7 C D A 4.0% ICU Level of Service 4.0%		21.6	30.2	9.0	0.7								
21.6 30.2 0.6 0.7 C D 4.0 4.0 49.0% ICU Level of Service		ပ	۵	∢	⋖								
C D 4.0 49.0% ICU Level of Service		21.6	30.2	9.0	0.7								
4.0 49.0% ICU Level of Service		ပ	۵										
4.0 49.0% ICU Level of Service													
49.0% ICU Level of Service				4.0									
J.	zation			49 0%	<u> </u>	l l eve l	Service			4			
				15	2								

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

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185 Robinson	nsPlan Inc.
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ICU Level of Service

4.6 50.4% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

Report	Page 2
Ξ	
Synchro	

<TOTAL 2036> Weekday PM Peak Hour 08-29-2024 HCM Unsignalized Intersection Capacity Analysis 3: Queen Street North & Site Access 2

	-	4	•	•	١	-	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	>		£			**	
Traffic Volume (veh/h)	∞	_	469	13	2	527	
Future Volume (Veh/h)	∞	-	469	13	22	527	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.75	0.75	0.82	0.82	0.88	0.88	
Hourly flow rate (vph)	Ξ	-	572	16	9	599	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)			66				
pX, platoon unblocked	0.88	0.88			0.88		
vC, conflicting volume	1191	280			288		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1150	457			466		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	94	100			66		
cM capacity (veh/h)	192	532			996		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	12	588	909				
Volume Left	Ξ	0	9				
Volume Right	-	16	0				
SSH	203	1700	996				
Volume to Capacity	90.0	0.35	0.01				
Queue Length 95th (m)	1.5	0.0	0.1				
Control Delay (s)	23.8	0.0	0.2				
Lane LOS	ပ		∢				
Approach Delay (s)	23.8	0.0	0.2				
Approach LOS	ပ						
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization	E		41.7%	ಠ	CU Level of Service	Service A	
Analysis Period (min)			15				

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

Timings 4: Queen Street North & Robinson Street

<TOTAL 2036> Weekday PM Peak Hour 08-29-2024

					_							_			_							_															
-	SBT	4	448	448	¥	w.		9		5.0	22.5	52.0	69.3%	3.5	1.0	0:0	4.5			Max	50.5	0.70	0.58	9.1	90	9.	⋖	9.1	٩								
٠	SBL		28	78	Perm		9	9		2.0	22.5	52.0	69.3%	3.5	1.0					Max																	۵
•	NBT	4	406	406	¥	7		2		2.0	22.5	52.0	69.3%	3.5	1.0	0.0	4.5			Max	50.5	0.70	0.48	7.0	4.0	11.0	ω	11.0	Ф							Intersection LOS: B	ICU Level of Service D
1	NBL		19	19	Perm		2	2		2.0	22.5		69.3%		1.0					Max																tersection	On Level
ţ	WBT	4	15	15	¥	∞		∞		2.0	22.5	23.0	30.7%	3.5	1.0	0.0	4.5			None	12.5	0.17	0.68	29.2	0.0	29.2	ပ	29.2	ပ							_	_
1	WBL		48	48	Perm		∞	∞		2.0	22.5	23.0	30.7%	3.5	1.0					None																	
Ť	EBT	4	16	16	¥	4		4		2.0	22.5	23.0	30.7%	3.5	1.0	0.0	4.5			None	12.5	0.17	0.23	16.0	0.0	16.0	ω	16.0	Ф								
1	田田		9	19	Perm		4	4		2.0	22.5	23.0	30.7%	3.5	1:0					None														coord		13.0	zation 78.6%
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	SOT	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 72	Natural Cycle: 60	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.68	Intersection Signal Delay: 13.0	Intersection Capacity Utilization 78.6% Analysis Period (min) 15

Splits and Phases: 4: Queen Street North & Robinson Street



185 Robinson Street, Community of Simooe (Norfolk County), ON TransPlan Inc.

HCM Signalized Intersection Capacity Analysis <TOTAL 2036> Weekday PM Peak Hour 4: Queen Street North & Robinson Street

<TOTAL 2036> Weekday PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis <TO 5: Metcalfe Street South/Site Access 1 & Robinson Street

Stop 0% 0.62 0.62

0 Stop 0% 0.25

0.62

0.25

0.25

0.74

0.74

0.83

0.83

40

12

5 5

5 5

30 30

129 129 0% 0.74 174

162 162 162 0% 0.83

40

Movement EBL Lane Configurations Traffic Volume (vph) 10 Ideal Flow (vpin) 1900 Total Lost time (s) Lane Util Factor Fit Protected Satd. Flow (prot)	EBT € 9	EBR	WBL	WBT	0,41	NRI	FOR	2	SBI	Tao	SBR
ons ph) ph) 19 () 19	<b>4</b> € 9				WBK	ואטר	NBI	NBK	שטט	וחס	
ph) (ph) (s)	16			4			4			4	
rph) 19		52	48	15	29	19	406	79	8/	448	6
	16	52	48	15	29	19	406	79	28	448	6
Total Lost time (s) Lane Util. Factor Fit Protected Satd. Flow (prot)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor Frt FIt Protected Satd. Flow (prot)	4.5			4.5			4.5			4.5	
Frt FIt Protected Satd. Flow (prot)	1.00			1.00			1.00			1.00	
Fit Protected Satd. Flow (prot)	0.93			0.93			0.98			1.00	
Satd. Flow (prot)	0.99			0.98			1.00			0.99	
	1723			1702			1820			1845	
Flt Permitted	0.92			0.87			0.97			0.85	
Satd. Flow (perm)	1602			1515			1769			1583	
Peak-hour factor, PHF 0.73	0.73	0.73	09.0	09.0	09.0	0.84	0.84	0.84	0.83	0.83	0.83
Adj. Flow (vph) 14	22	34	8	52	112	23	483	96	98	240	Ξ
RTOR Reduction (vph) 0	78	0	0	26	0	0	7	0	0	-	0
Lane Group Flow (vph) 0	42	0	0	161	0	0	593	0	0	644	0
Turn Type Perm	ΑĀ		Perm	Ϋ́		Perm	Ϋ́		Perm	¥	
Protected Phases	4			80			7			9	
Permitted Phases 4			<b>∞</b>			2			9		
Actuated Green, G (s)	12.5			12.5			50.4			50.4	
Effective Green, g (s)	12.5			12.5			50.4			50.4	
Actuated g/C Ratio	0.17			0.17			0.70			0.70	
Clearance Time (s)	4.5			4.5			4.5			4.5	
Vehicle Extension (s)	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	278			263			1240			1109	
v/s Ratio Prot											
v/s Ratio Perm	0.03			c0.11			0.34			c0.41	
v/c Ratio	0.15			0.61			0.48			0.58	
Uniform Delay, d1	25.2			27.5			4.8			5.4	
Progression Factor	9			1.00			1.00			100	
Incremental Delay, d2	0.3			4.2			1.3			2.2	
Delay (s)	25.4			31.6			6.2			9.7	
Level of Service	ပ			ပ			⋖			V	
Approach Delay (s)	25.4			31.6			6.2			9.7	
Approach LOS	ပ			ပ			¥			Υ	
Intersection Summary											
HCM 2000 Control Delay		11.3	운	M 2000 L	HCM 2000 Level of Service	ervice		В			
HCM 2000 Volume to Capacity ratio		0.59									
Actuated Cycle Length (s)		71.9	Sui	Sum of lost time (s)	time (s)			9.0			
Intersection Capacity Utilization		78.6%	<u>ವ</u>	ICU Level of Service	Service			۵			
Analysis Period (min)		15									
c Critical Lane Group											

183 6.2

6.5

524 7.1

198 6.2

472 6.5

464

202

192

467

524

198

472

464

202

192

None

None

Traffic Volume (Verhn)
Sign Control
Grade
Grade
Feak Hour Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Median Speed (ms)
Percent Blockage veh)
Median storage veh)
Median storage veh)
Pox, Batoon unblocked vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Listage 1 conf vol
Cx, Listage 1 conf vol
Cx, Stage 2 conf vol
Cx, Stage 2 conf vol
Cx, Stage 5 conf vol
Cx, Stage 5 conf vol
Cx, Stage 6 (s)
Ff. (s)
Ff. (s)
Ff. (c)
Ff.

107

3.3

4.0 100 479

3.5 95 421

3.3 93 843

4.0 100 475

3.5 99 497

2.2 97 1370

2.2 100 1381

202

19 19 0 0 0.05 1.1 13.9 B 13.9

> 64 4 60 807 0.08 2.1 2.1 9.8 A 9.8

233 41 18 1370 0.03 0.7 1.6 A

0.00

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
cSH
Volume to Capacity
Coureu Length 95th (m)
Lane LOS
Lane LOS

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ICU Level of Service

2.4 33.3%

Average Delay Intersection Capacity Utilization Analysis Period (min)

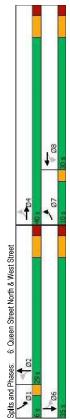
Approach Delay (s) Approach LOS

<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

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Timings <TOTAL 2036> Weekday PM Peak Hour 6: Queen Street North & West Street

<b>+</b>	SBT	£3	303	303	¥	9		9		29.0	35.0	35.0	46.7%	4.0	2.0	0.0	0.9			Max	29.0	0.52	0.65	13.0	15.7	28.7	ပ	56.6	ပ									
۶	SBL	¥	46	46	pm+pt	-	9	-			0.9			2.0	0.0	0.0	2.0	Lead	Yes	None	33.0	0.59	0.11	5.4	0.0	5.4	∢										ш	
4	NBT	42	287	287	¥	2		7		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Max	25.4	0.45	0.51	14.0	0.0	14.0	ω	13.9	Ф							LOS: B	f Service	
1	NBL	F	62	62	Perm		2	7		23.0	29.0	29.0	38.7%	4.0	2.0	0.0	0.9	Lag	Yes	Мах	25.4	0.45	0.24	13.1	0.0	13.1	Ω									Intersection LOS: B	ICU Level of Service E	
Ţ	WBT	AT.	114	114	¥	∞		∞		15.0	30.0	30.0	40.0%	4.0	2.0	0.0	0.9	Lag	Yes	None	15.0	0.27	0.29	13.4	0.0	13.4	В	13.4	В							Ξ	೨	
-	WBL		4	44	Perm		∞	∞		15.0	30.0	30.0	40.0%	4.0	2.0			Lag	Yes	None																		
1	EBT	AT.	63	63	¥	4		4		15.0	28.0	40.0	53.3%	4.0	2.0	0.0	0.9			None	15.0	0.27	0.44	16.4	0.0	16.4	Ω	16.4	Ф									
1	EBL		152	152	pm+pt	7	4	7		2.0	9.5	10.0	13.3%	2.0	0.0			Lead	Yes	None														ord		3	on 90.4%	
	Lane Group	Lane Configurations	Traffic Volume (vph)	Future Volume (vph)	Turn Type	Protected Phases	Permitted Phases	Detector Phase	Switch Phase	Minimum Initial (s)	Minimum Split (s)	Total Split (s)	Total Split (%)	Yellow Time (s)	All-Red Time (s)	Lost Time Adjust (s)	Total Lost Time (s)	Lead/Lag	Lead-Lag Optimize?	Recall Mode	Act Effct Green (s)	Actuated g/C Ratio	v/c Ratio	Control Delay	Queue Delay	Total Delay	ros	Approach Delay	Approach LOS	Intersection Summary	Cycle Length: 75	Actuated Cycle Length: 56	Natural Cycle: 75	Control Type: Semi Act-Uncoord	Maximum v/c Ratio: 0.65	Intersection Signal Delay: 19.3	Intersection Capacity Utilization 90.4%	Analysis Period (min) 15



185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

Movement         EBI.         EBI.         EBI.         RBI.         MBI.	tent         EBI         EBI         EBI         WBI         WBI         MBI         NBI         NBI <th></th> <th>1</th> <th>Ť</th> <th>1</th> <th>-</th> <th>ţ</th> <th>1</th> <th>•</th> <th>+</th> <th>•</th> <th>۶</th> <th>-</th> <th>•</th>		1	Ť	1	-	ţ	1	•	+	•	۶	-	•
figurations         4Th         51         4Th         51         4Th         51         4Th         51         4Th         51         4Th         51         62         287         60         46         303           Inme (sph)         152         63         53         44         114         51         62         287         60         46         303           Inme (sph)         1900 <th>figurations         476         477         476         477         476         477         <th< th=""><th>Movement</th><th>EBL</th><th>EBT</th><th>EBR</th><th>WBL</th><th>WBT</th><th>WBR</th><th>NBL</th><th>NBT</th><th>NBR</th><th>SBL</th><th>SBT</th><th>SBR</th></th<></th>	figurations         476         477         476         477         476         477 <th< th=""><th>Movement</th><th>EBL</th><th>EBT</th><th>EBR</th><th>WBL</th><th>WBT</th><th>WBR</th><th>NBL</th><th>NBT</th><th>NBR</th><th>SBL</th><th>SBT</th><th>SBR</th></th<>	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Imme (vph)         152         63         53         44         114         51         62         287         60         46         303           Imme (vph)         152         63         53         44         114         51         62         287         60         46         303           Imme (vph)         190         1900         19	lume (vph)         152         63         53         44         114         51         62         287         60         46           lume (vph)         152         63         53         44         114         51         62         287         60         46           (vptph)         1900         19	Lane Configurations		AT.			4Th		M.	2		M	2,	
Image (ph)   152 63 53 44 114 51 62 287 60 46 303     Imme (cp)   150 1900 1900 1900 1900 1900 1900 1900	Immet (phf)         152         63         44         144         51         62         287         60         46           Immet (phf)         190         1900	Traffic Volume (vph)	152	63	23	4	114	51	62	287	09	46	303	168
time (s) 6.0 1900 1900 1900 1900 1900 1900 1900 19	(v/phh)         1900	Future Volume (vph)	152	63	53	4	114	21	62	287	9	46	303	168
time (s)         6.0         6	time (s) 6.0 6.0 6.0 6.0 1.00 1.00 1.00 1.00 1.0	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Factor         0.95         0.95         1.00         <	Factor         0.95         0.95         1.00         1.00           red         0.97         0.99         1.00         1.00         1.00           red         0.97         0.99         1.00         0.97         1.00           red         0.97         0.99         0.95         1.00         0.97         1.00           red         0.71         8.2         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.03         0.04         0.04         0.04         0.04         0.04         0.04         0.04         0.05         0.04         0.05         0.75         1.75         1.70         0.04	Total Lost time (s)		9.0			0.9		0.9	0.9		2.0	0.9	
ted 0.97 0.96 1.00 0.97 1.00 0.95 1.00 0.95 1.00 0.95 1.00 0.99 0.99 0.99 1.00 0.95 1.00 0.99 0.99 0.99 0.99 0.99 0.99 0.99	ted 0.97 0.96 1.00 0.97 1.00  v (prot) 3340 3375 1.00 0.97 1.00  v (prot) 3340 3375 1.00 0.97 1.00  v (prot) 3340 3375 1.00 0.97 1.00  v (prot) 3440 0.28 0.29 0.29 0.28 1.00 0.41  v (prot) 1.73 0.28 0.28 0.29 0.29 0.28 0.20  duction (vph) 0 38 0 0.9 0.9 0.9 0.9 0.9 0.9 0.00  up Flow (vph) 0 38 0 0.9 0.9 0.9 0.9 0.9 0.0 0.0  Dup Flow (vph) 0 38 0 0.0 0.9 1.0 0.0 0.0 0.0  Dup Flow (vph) 0 2.67 0 1.0 0.0 1.0 0.0 0.0  Dup Flow (vph) 0 2.67 0 1.0 0.0 0.0 0.0  Dup Flow (vph) 0 2.67 0 1.0 0.0 0.0  Dup Flow (vph) 0 2.67 0 1.0 0.0  Dup Flow (vph) 0 2.67 0 2.0  Dup Flow (vph) 0 2.67 0 1.0  Dup Flow (vph) 0 2.67 0 2.0  Dup Flow (vph) 0 2.67 0 2.0  Dup Flow (vph) 0 2.67 0 1.0  Dup Flow (vph) 0 2.67 0 2.0  Dup Flow (vph) 0 2.0  Dup Flow (vph) 0 2.67 0 2.0  Dup Flow (vph) 0 2.0  Dup Flow (vph) 0 2.0  Dup Flow (	Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
ted         0.97         0.99         0.05         1,00         0.05         1,00           ted         0.71         0.71         1815         1770         1815         1770         1815         1770         1815         1770         1815         1770         1783	ted         0.97         0.99         0.95         1,00         0.95           v(pot)         3340         3375         1,770         1815         1,770           v(pot)         0.88         0.88         0.92         0.92         0.92         0.82         0.73           (vph)         173         72         60         48         124         55         76         350         77         35           (vph)         0         8         0.9         0.9         40         0         0         415         0         57         1         177         170         1815         170         171         170         1815         171         171         170         1815         171         171         170         1815         171         171         170         1815         171         1815         172         171         171         170         1815         171         1815         171         1815         171         171         171         171         171         171         171         171         171         171         171         171         171         171         171         171         171         171         171 <t< td=""><td>Frt</td><td></td><td>0.97</td><td></td><td></td><td>96.0</td><td></td><td>1.00</td><td>0.97</td><td></td><td>1.00</td><td>0.95</td><td></td></t<>	Frt		0.97			96.0		1.00	0.97		1.00	0.95	
V(pot)         3340         3375         1770         1815         1770         1763           V(pem)         2444         0.71         0.82         0.38         1.00         0.71         1.00           V(pem)         2444         248         229         0.92         0.82         0.82         0.82         0.78         7.71         1815         762         1763         176         177         177         178         178         178         176         177         178         178         178         178         178         178         178         178         178         178         178         178         178         1	v(prot)         3340         3375         1770         1815         1770           ted         0.71         0.82         0.38         1.00         0.41           ted         0.71         2.82         0.38         1.00         0.41           ted         0.88         0.88         0.92         0.92         0.92         0.82         0.82         0.78           (vph)         173         72         60         48         124         55         76         350         73         59           duction (vph)         0         287         0         47         0         8         0         0           pm-pt         NA         Perm         NA         Perm         NA         Perm         73         59           Green, G(s)         150         80         150         80         20         17         17           Phases         7         4         8         150         254         254         29           Green, G(s)         150         80         150         254         254         29           Green, G(s)         150         80         150         254         254         29	Flt Protected		0.97			0.99		0.95	1.00		0.95	00.	
ted         0,71         0,82         0,38         1,00         0,41         1,00           Ve(perm)         2,444         2,791         771         1815         762         778           Ve(perm)         173         72         0.88         0.92         0.92         0.92         0.82         0.78         0.	ted         0,71         0,82         0,83         1,00         0,41           Action PHF         0,88         0,84         0,82         <	Satd. Flow (prot)		3340			3375		1770	1815		1770	1763	
V(perm)         2444         2791         711         1815         762         1763           rication, PHF         0.88         0.88         0.82         0.92         0.92         0.92         0.82         0.82         0.78	V(perm)         2444         2734         711         1815         762           Fractor, PHF         0.88         0.88         0.92         0.92         0.92         0.92         0.82         0.82         0.78	Flt Permitted		0.71			0.82		0.38	1.00		0.41	1.00	
rfactor, PHF         0.88         0.88         0.98         0.98         0.98         0.98         0.98         0.98         0.98         0.98         0.99         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.93	reactor, PHF         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.88         0.89         0.99         0.89         0.89         0.89         0.89         0.89         0.99	Satd. Flow (perm)		2444			2791		711	1815		762	1763	
(vph)         173         72         60         48         124         55         76         350         73         59         388           duction (vph)         0         28         0         0         40         0         6         6         0         20           polyclow (vph)         0         267         0         1         0         6         0         20	(vph)         173         72         60         48         124         55         76         350         73         59           duction (vph)         0         38         0         0         40         0         76         48         0         0           Plases         7         4         Perm         NA         Perm         NA         pm-pt           Phases         7         4         Perm         NA         Perm         NA         pm-pt           Phases         7         4         Perm         NA         Perm         A         pm-pt           Phases         7         4         Perm         NA         Perm         A         Perm           Phases         7         4         Perm         NA         Perm         A         Perm           Green, G(s)         15.0         25.4         25.4         25.4         25.8         2           Green, G(s)         15.0         15.0         25.0         25.4         25.4         25.8           Green, G(s)         3.0         3.0         3.0         3.0         3.0         3.0           Cap (vph)         645         737 <th< td=""><td>Peak-hour factor, PHF</td><td>0.88</td><td>0.88</td><td>0.88</td><td>0.92</td><td>0.92</td><td>0.92</td><td>0.82</td><td>0.82</td><td>0.82</td><td>0.78</td><td>0.78</td><td>0.78</td></th<>	Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.78	0.78	0.78
duction (vph)         0         38         0         0         40         0         8         0         0           up Flow (vph)         0         267         0         187         0         75         415         0         59           Phases         7         4         Perm         NA         Perm         NA         Perm         Perm         NA         Perm         Perm         Perm         NA	duction (vph) 0 38 0 0 40 0 0 8 0 0 9 0 0 0 0 0 0 0 0 0 0 0 0 0	Adj. Flow (vph)	173	72	09	48	124	22	9/	320	73	29	388	215
up Flow (vph)         0         267         0         187         0         76         415         0         59           seed (vph)         pm+pt         NA         Perm         NA         pm+pt         Perm         NA         pm+pt           Phases         7         4         8         2         6	up Flow (vph)         0         267         0         187         0         76         415         0         59           seed of the control of t	RTOR Reduction (vph)	0	38	0	0	40	0	0	∞	0	0	20	0
Phases 7 4 8 8 2 1 1 Phases 7 4 8 8 2 1 Rhases 7 4 9 8 2 1 Rhases 7 14 8 8 2 1 Rhases 8 150 254 254 29.8 2 Rhasen g(s) 150 0.26 0.26 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45	pm+pt         NA         Perm         NA         Perm         NA         pm+pt           Phases         7         4         8         2         1           Phases         7         4         8         2         6           Green, G(s)         15.0         15.0         25.4         25.4         29.8         2           Green, G(s)         15.0         15.0         25.4         25.4         29.8         2         6         6         6         6         6         6         6         6         6         6         2         29.8         2         29.8         2         29.8         2         29.8         2         6         6         6         6         6         6         6         6         6         6         6         6         2         2         39.8         3	Lane Group Flow (vph)	0	267	0	0	187	0	9/	415	0	29	583	0
Phases 7 4 8 8 2 2 1 Phases 4 1.0 8 2 2 1 Phases 4 1.0 8 2 2 1 Phases 4 1.0 8 2 2 2 6 Phases 4 1.0 8 1.0 25.4 25.4 26.8 29.8 2 Sheen, g(s) 15.0 15.0 25.4 25.4 25.4 29.8 2 Sheen, g(s) 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0	Phases 7 4 8 8 2 1 1 Phases 4 6 8 2 2 1 Phases 4 15.0 8 2 2 1 Phases 4 15.0 8 2 2 6 Phases 4 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0	Turn Type	pm+pt	¥		Perm	¥		Perm	¥		pm+pt	¥	
Phases   4   8   8   9   2   2   6     Glean (5(s)   15.0   15.0   25.4   25.4   29.8     Glean (5(s)   15.0   15.0   25.4   29.8     Glean (8(s)   16.0   20.6   0.45   0.45   0.52     Filme (s)   6.0   6.0   6.0   6.0   0.52     Filme (s)   6.0   6.0   6.0   0.52     Filme (s)   6.0   6.0   6.0   0.52     Filme (s)   6.0   6.0   0.05     Filme (s)   6.0   6.0     Filme (s)	Phases         4         8         2         6           Green, (s)         (15.0)         15.0         25.4         26.8           Green, (s)         15.0         15.0         25.4         29.8           Green, (s)         16.0         0.26         0.45         0.45         29.8           g/C Ratio         0.26         0.26         0.45         0.45         20.8         20.8           Atracion (s)         6.0         6.0         6.0         6.0         6.0         5.0           Atracion (s)         6.0         7.3         3.0         3.0         3.0         3.0           Atracion (s)         6.0         7.3         1.0	Protected Phases	7	4			∞			2		-	9	
Green, G (s)         15.0         15.0         25.4         25.4         29.8           Steen, (s)         (15.0         15.0         25.4         25.4         25.4         29.8           Steen, (s)         (5.0         (5.0         (5.0         25.4         25.4         29.8           Attension (s)         (5.0         (5.0         (6.0         (6.0         (6.0         2.0         2.0           Attension (s)         (6.0         (6.0         (6.0         (6.0         (6.0         2.0 <td>Green, G (s)         15.0         15.0         25.4         25.8           Steen, G (s)         15.0         15.0         25.4         25.4         29.8           Steen, g (s)         15.0         15.0         25.4         25.4         25.8         29.8           Steen, g (s)         6.0         6.0         6.0         6.0         6.0         5.0         20.8           Attansion (s)         6.0         6.0         6.0         6.0         6.0         2.0         2.0           Attansion (s)         6.0         6.0         6.0         6.0         6.0         2.0         2.0           Attansion (s)         6.0         7.3         7.3         7.3         8.1         4.0         2.0           Cap (vph)         6.45         7.1         6.0         7.1         6.0</td> <td>Permitted Phases</td> <td>4</td> <td></td> <td></td> <td>∞</td> <td></td> <td></td> <td>2</td> <td></td> <td></td> <td>9</td> <td></td> <td></td>	Green, G (s)         15.0         15.0         25.4         25.8           Steen, G (s)         15.0         15.0         25.4         25.4         29.8           Steen, g (s)         15.0         15.0         25.4         25.4         25.8         29.8           Steen, g (s)         6.0         6.0         6.0         6.0         6.0         5.0         20.8           Attansion (s)         6.0         6.0         6.0         6.0         6.0         2.0         2.0           Attansion (s)         6.0         6.0         6.0         6.0         6.0         2.0         2.0           Attansion (s)         6.0         7.3         7.3         7.3         8.1         4.0         2.0           Cap (vph)         6.45         7.1         6.0         7.1         6.0	Permitted Phases	4			∞			2			9		
Schein, g(s)         (150)         150         254         254         298           Schein, g(s)         G(s)         Control Delay         Control Delay <td>  15.0   15.0   15.0   25.4   25.4   25.8     20.6   20.5   0.26   0.45   0.45   0.52     20.6   20.6   0.6   0.6   0.5     20.6   20.6   0.6   0.6     20.7   20.7   20.1     20.7   20.1   0.11     20.7   20.1   0.11     20.7   20.2   0.11     20.8   20.2   0.11     20.8   20.2   0.11     20.8   20.2   0.11     20.8   20.2   0.12     20.8   20.2   0.13     20.8   20.2   0.13     20.8   20.2   0.15     20.8   20.8   20.2     20.8   20.8   20.8     20.8   2</td> <td>Actuated Green, G (s)</td> <td></td> <td>15.0</td> <td></td> <td></td> <td>15.0</td> <td></td> <td>25.4</td> <td>25.4</td> <td></td> <td>29.8</td> <td>29.8</td> <td></td>	15.0   15.0   15.0   25.4   25.4   25.8     20.6   20.5   0.26   0.45   0.45   0.52     20.6   20.6   0.6   0.6   0.5     20.6   20.6   0.6   0.6     20.7   20.7   20.1     20.7   20.1   0.11     20.7   20.1   0.11     20.7   20.2   0.11     20.8   20.2   0.11     20.8   20.2   0.11     20.8   20.2   0.11     20.8   20.2   0.12     20.8   20.2   0.13     20.8   20.2   0.13     20.8   20.2   0.15     20.8   20.8   20.2     20.8   20.8   20.8     20.8   2	Actuated Green, G (s)		15.0			15.0		25.4	25.4		29.8	29.8	
y C Ratio         0.26         0.25         0.45         0.45         0.52           s T Manary	g(C) Ratio         0.26         0.25         0.45         0.45         0.52           s (1)         6.0         6.0         6.0         6.0         6.0         2.0           Cap (vph)         645         737         317         811         442           Prot         Prot         0.21         0.03         3.0         3.0         3.0           Prot         Prot         0.11         0.07         0.11         0.23         0.01         442           Prot         0.21         0.07         0.11         0.23         0.01         0.00	Effective Green, g (s)		15.0			15.0		25.4	25.4		29.8	29.8	
Filme (s)   6.0   6.0   6.0   2.0     Adension (s)   3.0   3.0   3.0   3.0     Adension (s)   3.0   3.0   3.0   3.0     Cap (vph)   645   737   317   811   442     Prot	Filme (s)   6.0   6.0   6.0   6.0     Adarsion (s)   3.0   3.0   3.0   3.0     Adarsion (s)   3.0   3.0   3.0   3.0     Adarsion (s)   645   737   317   811   442     Prof.	Actuated g/C Ratio		0.26			0.26		0.45	0.45		0.52	0.52	
Attension (s)         3.0         3.0         3.0         3.0           Cap (vph)         645         737         317         811         442           Cap (vph)         645         737         317         811         442           Perm         c0.11         0.07         0.11         0.23         0.01         c0           Pelay, d1         17.3         16.5         9.7         4.51         0.06         c0           Pelay, d1         17.3         16.5         9.7         4.51         0.13         c0         c0 </td <td>Cap (vph)         3.0         3.0         3.0         3.0           Cap (vph)         645         737         317         811         442           Perm         c0.11         0.07         0.11         0.03         0.01         0.00         0.0</td> <td>Clearance Time (s)</td> <td></td> <td>0.9</td> <td></td> <td></td> <td>0.0</td> <td></td> <td>0.9</td> <td>0.9</td> <td></td> <td>2.0</td> <td>0.9</td> <td></td>	Cap (vph)         3.0         3.0         3.0         3.0           Cap (vph)         645         737         317         811         442           Perm         c0.11         0.07         0.11         0.03         0.01         0.00         0.0	Clearance Time (s)		0.9			0.0		0.9	0.9		2.0	0.9	
Cap (vph)         645         737         317         811         442           Proft         Co.11         0.07         0.11         0.01	Cap (vph)         645         737         317         811         442           Prof.         Cap (vph)         645         737         317         811         442           Prof.         Co.11         0.07         0.11         0.03         0.00         0.	Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Prot Prot 0.21 0.23 0.01 o.05 o.01 o.05 o.00 o.00 o.00 o.00 o.00 o.01 o.02 o.01 o.00 o.00 o.00 o.00 o.00 o.00 o.00	Prot Prot Prot Prot Prot Prot Prot Prot	Lane Grp Cap (vph)		645			737		317	811		442	924	
Perm         c0.11         0.07         0.11         0.06           Pleby, d1         7.3         16.5         0.24         0.51         0.13           Delay, d1         7.3         16.5         9.7         11.3         6.9           on Factor         1.00         1.00         1.00         1.00         1.00           ist Delay, d2         0.4         0.2         1.8         2.3         0.1           ist Delay, d2         1.7         16.7         16.7         1.5         1.8         7.1           Delay (s)         17.7         16.7         16.7         13.2         7.1         A           Delay (s)         17.7         16.7         18         8         A         A           LOS         18         8         8         B         A         A           Addume to Capacity ratio         0.61         HCM 2000 Level of Service         B         B         A           Ovde Length (s)         56.8         Sum of lost time (s)         16.0         E         B         B         B         B         B         B         B         B         B         B         B         B         B         B         B <t< td=""><td>Perm         c0.11         0.07         0.11         0.06           Perm         0.41         0.25         0.24         0.51         0.03           Delay, d1         17.3         16.5         9.7         11.3         6.9           on Factor         1.00         1.00         1.00         1.00         1.00         1.00           Izablay, d2         0.4         0.2         1.8         2.3         0.1         1.00           Izablay, d2         1.7.7         16.7         1.5         13.6         7.1         7.1         A         A         Delay (s)         1.17         1.0         1.0         1.00         1</td><td>v/s Ratio Prot</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.23</td><td></td><td>0.01</td><td>c0.33</td><td></td></t<>	Perm         c0.11         0.07         0.11         0.06           Perm         0.41         0.25         0.24         0.51         0.03           Delay, d1         17.3         16.5         9.7         11.3         6.9           on Factor         1.00         1.00         1.00         1.00         1.00         1.00           Izablay, d2         0.4         0.2         1.8         2.3         0.1         1.00           Izablay, d2         1.7.7         16.7         1.5         13.6         7.1         7.1         A         A         Delay (s)         1.17         1.0         1.0         1.00         1	v/s Ratio Prot								0.23		0.01	c0.33	
1,2	leay, d1 0.25 0.24 0.51 0.13 on Packer 1 17.3 16.5 0.24 0.51 0.13 on Packer 1 17.3 16.5 0.24 0.51 0.13 on Packer 1 17.0 1.00 1.00 1.00 1.00 1.00 1.00 1.	v/s Ratio Perm		0.11			0.07		0.11			90.0		
17.3   16.5   9.7   17.3   6.9	17.3   16.5   9.7   17.3   6.9	v/c Ratio		0.41			0.25		0.24	0.51		0.13	0.63	
on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	on Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Uniform Delay, d1		17.3			16.5		9.7	11.3		6.9	9.6	
Interest	Interpolary, d2	Progression Factor		0.0			90		<del>1</del> 00	1.00		0.0	00.	
17.7   16.7   11.5   13.6   7.1	17.7   16.7   11.5   13.6   7.1	Incremental Delay, d2		0.4			0.2		1.8	2.3		0.1	3.3	
17.7   16.7   13.2   13.2   14.7   16.7   13.2   13.2   14.8   B B B B B B B B B B B B B B B B B B	B B B A A   17.7	Delay (s)		17.7			16.7		11.5	13.6		7.1	12.8	
17.7 16.7 13.2  B B B B B B B B B B B B B B B B B B B	17.7 16.7 13.2  B B B  K  Ly  14.2 HCM 2000 Level of Service B  Capacity ratio 0.61 Service B  16.0 Utilization 90.4% ICU Level of Service E  15.0 In	Level of Service		<b>a</b>			œ		В	В		∢	В	
B B B B B C C C C C C C C C C C C C C C	B B B B B B B B B B B B B B B B B B B	Approach Delay (s)		17.7			16.7			13.2			12.3	
Alay 14.2 HCM 2000 Level of Service Capacity ratio 0.61 Sum of lost time (s) 6.8 Sum of lost time (s) Utilization 90.4% ICU Level of Service 16.00 Methods of Service 16.00	Alay 14.2 HCM 2000 Level of Service Capacity ratio 0.61 Sum of lost time (s) Utilization 90.4% ICU Level of Service 15	Approach LOS		Ф			В			В			В	
slay         14.2         HCM 2000 Level of Service           Capacity ratio         0.61         0.61           h (s)         56.8         Sum of lost time (s)           Utilization         90.4%         ICU Level of Service           15         16	slay         14.2         HCM 2000 Level of Service           Capacity ratio         0.61           h (s)         56.8         Sum of lost time (s)           Utilization         90.4%         ICU Level of Service           15         15	Intersection Summary												
Capacity ratio 0.61 Sum of lost time (s) h (s) 56.8 Sum of lost time (s) Utilization 90.4% ICU Level of Service 15	Capacity ratio 0.61 h (s) 56.8 Sum of lost time (s) Utilization 90.4% IOU Level of Service 15	HCM 2000 Control Delay			14.2	H	3M 2000	Level of S	Service		В			
h (s) 56.8 Sum of lost time (s) Utilization 90.4% ICU Level of Service 15	h (s) 56.8 Sum of lost time (s) Utilization 90.4% ICU Level of Service 15	HCM 2000 Volume to Capad	city ratio		0.61									
Utilization 90.4% ICU Level of Service 15	Utilization 90.4% ICU Level of Service 15 1CU Level of Service 15	Actuated Cycle Length (s)			56.8	જ	m of lost	time (s)			16.0			
Analysis Period (min) 15	Analysis Period (min) 15 c. Critical Lane Gruin	Intersection Capacity Utilizal	tion		90.4%	೨	U Level o	f Service			ш			
	c Ortical and Groun	Analysis Period (min)			15									

<sup>185</sup> Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

HCM Unsignalized Intersection Capacity Analysis <TOTAL 2036> Weekday PM Peak Hour 7: Metcalfe Street South & West Street

EBL EBT EBR WBL  44 140 14 15  9 140 14 15  0.83 0.83 0.83 0.98  11 169 17 15  105 194 186  4.1 4.1  2.2 2.2  9.9 9.9  9.9 9.9  1379 2.0 11  11 5.0 11  12 17  14 5 7 84  147 5 7 84  147 5 0.0 11  0.0 0.0 0.1  0.1 0.0 10.7 11.5  0.2 0.6 10.7 11.5  0.5 0.6 10.7 11.5  0.6 0.6 10.7 11.5  0.6 0.6 10.7 11.5  0.7 0.6 10.7 11.5  0.8 0.6 10.7 11.5  0.9 0.6 10.7 11.5		1		L	٨	٠	
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(m/s)  (verify)  (verify)  (m/s)  (verify)  (m/s)  (verify)  (veri	44 45	-	ŧ -	,	c	<b>}</b> <	ç
(Verint) 9 140 14 19 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	2 1	- ·			, c	D C	7 2
(m/s)  (m	14 CI	- 0	- ;	4	ກ	ъ (	17
(m/s)   0%   0.98   0.83   0.98   0	_		Stop			Stop	
(m/s)			%0			%0	
(m/s)  ge (veh)  veh)  None  veh)  Initial  Init	0.83 0.98	0.98 0.61	0.61	0.61	0.25	0.25	0.25
(m/s)  ge (veh)  li(m)  locked  locked	17 15	5 2	2	7	12	36	8
(veh)  (veh)  (veh)  (veh)  (veh)  (volume 194 186  (vol 194 198  (vol 194  (vol 194 198  (vol 194  (vol 194 198  (vol 194  (v							
(m/s)  yge (veh)  veh)  India  locked colume  intivol  mit vol  194  4.1  4.1  4.1  4.1  4.1  4.1  4.1							
yee (veh)    veh   None							
(veh)  veh)  loboked							
weth)  l(m)  l(m)  locked  loc							
(iii)   105   105   106   10							
M(m) 105  lobocked 194 186  mi vol 194 186  vol 194 186  vol 194 186  (c) 99 99 99  hh) 1379 1388  hh) 1379 2 1 138  locity 0.01 0.01 0.02 0.19  strictly 0.01 0.02 0.19  s							
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mi vol  vol 194 186  vol 4.1 4.1  4.1 4.1  4.1  4.1  4.1  4.1  4	186	523	454	178	429	430	192
mrivol 194 186 vol 4.1 4.1 4.11  2.2 2.2 2.2 8.9 99 99 99 1379 1389 64 57 12 11 15 2 12							
vol   194   186							
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hhh) 1379 99 99 99 99 99 99 99 99 99 99 99 99 9	4.1	7.1	6.5	6.2	7.1	6.5	6.2
2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2							
age Delay (seh/h) 1379 999 999 999 999 999 999 999 999 999	2.2	3.5	4.0	33	3.5	4.0	3.3
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tion, Lane #         EB1         WB1         NB1         SB1           ne Total         197         209         11         132           ne Left         11         15         2         12           ne Right         17         5         7         84           ne Copacity         0.01         0.01         0.01         0.02         0.19           ne Leopth 95th (m)         0.2         0.3         0.4         5         1.05         1.15           LOS         A         A         B         <	1388	390	512	998	523	208	820
ne Total 197 209 11 132 ne Left 1 1 5 2 12 ne Right 1 7 5 4 ne Right 1379 1388 643 685 ne to Capacity 0.011 0.01 0.02 0.19 ne Length 95th (m) 0.2 0.3 0.4 5.7 clo Delay (s) 0.5 0.6 10.7 11.5 noach Delay (s) 0.5 0.6 10.7 11.5 noach LOS 8 B B age Delay 3.4	NB 1						
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0.5 0.6 10.7 11.5 A A B B B 0.5 0.6 10.7 11.5 any 3.4	0.4						
A A B B B 0.5 0.6 10.7 11.5 B B B B B B B B B B B B B B B B B B B	10.7						
0.5 0.6 10.7 11.5 B B B B B B B B B B B B B B B B B B B	В						
B B 34	10.7						
3.4							
3.4							
	24.9% ICU Level	ICU Level of Service		⋖			
Analysis Period (min) 15	15						

185 Robinson Street, Community of Simcoe (Norfolk County), ON TransPlan Inc.

Queuing and Blocking Report

185 Robinson Street, Community of Simcoe (Norfolk County), ON

08-25-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB		
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	22.0	9.3	9.0		
Average Queue (m)	7.1	6.3	0.3		
95th Queue (m)	17.1	13.2	3.0	7.0	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Oneming Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	15.8	9.5	22.1	
Average Queue (m)	7.2	0.3	2.4	
95th Queue (m)	15.7	3.0	11.3	
Link Distance (m)	53.0	2.79	63.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Onening Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	IB SB	
Directions Served	LR	.R LT	
Maximum Queue (m)	9.0		
Average Queue (m)	0.8	.8 0.3	
95th Queue (m)	4.7	.7 3.0	
Link Distance (m)	100.6	.6 63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

7:27 am 05-01-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Movement			NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)			45.0	34.7	
Average Queue (m)			19.7	19.6	
95th Queue (m)		16.9	38.3	35.3	
Link Distance (m)	132.3	87.9	51.6	30.0	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement	WB	B	
Directions Served	LTR	LTR	
Maximum Queue (m)	15.4	9.1	
Average Queue (m)	0.8	3.0	
95th Queue (m)	0.9	6.6	
Link Distance (m)	220.7	59.8	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Queen Street North & West Street

Movement	æ	EB	WB	WB	B B	B	SB	SB	
Directions Served	П	TR	П	TR	7	TR	٦	TR	
Maximum Queue (m)	39.5	21.0	15.1	14.7	14.6	44.8	21.2	39.6	
Average Queue (m)	26.6	7.7	7.8	3.0	3.9	20.3	6.2	18.0	
95th Queue (m)	39.3	16.0	16.2	8.6	11.4	37.1	15.7	32.9	
Link Distance (m)	140.6	140.6	85.1	85.1		124.8		51.6	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)					23.0		27.0		
Storage Blk Time (%)						4	0	2	
Queuing Penalty (veh)						-	0	-	

7:27 am 05-01-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report

- (Existing) Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON

- (185 Robinson Street, Community of Simcoe (Norfolk County), ON

- (185 Robinson Street, Community of Simcoe (Norfolk County), ON

- (185 Robinson Street, Community of Simcoe (Norfolk County), ON

Movement	WB	SB	
Directions Served	LTR	LTR	
Maximum Queue (m)	9.8		
Average Queue (m)	0.3	5.1	
95th Queue (m)	2.8	11.5	
Link Distance (m)	216.9	59.8	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary Network wide Queuing Penalty: 2

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Queuing and Blocking Report

185 Robinson Street, Community of Simcoe (Norfolk County), ON

08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.5	15.6	28.3	22.9	
Average Queue (m)	5.3	7.8	5.6	2.0	
95th Queue (m)	12.6	15.5	13.7	11.9	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	
Directions Served	LTR	LTR	R LTR
Maximum Queue (m)	15.6	9.8	
Average Queue (m)	5.3	0.5	.5 1.7
95th Queue (m)	13.2	3.5	_
Link Distance (m)	53.0	2.79	.7 63.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Onening Benefity (veh)			

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	B SB	
Directions Served	LR	R LT	
Maximum Queue (m)	8.9		
Average Queue (m)	1.2	2 1.9	
95th Queue (m)	6.1	1 10.5	
Link Distance (m)	100.6	6 63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

5.48 am 05-08-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	8	WB	9	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.3	23.3	40.1	73.0	
Average Queue (m)	5.9	12.7	17.3	27.0	
95th Queue (m)	13.0	22.9	35.1	52.4	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement	WB	B	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.5	0.6	9.8	
Average Queue (m)	6.0	5.6	1.0	
95th Queue (m)	5.3	9.5	5.4	
Link Distance (m)	220.7	59.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Queen Street North & West Street

SB	TR	54.6	32.1	54.3	51.6	7	10		12	2
SB	٦	37.4	7.7	50.9				27.0	0	2
NB	TL	58.8	22.9	40.7	124.8				2	က
NB	٦	20.1	7.2	16.3				23.0	0	0
WB	TR	21.1	93	17.1	85.1					
WB	П	28.0	10.8	22.7	85.1					
EB	TR	22.6	2.0	13.4	140.6					
EB	П	48.2	22.4	41.9	140.6					
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)

5:48 am 05-08-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report

- (Existing) Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON

- (185 Robinson Street, Community of Simcoe (Norfolk County), ON

- (185 Robinson Street, Community of Simcoe (Norfolk County), ON

- (185 Robinson Street, Community of Simcoe (Norfolk County), ON

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	8.4	8.8	8.9	14.9	
Average Queue (m)	0.3	9.0	2.2	4.3	
95th Queue (m)	2.8	4.2	8.4	11.6	
Link Distance (m)	85.1	216.9	128.7	59.8	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary Network wide Queuing Penalty: 19

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Queuing and Blocking Report <Background 2026> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB		SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.5	9.3	9.0	
Average Queue (m)	4.3	6.7	9.0	
95th Queue (m)	11.5	13.0	4.1	
Link Distance (m)	59.3	118.1	65.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	16.5	9.3	22.2	0.6	
Average Queue (m)	7.2	1.5	2.7	0.3	
95th Queue (m)	14.2	7.1	11.7	3.0	
Link Distance (m)	53.0	2.79	63.4	120.9	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB	
Directions Served	LR	17	
Maximum Queue (m)	9.0	28.9	
Average Queue (m)	1.2	1.6	
95th Queue (m)	6.1	10.7	
Link Distance (m)	100.6	63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

 11:50 am 05-10-2024
 SimTraffic Report

 Trans-Plan Inc.
 Page 1

Queuing and Blocking Report <Background 2026> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Movement		WB	B B	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)		28.4	23.3	29.7	
Average Queue (m)		10.6	4.0	10.8	
95th Queue (m)		18.4	14.5	24.9	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Oneming Penalty (yeh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement	WB	B	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.5	15.4	8.6	
Average Queue (m)	6.0	2.3	0.3	
95th Queue (m)	5.3	9.4	2.9	
Link Distance (m)	220.7	29.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Queen Street North & West Street

SB	TR	34.8	20.4	36.0	51.6				3	_
SB	٦	14.2	4.0	11.3				27.0		
BB	TR	71.6	20.3	41.6	124.8				5	_
B	٦	8.0	3.4	9.6				23.0		
WB	TR	14.1	4.3	11.4	85.1					
WB	П	26.4	11.2	21.8	85.1					
EB	TR	20.9	93	16.7	140.6					
EB	17	40.1	25.3	36.2	140.6					
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)

 11:50 am 05-10-2024
 SimTraffic Report

 Trans-Plan Inc.
 Page 2

Queuing and Blocking Report - Background 2026> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	8	B SB
Directions Served	LTR	
Maximum Queue (m)	14.8	.8 14.6
Average Queue (m)	0.5	
95th Queue (m)	4.9	
Link Distance (m)	85.1	.1 59.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary
Network wide Queuing Penalty: 3

SimTraffic Report Page 3 11:50 am 05-10-2024 Trans-Plan Inc.

Queuing and Blocking Report <Background 2026> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.5	16.5	16.1	33.0	
Average Queue (m)	4.5	8.7	1.6	4.5	
95th Queue (m)	11.9	15.6	8.0	18.9	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	
Directions Served	LTR	LTR		
Maximum Queue (m)	15.0	9.1		
Average Queue (m)	5.3	9.0	0.6	
95th Queue (m)	13.1	4.2		
Link Distance (m)	53.0	2.79	63.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB	
Directions Served	LR	LT	
Maximum Queue (m)	9.0	8.4	
Average Queue (m)	1.6	0.3	
95th Queue (m)	7.2	2.8	
Link Distance (m)	100.6	63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

12:00 pm 05-10-2024 SimTraffic Report
Trans-Plan Inc. Page 1

Queuing and Blocking Report <Background 2026> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.3	22.2	48.9	48.7
Average Queue (m)	9.9	12.6	20.7	24.3
95th Queue (m)	12.8	20.5	38.2	43.4
Link Distance (m)	132.3	87.9	51.6	80.0
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement Directions Served Maximum Queue (m) Average Queue (m) 95th Queue (m) Link Distance (m) Lustream Blk Time (%) Queuing Penathy (veh) Storage Bay Dist (m)	WB LTR 15.0 0.8 5.9 5.9	NB LTR 9.1 3.1 10.0 59.8	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Queen Street North & West Street

Movement	EB	EB	WB	WB	BB	B B	SB	SB	
Directions Served	П	TR	ΙΊ	TR	7	TR	٦	TR	
Maximum Queue (m)	42.3	15.1	26.1	29.3	20.1	58.2	20.9	53.1	
Average Queue (m)	21.8	0.9	15.2	9.4	6.2	24.1	7.0	31.4	
95th Queue (m)	35.3	12.3	25.0	19.5	14.3	43.2	17.3	51.4	
Link Distance (m)	140.6	140.6	85.1	85.1		124.8		51.6	
Upstream Blk Time (%)								0	
Queuing Penalty (veh)								2	
Storage Bay Dist (m)					23.0		27.0		
Storage Blk Time (%)					0	7		7	
Queuing Penalty (veh)					0	က		3	

12:00 pm 05-10-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report <Background 2026> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	8	9	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	8.3	9.1	8.2	
Average Queue (m)	0.3	1.4	5.3	
95th Queue (m)	2.7	9.9	11.4	
Link Distance (m)	85.1	128.7	59.8	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary Network wide Queuing Penalty: 8

SimTraffic Report Page 3 12:00 pm 05-10-2024 Trans-Plan Inc.

Queuing and Blocking Report <Background 2031> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	15.7	20.5	9.0	27.0	
Average Queue (m)	0.9	7.8	8.0	4.8	
95th Queue (m)	14.1	15.4	4.9	17.8	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB		
Directions Served	LTR	LTR	R LTR	
Maximum Queue (m)	17.1	9.3	3 9.3	
Average Queue (m)	8.0	1.2	2 1.8	
95th Queue (m)	14.6	6.4	6.2	
Link Distance (m)	53.0	2.79	7 63.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Oriening Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB :
Directions Served	LR	17
Maximum Queue (m)	9.0	15.6
Average Queue (m)	2.0	
95th Queue (m)	8.2	
Link Distance (m)	100.6	63.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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 SimTraffic Report

 Trans-Plan Inc.
 Page 1

Queuing and Blocking Report <Background 2031> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

	9/	2	00	
MOVEILIEIT	ΔM	2	20	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	0.6	0.6	9.8	
Average Queue (m)	0.3	3.5	0.3	
95th Queue (m)	3.0	10.6	5.9	
Link Distance (m)	220.7	59.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Intersection: 6: Queen Street North & West Street

Movement Directions Served Maximum Queue (m) Average Queue (m) 95th Queue (m) Link Distance (m) 1 Upstream Bilt Time (%) Queuing Penalty (veh) Storage Bay Dist (m) Storage Bilt Time (%)	LT LT 48.2 29.6 45.1 140.6	EB TR 20.7 10.4 18.8 140.6	WB LT 15.7 8.1 16.3 85.1	WB TR 14.6 2.9 10.0 85.1	NB L 26.7 5.7 15.7 15.7	NB TT 57.1 21.9 42.0 124.8	SB L 16.6 4.7 13.1	SB TR 55.2 28.2 52.5 51.6 6	
					7	7		က	

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 Trans-Plan Inc.
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Oueuing and Blocking Report <Background 2031> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	EB	WB	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	8.5	9.8	8.2	
Average Queue (m)	0.3	9.0	4.5	
95th Queue (m)	2.8	4.1	11.1	
Link Distance (m)	85.1	216.9	59.8	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary Network wide Queuing Penalty: 14

SimTraffic Report Page 3 11:51 am 05-10-2024 Trans-Plan Inc.

Queuing and Blocking Report <Background 2031> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.5	22.2	9.5	23.1	
Average Queue (m)	2.7	10.6	2.1	3.0	
95th Queue (m)	12.9	18.8		13.1	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.3	9.3	16.7	
Average Queue (m)	2.0	9.0	1.5	
95th Queue (m)	12.3	4.4	8.0	
Link Distance (m)	53.0	2.79	63.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Onening Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	/B SB
Directions Served	LR	
Maximum Queue (m)	9.0	1,0 22.7
Average Queue (m)	0.9	
95th Queue (m)	5.3	
Link Distance (m)	100.6	1.6 63.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

12:01 pm 05-10-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report <Background 2031> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

EB WB NB SB	LTR	39.2 54.9	17.8 21.6	32.9	51.6	0				
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 (%)	Origina Danathy (yah)

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Intersection: 6: Queen Street North & West Street

Movement	EB	8	WB	WB	B B	e B	SB	SB	
Directions Served	П	TR	П	TR	7	TR	٦	TR	
Maximum Queue (m)	59.5	15.0	7.97	21.2	50.9	51.4	48.8	55.7	
Average Queue (m)	27.0	0.9	12.3	7.5	8.5	28.0	9.5	37.6	
95th Queue (m)	47.3	14.1	22.4	16.8	19.1	46.0	25.3	58.4	
Link Distance (m)	140.6	140.6	85.1	85.1		124.8		51.6	
Upstream Blk Time (%)							0	2	
Queuing Penalty (veh)							0	6	
Storage Bay Dist (m)					23.0		27.0		
Storage Blk Time (%)					0	10		14	
Queuing Penalty (veh)					-	9		7	

10:01 pm 05-10-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report <Background 2031> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	8.4	8.8	9.0	15.2	
Average Queue (m)	9.0	0.9	1.4	6.1	
95th Queue (m)	4.0	5.1	9.9	12.6	
Link Distance (m)	85.1	216.9	128.7	59.8	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary Network wide Queuing Penalty: 22

SimTraffic Report Page 3 12:01 pm 05-10-2024 Trans-Plan Inc.

Queuing and Blocking Report <Background 2036> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB		SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.5	15.7		21.8
Average Queue (m)	5.6	8.0		3.6
95th Queue (m)	12.7	13.7	3.7	13.1
Link Distance (m)	59.3	118.1	120.9	65.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Quening Penalty (veh)				

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	BB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	31.4	9.5	22.1	8.6
Average Queue (m)	7.4	0.3	4.6	0.3
95th Queue (m)	17.8	3.0	16.2	2.8
Link Distance (m)	53.0	2.79	63.4	120.9
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Onening Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	B SB
Directions Served	LR	۲
Maximum Queue (m)	8.9	
Average Queue (m)	6.0	
95th Queue (m)	5.2	2 6.1
Link Distance (m)	100.6	6 63.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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 SimTraffic Report

 Trans-Plan Inc.
 Page 1

Queuing and Blocking Report <Background 2036> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	EB	WB	B	SB	
Directions Served	LT	LTR	F	TR	
Maximum Queue (m)	21.4	22.1	45.9	12.9	
Average Queue (m)	5.9	11.7	22.2	2.4	
95th Queue (m)	14.2	18.6	40.6	12.4	
Link Distance (m)	132.3	87.9	51.6	0.0	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Onening Penalty (veh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement	WB	WB NB	
Directions Served	LTR	LTR	
Maximum Queue (m)	93	9.1	
Average Queue (m)	1.2	5.6	
95th Queue (m)	6.3	9.3	
Link Distance (m)	220.7	59.8	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Queen Street North & West Street

SB	TR	55.4	28.1	48.8	51.6	_	4		8	4
SB	٦	25.6	9.9	15.4				27.0	0	-
NB NB	TR	73.9	27.4	49.6	124.8				10	က
BB	٦	14.4	5.2	12.9				23.0		
WB	TR	14.7	5.3	13.2	85.1					
WB	П	16.1	10.4	17.9	85.1					
EB	TR	54.4	11.3	29.0	140.6					
EB	ΙΊ	71.0	34.0	56.9	140.6					
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)

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 Trans-Plan Inc.
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Queuing and Blocking Report <Background 2036> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	WB	SB	
Directions Served	LTR	LTR	
Maximum Queue (m)	8.6	8.2	
Average Queue (m)	0.3	5.9	
95th Queue (m)	2.8	11.8	
Link Distance (m)	216.9	59.8	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary Network wide Queuing Penalty: 13

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11:51 am 05-10-2024 Trans-Plan Inc.

Queuing and Blocking Report <Background 2036> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-3024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.5	23.7	28.4	21.8	
Average Queue (m)	5.2	9.7	3.3	4.0	
95th Queue (m)	12.3	18.7	16.1	14.8	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.3	8.5	22.2	
Average Queue (m)	4.4	0.3	0.7	
95th Queue (m)	11.7	2.8	7.3	
Link Distance (m)	53.0	2.79	63.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Onening Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	re se
Directions Served	LR	.R LT
Maximum Queue (m)	8.9	.9 9.1
Average Queue (m)	1.8	
95th Queue (m)	9.7	.6 4.3
Link Distance (m)	100.6	.6 63.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

12:02 pm 05-10-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report <Background 2036> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	28.0	48.2	54.0	80.0	
Average Queue (m)	10.3	17.0	27.7	30.7	
95th Queue (m)	19.4	29.9	51.5	59.8	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)			-	0	
Queuing Penalty (veh)			7	-	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Orionina Donathy (such)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement Directions Served Maximum Queue (m) Average Queue (m) 95th Queue (m) Link Distance (m) Uspricam Blk Time (%)	WB LTR 22.9 2.8 11.5 220.7	NB LTR 9.1 3.5 10.6 59.8	
Queuing Penalty (veh) Storage Bay Dist (m) Storage Blk Time (%) Queuing Penalty (veh)			

Intersection: 6: Queen Street North & West Street

wamant	ä	ä	a/N	a/N	ā	ä	g	g	
	רח	LD	UV.	W	מאו	ONI	OD.	OO.	
	5	TR	5	٣	_	¥	_	Æ	
laximum Queue (m)	46.9	20.1	23.3	27.5	14.5	94.7	51.3	55.5	
verage Queue (m)	25.1	7.2	13.6	10.1	8.2	27.1	8.5	37.3	
	40.4	15.1	22.0	20.0	14.6	97.6	25.4	56.4	
	140.6	140.6	85.1	85.1		124.8		51.6	
Upstream Blk Time (%)							0	2	
(ueuing Penalty (veh)							0	တ	
orage Bay Dist (m)					23.0		27.0		
storage Blk Time (%)						6	-	14	
(veh)						22	4	9	

12:02 pm 05-10-2024 SimTraffic Report Trans-Plan Inc. Page 2

Queuing and Blocking Report <Background 2036> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-25-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	8	WB	8	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	8.5		8.9	8.2	
Average Queue (m)	0.3		9.0	5.9	
95th Queue (m)	2.8	5.6	4.2	11.7	
Link Distance (m)	85.1	216.9	128.7	59.8	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary Network wide Queuing Penalty: 27

SimTraffic Report Page 3 12:02 pm 05-10-2024 Trans-Plan Inc.

Queuing and Blocking Report <TOTAL 2026> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR LTR	LTR	
Maximum Queue (m)	9.5	15.6	9.1	18.8	
Average Queue (m)	9.9	7.7	0.3	2.1	
95th Queue (m)		14.5	3.0	12.2	
Link Distance (m)	59.3	118.1	120.9	15.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Quening Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	BB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	16.4	22.2	15.6	15.5	
Average Queue (m)	9.0	9.0	1.1	1.4	
95th Queue (m)	14.2	17.9	7.0	7.6	
Link Distance (m)	53.0	2.79	63.4	120.9	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Onening Penalty (veh)					

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB	
Directions Served	LR	17	
Maximum Queue (m)	0.6	9.2	
Average Queue (m)	2.4	0.3	
95th Queue (m)	8.8	3.0	
Link Distance (m)	100.6	63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Queuing and Blocking Report <TOTAL 2026> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 4: Queen Street North & Robinson Street

Movement Directions Served Maximum Queue (m) Average Queue (m) 95th Queue (m) Link Distance (m)	EB LTR 15.2 7.0 13.9	WB LTR 21.6 9.4 16.9 87.9	NB LTR 42.2 13.2 28.2 51.6	SB LTR 65.1 21.6 46.8 80.0	
Upstream Blk Time (%) Queuing Penalty (veh) Storage Bay Dist (m) Storage Blk Time (%)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

			ı	
Movement	WB	æ	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.5	15.5	8.6	
Average Queue (m)	6.0	4.6	9.0	
95th Queue (m)	5.3	12.4	4.1	
Link Distance (m)	220.7	59.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Queen Street North & West Street

Movement	8	B	WB	WB	æ	æ	SB	SB	
Directions Served	П	TR	П	TR	٦	TR	٦	TR	
Maximum Queue (m)	65.8	19.4	26.5	8.2	14.4	45.9	15.6	39.5	
Average Queue (m)	28.4	7.1	10,3	3.4	4.5	20.5	5.3	24.4	
95th Queue (m)	20.0	14.2	19.6	8.6	13.1	37.1	13.0	37.5	
Link Distance (m)	140.6	140.6	85.1	85.1		124.8		51.6	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)					23.0		27.0		
Storage Blk Time (%)						9		5	
Queuing Penalty (veh)						7		2	

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Queuing and Blocking Report <TOTAL 2026> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	EB	WB		
Directions Served	LTR	LTR	R LTR	
Maximum Queue (m)	8.3	8.8		
Average Queue (m)	0.3	9.0		
95th Queue (m)	2.7	4.0	.0 11.9	
Link Distance (m)	85.1	216.9	.9 59.8	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary Network wide Queuing Penalty: 4

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Queuing and Blocking Report <TOTAL 2031> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB			SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	16.6			27.6	
Average Queue (m)	6.7			2.5	
95th Queue (m)	15.5			13.1	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	BB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	16.3	15.5	21.6	22.3
Average Queue (m)	6.9	6.2	3.6	2.5
95th Queue (m)	15.1	13.7	13.7	11.6
Link Distance (m)	53.0	2.79	63.4	120.9
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB	
Directions Served	LR	17	
Maximum Queue (m)	8.9	16.6	
Average Queue (m)	1.2	1,4	
95th Queue (m)	6.1	8.3	
Link Distance (m)	100.6	63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Queuing and Blocking Report <TOTAL 2031> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 4: Queen Street North & Robinson Street

Directions Served         LTR         LTR
(ueuring Penalty (veh)

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement	WB	B B	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.5	9.1	9.8	
Average Queue (m)	1.5	1.8	2.9	
95th Queue (m)	7.1	7.7	9.5	
Link Distance (m)	220.7	59.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Queen Street North & West Street

Movement EB EB WB WB NB NB SB SB Directions Served LT TR LT TR L TR L TR Maximum Queue (m) 72.2 35.8 15.1 14.1 19.7 52.7 37.9 53.8 Average Queue (m) 34.9 9.5 7.8 4.2 5.1 24.4 9.9 26.3 38.6 Average Queue (m) 54.6 20.4 14.6 11.2 13.1 43.2 25.4 44.1 Link Distance (m) 140.6 140.6 85.1 85.1 124.8 51.6 Upstream Bit rime (%) 28.0 Queuing Penalty (veh) 28.0 Groage Bay Dist (m) 28.0 38 1 8 25.0 Queuing Penalty (veh) 28.0 Groage Bay Dist (m) 28.0 27.0 8 1 8 20.0 Queuing Penalty (veh) 29.0 Groage Bay Dist (m) 29.0 2 4 3	٠	1	1	•		!	!	į	į	
LT TR LT TR L TR L TR L TR L TR L TR L	ent	EB	EB	MB	WB	NB	NB	SB	SB	
72.2 35.8 15.1 14.1 19.7 52.7 37.9 34.9 9.5 7.8 4.2 5.1 24.4 9.9 54.6 20.4 14.6 11.2 13.1 43.2 25.4 140.6 140.6 85.1 85.1 124.8 5.1 (9)	ins Served	⊣	Ħ	5	TR	_	Ħ	_	エ	
34.9 9.5 7.8 4.2 5.1 24.4 9.9 54.6 20.4 14.6 11.2 13.1 43.2 25.4 140.6 140.6 85.1 85.1 124.8 6) 23.0 27.0 0 8 1	ım Queue (m)	72.2	35.8	15.1	14.1	19.7	52.7	37.9	53.8	
546 204 14.6 11.2 13.1 43.2 25.4 [40.6 140.6 85.1 85.1 124.8 [7.4] ) 23.0 23.0 27.0 [7.4]	e Queue (m)	34.9	9.5	7.8	4.2	5.1	24.4	6.6	26.3	
(4) (40.6 140.6 85.1 85.1 124.8 (4) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5	nene (m)	54.6	20.4	14.6	11.2	13.1	43.2	25.4	44.1	
6) 23.0 0 8 0 2	stance (m)	140.6	140.6	85.1	85.1		124.8		51.6	
23.0 0 8 0 2	am Blk Time (%)								0	
23.0 8 0 8	ig Penalty (veh)								-	
e Blk Time (%) 0 8 1 8 1 8 19 Penatik (veh) 0 2 4 3	e Bay Dist (m)					23.0		27.0		
ig Penalty (veh) 0 2 4 3	e Blk Time (%)					0	∞	-	œ	
	ig Penalty (veh)					0	7	4	က	

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Queuing and Blocking Report <TOTAL 2031> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	EB	SB	
Directions Served	LTR	LTR	
Maximum Queue (m)	8.5	13.9	
Average Queue (m)	0.3	5.5	
95th Queue (m)	2.8	12.2	
Link Distance (m)	85.1	59.8	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary Network wide Queuing Penalty: 10

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Queuing and Blocking Report <TOTAL 2036> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	SB	
Directions Served	LTR	LTR LTR	LTR	
Maximum Queue (m)	9.5	16.5	15.4	
Average Queue (m)	2.7	9.6	3.4	
95th Queue (m)	12.8	14.2	11.6	
Link Distance (m)	59.3	118.1	65.4	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Quening Penalty (veh)				

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	15.6	9.3	22.2	16.6	
Average Queue (m)	7.1	6.1	3.7	2.5	
95th Queue (m)	14.9	13.2	15.2	11.3	
Link Distance (m)	53.0	2.79	63.4	120.9	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	3 SB
Directions Served	LR	s LT
Maximum Queue (m)	14.6	
Average Queue (m)	2.1	1 3.6
95th Queue (m)	9.6	6 17.1
Link Distance (m)	100.6	6 63.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Queuing and Blocking Report <TOTAL 2036> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	34.4	28.7	55.2	64.7	
Average Queue (m)	9.1	12.2	27.8	24.2	
95th Queue (m)	21.9	20.1	48.7	46.5	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			7		
Storage Bay Dist (m)					
Storage Blk Time (%)					
Outring Donothy (such)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Intersection: 6: Queen Street North & West Street

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Queuing and Blocking Report <TOTAL 2036> Weekday AM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	EB	WB		
Directions Served	LTR	LTR	R LTR	
Maximum Queue (m)	9.7	8.4		
Average Queue (m)	0.5	0.3	.3 6.4	
95th Queue (m)	3.3	2.8	.8 11.8	
Link Distance (m)	85.1	216.9	.9 59.8	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary Network wide Queuing Penalty: 9

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Queuing and Blocking Report <TOTAL 2026> Weekday PM Peak Hour 185 Robinson Street, Community of SImcoe (Norfolk County), ON 08-29-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.5	22.2	28.8	33.3	
Average Queue (m)	4.8	8.1	3.5	4.1	
95th Queue (m)	11.9	16.7	16.1	18.1	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuina Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	16.3	22.3	9.3	22.6	
Average Queue (m)	5.2	9.1	6.0	2.7	
95th Queue (m)	13.2	16.8	5.4	13.0	
Link Distance (m)	53.0	2.79	63.4	120.9	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	B SB
Directions Served	LR	
Maximum Queue (m)	0.6	_
Average Queue (m)	2.2	2 5.3
95th Queue (m)	8.4	
Link Distance (m)	100.6	6 63.4
Upstream Blk Time (%)		0
Queuing Penalty (veh)		_
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Queuing and Blocking Report <TOTAL 2026> Weekday PM Peak Hour 185 Robinson Street, Community of SImcoe (Norfolk County), ON 08-29-2024

Intersection: 4: Queen Street North & Robinson Street

	ł	1		į	
Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	14.9	22.2	54.5	82.0	
Average Queue (m)	9.9	13.8	26.2	33.9	
95th Queue (m)	13.6	22.1	49.3	9.07	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)			0	7	
Queuing Penalty (veh)			7	9	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Intersection: 6: Queen Street North & West Street

EB WB WB NB SB	LT TR L TR L TR	18.3 28.6 29.8 20.8 65.4 51.3	5.1 12.1 9.2 5.2 22.8 9.1	12.6 21.1 18.0 13.9 44.5 28.8	140.6 85.1 85.1 124.8	0 2	2 0	23.0 27.0	0 8 12	0 4 5
					`					
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)

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Queuing and Blocking Report <TOTAL 2026> Weekday PM Peak Hour 185 Robinson Street, Community of SImcoe (Norfolk County), ON 08-29-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	NB	SB	
Directions Served	LTR	LTR	
Maximum Queue (m)	9.0	8.2	
Average Queue (m)	2.0	4.8	
95th Queue (m)	7.9	11.2	
Link Distance (m)	128.7	59.8	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary Network wide Queuing Penalty: 29

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Queuing and Blocking Report <TOTAL 2031> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB			SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.5			34.2	
Average Queue (m)	3.9			5.5	
95th Queue (m)	11.2			19.4	
Link Distance (m)	59.3		120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	BB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	16.7	15.0	21.9	21.5	
Average Queue (m)	5.7	8.0	2.8	3.4	
95th Queue (m)	13.8	14.4	11.9	13.6	
Link Distance (m)	53.0	2.79	63.4	120.9	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB	
Directions Served	LR	LT	
Maximum Queue (m)	9.0	39.5	
Average Queue (m)	2.6	2.0	
95th Queue (m)	9.3	15.1	
Link Distance (m)	100.6	63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Queuing and Blocking Report < TOTAL 2031> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	88	WB	BB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	28.5	28.7	40.7	81.9	
Average Queue (m)	8.0	14.1	18.5	30.7	
95th Queue (m)	18.6	26.4	38.5	55.6	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				_	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

Movement	WB	B	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	16.4	9.1	8.6	
Average Queue (m)	2.6	2.6	4.0	
95th Queue (m)	10.6	9.3	1.1	
Link Distance (m)	220.7	59.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Queen Street North & West Street

EB WB WB NB SB	LT TR L TR L TR	35.8 32.9 30.1 21.0 50.9 22.9	76 14.2 10.5 7.4 22.5 7.2	18.9 24.8 21.0 17.9 40.4 16.5	140.6 85.1 85.1 124.8	2	1	23.0 27.0	0 6 0 13	Ф 0 e 0
					ľ					
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)

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Queuing and Blocking Report <TOTAL 2031> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	EB	WB	NB		
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	8.5		9.1		
Average Queue (m)	0.7	0.3	6.0	9.6	
95th Queue (m)	4.3	2.8	5.2	12.3	
Link Distance (m)	85.1	216.9	128.7	59.8	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary Network wide Queuing Penalty: 21

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Queuing and Blocking Report <TOTAL 2036> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 1: Queen Street North & Union Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	15.4	16.9	20.7	57.2	
Average Queue (m)	4.4	9.7	3.4	7.6	
95th Queue (m)	12.4	14.3	13.4	29.8	
Link Distance (m)	59.3	118.1	120.9	65.4	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Queen Street North & Marshall Lane/Site Access 3

Movement	EB	WB	BB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	9.3	21.6	16.8	36.0	
Average Queue (m)	5.6	8.9	1.2	3.8	
95th Queue (m)	12.7	15.3	7.2	17.0	
Link Distance (m)	53.0	2.79	63.4	120.9	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Queen Street North & Site Access 2

Movement	WB	SB	
Directions Served	LR	LT	
Maximum Queue (m)	9.0	9.2	
Average Queue (m)	1.7	0.3	
95th Queue (m)	7.5	3.0	
Link Distance (m)	100.6	63.4	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Queuing and Blocking Report <TOTAL 2036> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024

Intersection: 4: Queen Street North & Robinson Street

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	33.8	32.9	36.0	72.9	
Average Queue (m)	11.6	17.9	22.9	35.9	
95th Queue (m)	26.3	28.8	36.1	61.8	
Link Distance (m)	132.3	87.9	51.6	80.0	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Metcalfe Street South/Site Access 1 & Robinson Street

		н		
Movement	WB	æ	SB	
Directions Served	LTR	LTR	LTR	
Maximum Queue (m)	9.5	0.6	8.6	
Average Queue (m)	1.5	5.6	2.3	
95th Queue (m)	6.9	9.3	8.5	
Link Distance (m)	220.7	59.8	35.9	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Queen Street North & West Street

	TR				51.6	က	15		16	7
	٦							27.0	0	2
	TR				124.8				7	5
	٦							23.0	0	_
WB	TR	27.7	10.4	19.9	85.1					
	П									
EB	TR	36.4	7.5	20.4	140.6					
EB	L	40.6	22.3	38.9	140.6					
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)

10:27 pm 05-10-2024 SimTraffic Report Trans-Plan Inc.

Queuing and Blocking Report <TOTAL 2036> Weekday PM Peak Hour 185 Robinson Street, Community of Simcoe (Norfolk County), ON 08-29-2024 Intersection: 7: Metcalfe Street South & West Street

Movement	留		9	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (m)	8.4		9.0	8.2	
Average Queue (m)	0.3	0.3	<del>-</del> -	2.0	
95th Queue (m)	2.8	2.6	0.9	11.3	
Link Distance (m)	85.1	216.9	128.7	59.8	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary Network wide Queuing Penalty: 30

SimTraffic Report Page 3 12:27 pm 05-10-2024 TransPlan Inc.



# APPENDIX D

Level of Service Definitions

# LEVEL OF SERVICE ANALYSIS AT SIGNALIZED INTERSECTIONS

To assist in clarifying the arithmetic analysis associated with traffic engineering, it is often useful to refer to "Level of Service". The term Level of Service implies a qualitative measure of traffic flow at an intersection. It is dependent upon vehicle delay and vehicle queue lengths at the approaches. Specifically, Level of Service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. The following table describes the characteristics of each level:

Level of Service	<u>Features</u>	Stopped Delay per Vehicle (sec)
A	At this level of service, almost no signal phase is fully utilized by traffic. Very seldom does a vehicle wait longer than one red indication. The approach appears open, turning movements are easily made and drivers have freedom of operation.	<u>(3€C)</u> ≤ 5.0
В	At this level, an occasional signal phase is fully utilized and many phases approach full use. Many drivers begin to feel somewhat restricted within platoons of vehicles approaching the intersection.	$> 5.0 \text{ and} \le 15.0$
С	At this level, the operation is stable though with more frequent fully utilized signal phases. Drivers feel more restricted and occasionally may have to wait more than one red signal indication, and queues may develop behind turning vehicles. This level is normally employed in urban intersection design.	> 15.0 and ≤ 25.0
D	At this level, the motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough cycles with lower demand to permit occasional clearance of developing queues and prevent excessive backups.	> 25.0 and $\leq$ 40.0
Е	At this level, capacity is reached. There are long queues of vehicles waiting upstream of the intersection and delays to vehicles may extend to several signal cycles.	> 40.0 and <u>&lt;</u> 60.0
F	At this level, saturation occurs, with vehicle demand exceeding the available capacity.	> 60.0

# LEVEL OF SERVICE ANALYSIS AT UNSIGNALIZED INTERSECTIONS $^{(1)}$

The term "level of service" implies a qualitative measure of traffic flow at an intersection. It is dependent upon the vehicle delay and vehicle queue lengths at approaches. The level of service at unsignalized intersections is often related to the delay accumulated by flows on the minor streets, caused by all other conflicting movements. The following table describes the characteristics of each level.

Level of Service	Features
A	Little or no traffic delay occurs. Approaches appear open, turning movements are easily made, and drivers have freedom of operation.
В	Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation.
C	Average traffic delays occur. Operations are generally stable, but drivers emerging from the minor street may experience difficulty in completing their movement. This may occasionally impact on the stability of flow on the major street.
D	Long traffic delays occur. Motorists emerging from the minor street experience significant restriction and frustration. Drivers on the major street will experience congestion and delay as drivers emerging from the minor street interfere with the major through movements.
Е	Very long traffic delays occur. Operations approach the capacity of the intersection.
F	Saturation occurs, with vehicle demand exceeding the available capacity. Very long traffic delays occur.

<sup>(1)</sup> Highway Capacity Manual - Special Report No. 209, Transportation Research Board, 1985.



# APPENDIX E

Zoning By-laws of Norfolk County, Excerpts

## 4.5 Parking of *Vehicles* in Residential *Zones*

The parking of *vehicles* in residential *Zones* shall be subject to the following:

- a) not more than one (1) *vehicle* per *dwelling unit* shall be a *vehicle* used for commercial purposes;
- b) such commercial *vehicles* shall not exceed a height of 2.2 metres or a length of 6.7 metres;
- c) recreational vehicles, trailers, and vehicles that do not have a current licence plate, shall be prohibited from parking continuously in any required front yard or required exterior side yard.

# 4.6 Parking for Multiple Uses

When a *building*, *structure* or *lot* accommodates more than one (1) type of use, the *parking space* requirement for such *building*, *structure* or *lot* shall be the sum of the requirements for the separate uses thereof.

# 4.7 Requirements for Loading Spaces

Where loading docks are provided on a *lot*, a *loading space* for each loading dock shall have a minimum width of 3 metres and a depth of 10 metres, and sufficient space shall be provided on the same *lot* for the manoeuvring of *vehicles* using the loading docks. Such manoeuvring space shall not utilize any *required parking space*.

## 4.8 Requirements for Stacking Spaces

Where a *restaurant* incorporates a drive-through or pick up window, a sufficient number of stacking spaces shall be provided for *vehicles* waiting to be served from the drive-through or pick up window.

# 4.9 Number of Parking Spaces

Any *building*, *structure* or use shall have *parking spaces* provided and maintained in accordance with the following:

	<u>Type of Use</u>	Minimum Requirement
	Residential	
a)	single detached, semi-detached,	2 parking spaces for each dwelling unit
	duplex, tri-plex, four-plex,	
	townhouse dwellings and	
	vacation home [8-Z-2017]	
b)	apartment dwelling[8-Z-2017]	1.5 parking spaces for each dwelling unit
c)	dwelling unit in a non-	1 parking space for each dwelling unit
	residential building	
d)	boarding or lodging house	2 parking spaces for each dwelling unit plus 1
		parking space for each room for boarders
e)	accessory residential dwelling	1 parking space in addition to those required for
	unit	the primary residential dwelling unit use

	Type of Use	Minimum Requirement
f)	Visitor Parking [8-Z-2017] All apartment dwellings; and duplex dwellings, tri-plex dwellings, four-plex dwellings, townhouse dwellings or single-detached or semi-detached dwellings as part of a condominium development or when they abut a private road [27-Z-2020].	1 visitor space for every 3 dwelling units
g)	Non-residential  animal hospital or animal	1 parking space for every 25 square metres of
h)	kennel arena, auditorium, gymnasium, assembly hall	usable floor area 1 parking space for every 8 fixed seats or stadium, skating rink, or for every 10 square metres of usable floor area where there are no fixed seats
i)	auction centre	1 parking space for every 10 square metres of usable floor area
j)	bar or night club	1 parking space for every 5 square metres of usable floor area
k)	bed & breakfast	1 parking space per room for guests
1)	billiard or pool room	1 parking space for every 10 square metres of usable floor area
m)	bowling alley	2 parking spaces for each bowling lane
n)	college, university or	1 parking space for every student enrolled full-
	technical institutions	time for day courses
o)	curling rink	10 parking spaces per curling sheet
p)	dance hall or banquet hall	1 parking space for every 10 square metres of usable floor area
q)	dry cleaning distribution station	2 parking spaces
r)	farm produce outlet	1 parking space for every 10 square metres of usable floor area
s)	financial institution	1 parking space for every 15 square metres of usable floor area
t)	funeral home	1 parking space for every 10 square metres of
		public assembly area
u)	group home, retirement home [7-Z-2018]	3 parking spaces per bed
v)	golf course	2 parking spaces per hole plus 1 parking space for every 10 square metres of a club house restaurant and lounge floor area
w)	home occupation and home industry excluding an office of a health service practitioner	1 parking space plus 1 additional parking space for each employee
x)	hospital	1 parking space for each bed at rated capacity
y)	hotel	1 <i>parking space</i> for each <i>hotel</i> room plus the applicable requirement contained <i>herein</i> for other <i>hotel</i> uses
z)	industrial establishment	1 parking space for every 90 square metres of

Type of Use including Cannabis Production and Processing [25-Z-2018]

Minimum Requirement usable floor area

aa)	laundromat	1 parking space for every 4 washing and drying machines
bb)	liquor or beer store	12 parking spaces
cc)	long-term care facility	1 parking space for every 4 patient beds
dd)	medical or dental <i>clinic</i> , and office of a health service practitioner as a <i>home</i> occupation	1 parking space for every 15 square metres of usable floor area [66-Z-2018]
ee)	movie and other theatres	1 parking space for every 6 seats
ff)	office	1 <i>parking space</i> for every 30 square metres of <i>usable floor area</i>
gg)	Personal service shop	1 parking space for every 20 square metres of usable floor area
hh)	place of worship	1 parking space for every 8 seats or 5 metres of pew space or every 10 square metres of usable
ii)	private club	floor area where there are no seats or pews 1 parking space for every 10 square metres of usable floor area, or where applicable in accordance with the requirements for a bar or
jj)	restaurant	night club, whichever is greater 1 parking space for every 10 square metres of
11\		usable floor area
kk)	restaurant, fast food with drive- through	1 parking space for every 10 square metres of usable floor area
11)	restaurant, fast food without drive through	1 parking space for every 8 square metres of usable floor area
mm)	restaurant, outdoor patio	1 parking space per every 4 seats
nn)	restaurant, take-out	2 parking spaces
00)	retail store or merchandise service shop	1 parking space for every 30 square metres of usable floor area
pp)	school, elementary	1.5 <i>parking spaces</i> per classroom including laboratories, libraries and workshops
qq)	school, secondary	5 parking spaces per classroom including laboratories, libraries and workshops
rr)	school, trade	1 parking space for every student enrolled full-
	adult education	time for day courses
ss)	shopping plaza with three (3) or more units	1 <i>parking space</i> for every 20 square metres of <i>usable floor area</i>
tt)	warehouse or wholesale establishment	1 parking space for every 180 square metres of usable floor area
uu)	other non-residential uses	1 parking space for every 35 square metres of usable floor area
Wh	nere the calculation for the purpos	es of meeting this provision results in a partial

Where the calculation for the purposes of meeting this provision results in a partial *parking space*, a full *parking space* shall be provided for the partial space.



# **The Corporation of Norfolk County**

By-Law \_\_-Z-2024

Being a By-Law to Amend Zoning By-Law 1-Z-2014, as amended, for property described as 185 Robinson Street, Simcoe, Norfolk County.

**WHEREAS** Norfolk Council is empowered to enact this By-Law, by virtue of the provisions of Section 34 and 36(1)(Holding) of the *Planning Act, R.S.O. 1990, CHAPTER P.13*, as amended;

AND WHEREAS this By-Law conforms to the Norfolk County Official Plan.

**NOW THEREFORE** the Council of The Corporation of Norfolk County hereby enacts as follows:

- 1. That Schedule A of By-Law 1-Z-2014, as amended, is hereby further amended by changing the zoning of the subject lands identified on Schedule A (attached to and forming part of this By-Law) from R6 Special Provision Site Specific 14.664 and 14.713 and R6(H) *Zone* to R6(H) Special Provision Site Specific 14.XXX *Zone*;
- 2. That Schedule A of By-law 1-Z-2014, as amended, is hereby further amended by amending the CBD Special Provision Site Specific 14.812 Zone;
- That Schedule A of By-Law 1-Z-2014, as amended, is hereby further amended by delineating the lands identified as Part 1 and Part 2 of the subject lands on Schedule A (attached to and forming part of this By-Law) as having reference to Subsection 14.XXX;
- 4. That Schedule 14.XXX, (attached to and forming part of this By-Law) be included and form part of By-Law 1-Z-2014;
- 5. That Subsection 14 Special Provisions is hereby further amended by adding the following:
  - 14.XXX In addition to the uses *permitted* in the R6 *Zone*, the following uses will be permitted:
    - a) Retail Store or Merchandise Service Shop;

b) Office.

14.XXX In lieu of the corresponding provisions in the R6 *Zone*, the following shall apply:

- a) Minimum rear yard 3.5 metres;
- b) Maximum FAR for 8 Storey Building 2.5 FAR (17, 820 sq.m.);
- c) Width of parking space for vehicle parked with wall or fence adjacent 3 metres;
- d) Minimum Step Back of Upper Floors 1.6m at the 8<sup>th</sup> floor from the 7<sup>th</sup> floor;
- e) Any other Site-Specific provisions to be included to permit the proposal...
- 7. That Subsection 14.812 Special Provisions is hereby further amended by deleting 14.812(d) and replacing with the following:
  - a) Minimum number of parking spaces one hundred and fifty-eight (158).
- 8. That the existing holding (H) provision applicable to the subject lands remain in place and shall be amended with additional provisions related to the adequate municipal servicing of the Subject Property to the satisfaction of Norfolk County as well as the submission of a new RSC to the satisfaction of Norfolk County.
- 9. That the effective date of this By-Law shall be the date of passage thereof.

ENACTED AND PASSED this date day of month, 2024.	
	Mayor
	County Clerk

# **Explanation of the Purpose and Effect of**

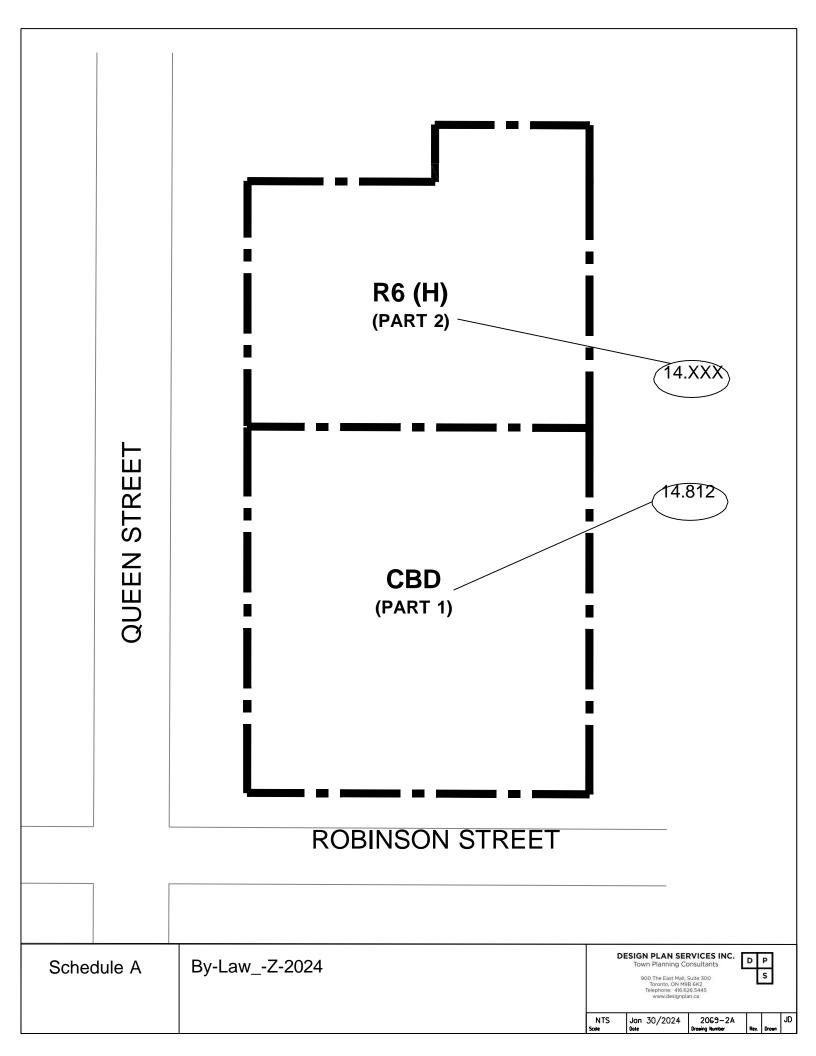
By-Law \_\_-Z-2024

This By-Law affects a parcel of land described as Block 68, Registered Plan 182 including Part 1 and Part 3, Plan 37R-10794, Town of Simcoe, Norfolk County.

The purpose of this By-Law is to change the zoning on the subject lands from R6 Special Provision Site Specific 14.664 and 14.713 and R6(H) Zone to R6(H) Special Provision Site Specific 14.XXX Zone. This By-law will also amend CBD Special Provision Site Specific 14.812 Zone.

An existing holding "(H)" provision applicable to the subject lands is being amended with additional holding provisions related to site servicing and the submission of a new RSC.

This By-law will remove the existing Special Provision Site Specific Zones (14.713 and 14.664) which are applicable to the subject lands and will also amend the existing Special Provision Site Specific 14.812 Zone prior to the enactment of this By-law.





Fabian Serra Planner **Development and Cultural Services** Planning and Development Division 185 Robinson Street, Simcoe, Ontario, N3Y 5L6

SERVICES

DESIGN PLAN

PLANNING

August 30th, 2024

DPS File: 2069

# PLANNING JUSTIFICATION REPORT ADDENDUM PROPOSED ZONING BY-LAW AMENDMENT FOR 8-STOREY MIXED-USE BUILDING

#### **Background**

A pre-consultation meeting was held on April 22nd, 2020 with County staff to assess the requirements for the application. A public meeting was held on April 7th, 2021 and comments from the public as well as County Staff and other commenting agencies/departments have been received since that public meeting. A second public meeting was held October 4th, 2023 and additional comments from the public, County Staff, County Council and other commenting agencies/departments have been received since that second public meeting. A Council meeting was held on July 16th, 2024 for Council to make a decision on the proposed Zoning By-law Amendment application. Council granted a deferral of the application to the October 16th, 2024 Council meeting, in order to allow for more time for us to address comments received from County Council, County Staff, as well as the public. The comments received have been taken into consideration and the plans and submission materials have been revised/updated to address all comments received as best as possible.

The proposal has been revised on numerous occasions and based on all the comments and feedback received to-date, the proposal has been revised to an 8-storey mixed-use building consisting of only residential dwelling units and retail as well as office uses on the ground floor. Further, a significant revision that is reflected in the latest proposal is the addition of more parking spaces such that the proposal is now compliant with the minimum required number of parking spaces.

#### **Site and Area Description:**

The Subject Property is located within Norfolk County, north of Robinson Street, west of Norfolk Street North, south of Queensway West and east of Queen Steet North. The Subject Property has a total lot area of 1.70 hectares and a frontage of approximately 161.84 metres of frontage on Queen Street North. The legal description of the Subject Property is "Block 68, Registered Plan 182 including Part 1 and Part 3, Plan 37R-10794". The proposal includes severing the existing lot into two separate lots however, the severance application will be progressed following approval of the proposed Zoning By-law Amendment, should Council decide to approve the Zoning By-law Amendment application. A Site Plan Application will be required as well and will be dealt with at a later date, following a decision on the proposed Zoning By-law Amendment application.

The Subject Property is currently occupied by a single 3-storey mixed-use building and an at-grade parking lot located on the southern portion of the Subject Property. It is currently designated as "Urban Residential" and "Downtown" in the Official Plan of Norfolk County and zoned as Urban Residential Type 6 "R6", "Urban Residential Type 6 Holding "R6(H)", and "CBD" as per Norfolk County Zoning By-law 1-Z-2014, as amended. Several Special Provision Site Specific zones are applicable to the Subject Property as well. The portion of the Subject Property containing the existing 3-storey mixed-use building is the portion designated "Downtown" and is zoned "CBD" as per Zoning By-law 1-Z-2014, as amended. The remainder of the Subject Property (which is where the proposed new building will be located) is designated "Urban Residential" and zoned as "R6" and "R6(H)".

#### Original and Updated Proposal

The original proposal consisted of an 8-storey mixed-use building with residential dwelling units, a long-term care facility, as well as office, medical office, and retail uses. The proposal has now been revised to only consist of residential dwelling units, office and retail uses. An easement is also proposed from Robinson Street, through the proposed retained lot which contains the existing 3-storey mixed-use building, to the proposed severed lot to allow shared access from Robinson Street to the Subject Property. The easement also includes certain parking spaces at the north-east portion of the Subject Property to ensure those spaces are maintained for the existing 3-storey mixed-use building/retained lot. A number of revisions have been made to the building itself as well. The proposed 8-storey mixed-use building is compliant with the maximum permitted height, angular plane requirement, and the minimum building step-backs, save and except for the 8th floor building step-back which is proposed at 1.6m where 2m is required from the 7th floor. Reconfigured outdoor amenity space has also been provided with the resubmission and the proposal is now compliant with the minimum required number of parking spaces.

The proposed mixed-use building, with a height of 26.5m (8 storeys), will have a GFA of 17,820 sq.m and an FAR of 2.5 times the area of the lot. It will be set back 27.1m from the front lot line along Kars Street, 3m from the side lot line along Queen Street North, and will have a rear yard setback of 3.5m abutting the proposed retained lot which is where the existing 3-storey mixed-use building is located.

The ground floor of the proposed mixed-use building includes retail and office units, whereas residential apartment dwelling units will be located on the  $2^{nd}$  floor to the 8th floor. The unit sizes of the residential apartment dwelling units will range from:

- 1030 sq. ft. to 1480sq. ft. on the 2nd to 4th floor;
- 890 sq. ft. to 987sq. ft. on the 5th and 6th floor;
- 715 sq. ft. to 765 sq. ft. on the 7th;
- 605 sq. ft. to 1107sq. ft. on the 8th floor.

The proposal has been further revised to include a total of 307 parking spaces, including 9 accessible parking spaces. This includes 31 at-grade parking spaces and 276 underground parking spaces. The proposal is now compliant with the minimum required parking spaces. Note, there are an additional 18 parking spaces within the at-grade parking lot for the proposed new building however, those additional 18 spaces will be subject to an easement and will be for the sole use of the occupants of the existing 3-storey mixed-use building on the Subject Property.

As part of this development, a private driveway has also been proposed to facilitate internal circulation and provide access from Kars Street. The private driveway will also be connected through the proposed at-grade parking lot to the existing at-grade parking lot on the portion of Subject Property where the existing 3-storey mixed-use building is located, which currently has access from Robinson Street.

An updated Traffic Impact and Parking Study, prepared by Trans-Plan, dated August 2024, has been provided with this resubmission. As per the provided updated Traffic Impact and Parking Study, the proposed parking supply is compliant with and exceeds the County's parking requirements and the proposed parking supply will be adequate to meet the future parking demands of the development. Further, the Traffic Impact and Parking Study notes that the proposed development is acceptable for traffic operations with traffic signals at the intersections of Queen Street North and Robinson Street. The Study concludes that no further roadway improvements would be required to support the proposed development, aside from the construction of the proposed internal roadways and site accesses and that the proposed development is expected to have minimal impact on the study area network.

Further, a Functional Servicing and Stormwater Management Report as well as associated civil drawings, prepared by Crozier, dated August 2024, has been provided with this resubmission. The Functional Servicing and Stormwater Management Report concludes that the proposed development can be serviced from a functional servicing and stormwater management perspective. The Report notes that water demand will be met by connecting a 200mm diameter PVC water service to the existing 200mm diameter water service on Queen Street North, that Sanitary conveyance will be provided using a 200mm diameter PVC sanitary sewer that will connect to the existing 200mm diameter sanitary sewer on Queen Street North, and that stormwater runoff will be collected in catch basins and conveyed to a storm water storage tank that controls events up to and including the 100-year storm event to the 5-year predevelopment peak flows before discharging into the existing storm sewer on Queen Street North. The Report further notes that Stormwater quality controls for the Site will be provided by an in-line-oil-grit separator (Stormceptor EF4 or approved equivalent) unit installed downstream of the underground stormwater storage tank.

Further, a Shadow Study has been provided with this resubmission. The Shadow Study demonstrates that the proposal will not result in significant shadowing impacts on the surrounding low-rise residential uses. As shown in the submitted Shadow Study, on March 21st, the majority of shadow impacts as a result of the proposal are on the adjacent industrial uses to the east. Similarly, the Shadow Study demonstrates that on June 21st, the majority of shadowing impacts are also mostly on the industrial uses to the east and the existing parking lot located on the southern portion of the Subject Property. The Shadow Study

demonstrates very similar shadowing conditions on September 21<sup>st</sup> as compared to June 21<sup>st</sup> and March 21<sup>st</sup>. The only shadowing impacts as a result of the proposal on the adjacent and surrounding low-rise residential uses are in the morning hours on December 21<sup>st</sup>. However, by 1:18 p.m on December 21<sup>st</sup>, shadowing impacts as a result of the proposal shift from the adjacent and surrounding low-rise residential uses to the industrial uses to the east. As such, the proposal will not have any significant shadowing impacts on the surrounding low-rise residential uses, will be compatible, and will have little to no impact further than what is already contemplated by the By-law for the Subject Property.

#### **Policy Review**

## 1. Provincial Planning Statement, 2024

At the time of writing this Planning Justification Report Addendum, the Province has released the new Provincial Planning Statement, 2024 ("PPS 2024"). The new PPS 2024 is to come into effect on October  $20^{th}$ , 2024, which is subsequent to the Council meeting currently scheduled for this application to be heard at on October  $16^{th}$ , 2024. As such, Council's decision on this application will not need to be consistent with the new PPS, 2024. However, it is expected that the new PPS, 2024 will not have any impact on this application in terms of the planning policy context regardless.

#### 2. Provincial Policy Statement, 2020

The analysis provided within the original Planning Justification Report as it relates to the Provincial Policy Statement remains applicable and the proposal represents an efficient use of underutilized lands within a designated "Settlement Area".

#### 3. Norfolk County Official Plan, 2020

The analysis provided within the original Planning Justification Report as it relates to the Norfolk County Official Plan (version that was in-effect at the time of application submission) remains applicable. The proposal represents an efficient use of underutilized lands within a designated "Settlement Area" and the proposed high-density mixed-use development is a permitted use as per the applicable "Urban Residential" designation.

#### 4. Proposed Draft Zoning By-law

The proposed Draft Zoning By-law generally follows the existing R6 provisions that are applicable to the Subject Property with some minor variations to those applicable provisions of the R6 zone. The existing Special Provision Site Specific zones applicable to the Subject Property are proposed to be removed. The proposed Zoning provisions for the Subject Property, which is proposed to be zoned R6(H) Special Provision Site Specific 14.XXX are as follows:

Green indicates no change to existing R6 provisions

Red indicates proposed change to existing R6 provisions

Current Provision	d change to existing R6 provisions	Proposed Provision
Lot Frontage (min.)	30m	90.49m
Front Yard (min.)	3m	27.1m
Interior Side Yard	5m	21.9m
(min.)		
Exterior Side Yard	3m	3m
(min.)		
Rear Yard (min.)	9m	3.5m
Building Height	8 storeys	8 storeys
(max.)		
Floor Area Ration	1 FAR	2.5 FAR
(max.)		
Step Back of Upper	2m for each floor above the 4th and	5th and 6th Floor - 2.3m from 4th
Floors	an additional 2m for each floor	floor
	above the 6 <sup>th</sup>	7th Floor - 2.5m from 5th and 6th
		floors
		8th Floor - 1.6m from 7th floor
Angular Plane	Where an R6 Zone abuts an Urban	Proposal does not penetrate the
	Residential Zone (R1-A, R1-B or	angular plane
	R2), no portion of an apartment	
	dwelling shall exceed the height of	
	a 45 degree angular plane	
	originating at the lot line of the	
x 1xx	nearest R1-A, R1-B or R2 Zone.	5 - 1 0 c
Land Uses	Apartment, Dwelling	Retail Store
	Home Occupation	Office
Daulsina	Retirement Home	Appartment Duralling 210 appage
Parking	Apartment Dwelling – 215 spaces	Apartment Dwelling – 219 spaces
	Visitor – 48 spaces Retail Use – 10 spaces	Visitor – 48 spaces
	Office Use – 30 spaces	Retail – 10 spaces
	Total – 303 spaces	Office – 30 spaces
Associals Daulius	-	Total – 307 spaces
Accessible Parking	Type A space – 4 spaces	Type A space – 5 spaces
	Type B space – 5 spaces (if Type B	Type B space – 4 spaces
	is an uneven number, extra Type B can be Type A space)	
Width of a parking	Width of parking space for vehicle	3 metres proposed for parking
space adjacent to	parked with wall or fence adjacent	spaces adjacent to wall or fence
wall or fence	- 3.3 metres	spaces adjacent to wan or rence
wan or icite	J.J IIICU CJ	

The proposed provisions contained within the Draft Zoning By-law are appropriate and

conform to the County Official Plan. The proposed reduced rear yard setback is appropriate and will have little to no impact further than what the By-law already contemplates considering the rear yard of the proposed new 8-storey building will abut the existing at-grade parking area for the existing 3-storey mixed-use building. The proposed additional permitted uses will facilitate the proposed ground-floor retail and office uses, which will serve the needs of the new residents as well as existing residents in the area and is appropriate. The proposed retail units do not exceed 300 sg.m of GFA and the proposed office and retail uses conform to the policies contained in section 7.7.2(d). The proposed FAR represents an appropriate form of intensification of currently underutilized lands within the County. The proposal is compliant with the existing R6 provisions pertaining to maximum height, angular plane, and the minimum required building step backs above the 4th floor, save and except for the 8th floor step back which is only deficient by 0.4m and the 5th, 6th, and 7th floor step backs exceed the minimum building step back requirement. As such, the proposal is functionally compliant with the minimum required building step backs when taking into consideration the building step back exceedances at the 5th, 6th, and 7th floors. Additionally, the proposed new 8-storey building is oriented such that the narrow side of the building faces Queen Street North. This building orientation reduces the perceived building mass as perceived from the adjacent low-rise residential neighbourhood to the west. Regarding the low-rise residential uses to the north, the proposed new 8-storey building will be setback 27.1m to the closest portion of the north side lot line. This front yard setback greatly exceeds the minimum front yard setback required and provides a large separation distance to the north side lot line, thereby reducing any potential massing impacts to the residential low-rise uses to the north as it relates to the increase in FAR on the Subject Property. The proposed FAR and other proposed provisions within the draft Zoning By-law are appropriate and contribute to providing a full range of housing types as well as office and retail uses within the County, in an appropriate area that is adjacent to the "Downtown" area of Simcoe.

# Comment Responses based on Comments received from July 16th, 2024 Council Meeting

- 1. The proposed development is not supported by a Functional Servicing Report or a General Plan of Services. Development Engineering cannot support a recommendation on the requested ZBA until service modelling has been completed and the Functional Servicing Report is submitted that demonstrates how the proposed amendments would be supported by current and/or upgrades Water, Wastewater and Storm Water infrastructure in Simcoe. It is Staff's opinion that the proposal is premature until a Functional Servicing study is submitted and reviewed for acceptance.
  - a. A Functional Servicing and Stormwater Management Report, as well as associated civil drawings, have been provided as part of this resubmission.
- 2. The proposed total parking spaces are 235 spaces whereas 308 spaces are required. For clarity, the total requested reduction in the required parking spaces is 73 parking spaces. It is Staff's opinion that the proposed reduction of parking spaces are significant and would result significant traffic overflow on adjacent streets. The proposed amount of parking spaces are not practical considering lack of public transport and connectivity throughout Norfolk

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#### communities.

- a. The proposal has been revised such that the proposal is now compliant with and exceeds the minimum parking requirements of the Zoning By-law.
- 3. The application also proposed 150% increase (more than double) of the Floor Area Ratio (FAR). With the same building footprint, maintaining the required Floor Area Ratio, the building would not be more than 3 storeys whereas 8-storeys are proposed. Although 8-storeys is permitted in R6 zone, the proposal does not meet the Floor Area Ratio requirement. It is Staff's opinion that a three or four- storey building with an approximate Floor Area Ratio -1.5 would be more compatible and would be able to mitigate the parking deficiency as identified in this report.
  - a. Based on the justification provided within this PJR Addendum, as well as the justification previously provided to Staff and provided within the original Planning Justification Report, the proposed FAR is appropriate and will have little to no impact further than what the By-law already contemplates for the Subject Property.
- 4. The proposed development includes retail and office spaces on Ground floor on a land currently designated for residential. The proposed retail and office spaces are adjacent to downtown area with high vacancy rate. The proposal of the retail space is not supported by any retail market impact study identifying the need for additional retail space outside of the downtown area.
  - a. The proposed retail units are permitted as per the County's Official Plan. As such, no retail market impact study or analysis is required.
- 5. The applicant has provided the County with an Environmental Site Assessment (Phase 1 and 2) along with a Record of Site Condition from the Ministry of Environment. The submitted ESA and RSC that were provided to the County were the same documents that were provided in 2012 when the three storey office building was in the planning process. As the current proposed use is for a more sensitive land use, planning staff has requested that the applicant obtain a new RSC from the Ministry.
  - a. The requirement to obtain and submit a new RSC has been included as a provision within the proposed (H) Hold as part of the proposed Zoning By-law Amendment. The proposed (H) Hold cannot be lifted until a new RSC is obtained and provided to the County, to the County's satisfaction.
- 6. The proposed development is considered a high density residential development. The proposed commercial component of the development is measured at roughly 300 square meters. Staff have requested more detailed information regarding the size of the commercial spaces for the mixed use building as the applicant may require an Official Plan Amendment to address the above noted policies.
  - a. Additional information has been provided through this resubmission as well as previously to County Staff in this regard. The proposed retail units do not exceed 300 sq.m and an Official Plan Amendment is not required.

Other comments provided have been addressed within the submitted comment response matrix included with this resubmission.

#### **Conclusion**

In conclusion, based on a review of the applicable Provincial and County policies as well as the County's Zoning By-law, it is my opinion that the proposed development conforms to the Provincial and County policies and represents good planning.

We look forward to continuing to work together on this application. Should you have any questions or concerns please do not hesitate to contact the undersigned.

Sincerely,

DESIGN PLAN SERVICES INC.

UN G

David Igelman, BURPI., MCIP, RPP Associate

Encl. DI/tjc

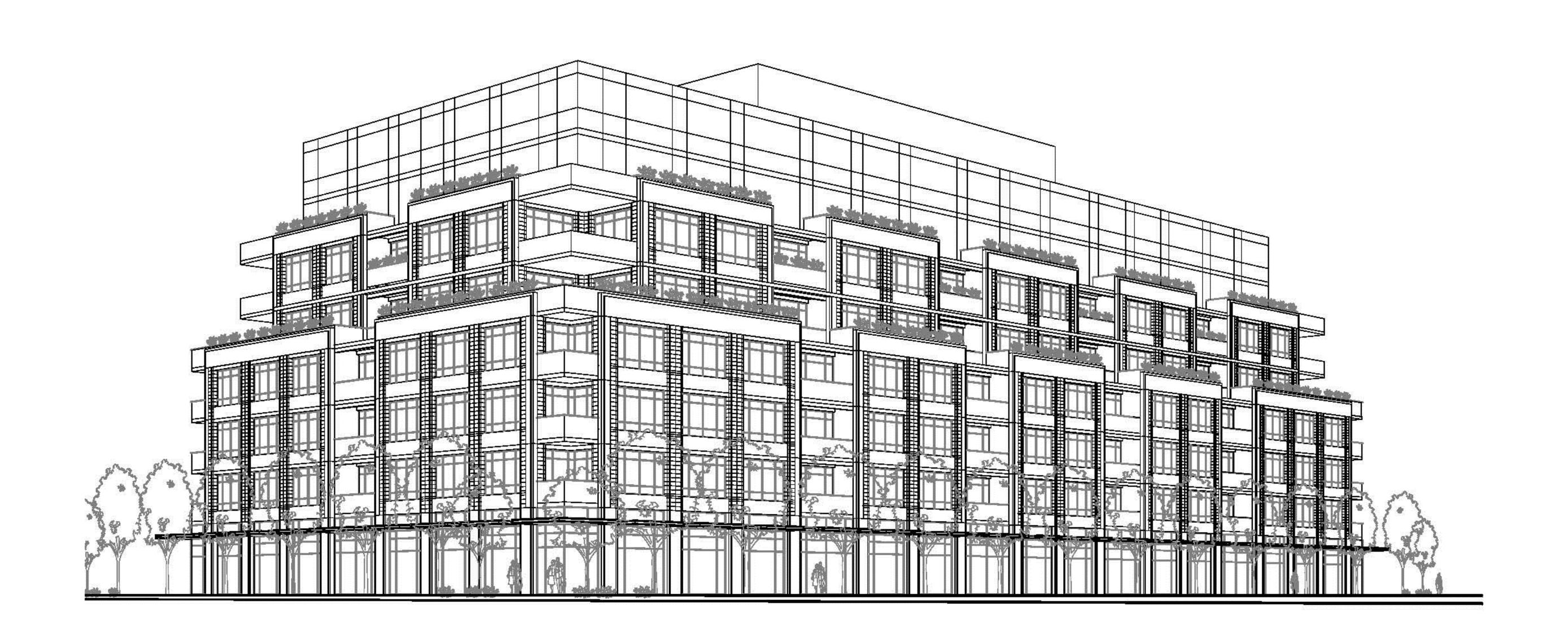


	Comments	Response	
Comment Number	COMMENT RESPONSE MATRIX - REVISED 3RD SUBMISSION - 185 ROBINSON STREET, SIMCOE		
	Planning		
1	The applicant has provided the County with an Environmental Site Assessment (Phase 1 and 2) along with a Record of Site Condition from the Ministry of Environment. The submitted ESA and RSC that were provided to the County were the same documents that were provided in 2012 when the three storey office building was in the planning process. As the current proposed use is for a more sensitive land use, planning staff has requested that the applicant obtain a new RSC from the Ministry.	New RCS to form part of HOLD provisions in proposed Draft ZBL	
2	The proposed apartment building will provide a type of housing that is currently in short supply. This development will help the County meet its 15% targets as outlined above. (See Norfolk County Official Plan - Section 5.3 b)	Noted	
<u>3</u>	A Traffic Impact Study (TIS) has been submitted as a part of the application. A Functional Servicing Report (FSR) is required to be submitted at the Site Stage. Greater details within the FSR and TIS may be required during the Site Plan Stage. The proposed residential condominium would provide a high density form of housing within the downtown of Simcoe. The proposed development is proposed to be facing in an east to west direction (parallel to the existing 3 storey office building on the subject lands).	FSR/SWM Report and Updated TIS have been provided with resubmission	
4	The proposed development is considered a high density residential development. The proposed commercial component of the development is measured at roughly 300 square meters. Staff have requested more detailed information regarding the size of the commercial spaces for the mixed use building as the applicant may require an Official Plan Amendment to address the above noted policies. (See Norfolk County Official Plan - Section 7.7.1 & Subsection I)	The information regarding the commercial uses has been updated on the Site Plan. The proposed ground floor commercial Gross Floor Area (GFA) has been revised to a maximum of 299.6 square meters. No Official Plan Amendment (OPA) is required	
	Zoning		
<u>5</u>	For R4 and R6 zone; Decks or balconies no closer than 1.2m to interior side yards (this includes steps)	Balconies are located with the proposed building footprints and comply with interior side yard setbacks	
<u>6</u>	For R4 and R6 zone; For underground parking layout, spots along a wall require to be 3.3m wide, they are showing only 3.0m wide.	Proposed Draft Zoning By-law Amendment has been updated to include parking space width of 3.0m for vehicles parked along the wall	
7	For R4 and R6 zone; Zoning table needs to show the required number of accessible parking spots and what is supplied.	Zoning table has been updated to show the number of accessible parking spots.	
<u>8</u>	For R4 and R6 zone; Will 14.664 and 14.713 be removed from the lands? If not the zoning table on the drawings is not correct with required setbacks	Yes, they will be replaced with proposed 14.XXX as mentioned in the proposed Draft Zoning By-law	
9	For R4 and R6 zone; For section of parking area dedicated to 185 Robinson, and special provision 14.812, a minimum of 66 parking spaces must be provided. The grey shaded area on the general site plan shows 65 parking spots which is deficient by one parking spot. However, the proposed severance will provide 185 Robinson with 87 parking spaces, for a total of 152 parking spaces. The current accessible spaces (6) as shown on the grey area will be sufficient accessible spaces for 152 parking spots. Special provision 14.812(d) will need to be amended.	Special provision 14.812(d) is proposed to be amended to require a minimum of 158 parking spaces and the proposal will be maintaining 158 parking spaces for the existing 3-storey building on the Subject Property. An additional 18 parking spaces at the northeast portion of the development area is provided as additional parking for the existing 3-storey building by way of an easement.	

10	Parking is showing as still deficient in the parking table for the uses	Parking proposed is now compliant with the By-law requirements
11	The parking spaces in the parking garages are not dimensioned, the spots by a wall must be 3.3m wide.	Proposed Draft Zoning By-law Amendment has been updated to include parking space width of 3.0m for vehicles parked along the wall
12	The step back of the 8th floor is 1.6m, where 2.0m is required from the 7th to 8th floor	The proposed Draft Zoning By-law includes a provision to permit the reduced 8th floor step back of 1.6m
	Development Engineering	
<u>13</u>	The Development will be required to update the Norfolk County Water and Wastewater model to include this site within the model, such that the County can determine if the current system is sufficient to support the development or, if not, what upgrades may be required to support the plan as presented. Water and sanitary modelling are to be completed by Norfolk County's consultant at the developer's expense. Identified system upgrades necessary to support the development will become obligations within the subsequent site plan agreement as undertakings at the sole cost of the Developer. For the benefit of both the County and the Development proposal, a functional servicing report (inclusive of water/wastewater modelling) should be completed and submitted with the rezoning, where such changes in servicing demand are seen as significant – such is the case with this application.	Required civil submission materials are provided with this resubmission.
<u>14</u>	All plans, reports and studies identified are to be submitted at the time of Site Plan application.	Noted
<u>15</u>	Water / wastewater allocation will not be issued as part of the ZBA. Applicant is to confirm capacities at the time of site plan application, at the time registration of agreement\approval allocation will be provided for the development, if available.	Noted
<u>16</u>	Full Development Engineering comments will be provided at the time of Site Plan submission.	Noted
<u>17</u>	A full Storm Water Management report will be required at the time of Site Plan Submission. All SWM reports are to follow Norfolk County Design Criteria Section 7 and adhere to Section 4 of the ISMP.	Noted
18	An updated Traffic Impact Study will be required at the Site Plan submission stage to include a further assessment of the Queen Street/Union Street intersection and a pedestrian circulation plan demonstrating how this site will integrate with the existing community fabric and contribute to a walkable community	An updated Traffic Impact and Parking Study has been provided with this ZBA resubmission. Any further details can be addressed at the Site Plan stage.

<u>19</u>	Any recommendations/upgrades from the Traffic Impact Study required to facilitate this development will be the responsibility of the developer.	Noted
<u>20</u>	It is recommended by Development Engineering that prior to site plan submission a Pre- Consultation meeting be held to ensure that the applicant has all new and accurate information pertaining to a proposal such as this.	Noted
	Building	
21	The building department has reviewed the proposal and has NO comments or conditions. No Ontario Building Code review has been completed at this time and will be done at permit application stage. Please reach out to the building department as you get closer to having the planning and applicable approvals in place and staff will be happy to assist you with information on preparing for the building and septic permit stage of the project. All general permitting inquires: by email: permits@norfolkcounty.ca or by phone: 519-426-5870x6016  Please refer to our website for current forms, and fees. https://www.norfolkcounty.ca/business/building/	Noted
	Social Services and Housing	
22	Social Services and Housing supports various housing options for residents, including the creation of additional housing stock in our communities; in particular, affordable, accessible housing. Rental options are a much needed option for Norfolk County.	Noted
	GIS	
<u>23</u>	Please contact Norfolk GIS for new civic addresses when building	Noted
	Realty Services	
<u>24</u>	The drawings attached to this proposal indicate the possibility of including the north-east portion of the current parking area. Under the terms of the lease agreement that County has with the property owner, the County is entitled to 60 parking spaces. These spaces consist of	The parking spaces are being provided to the County as per the lease agreement and are being maintained on the portion of the Subject Property which will continue to function for the County office building.
<u>24</u> <u>25</u>	The drawings attached to this proposal indicate the possibility of including the north-east portion of the current parking area. Under the terms of the lease agreement that County has with the property owner, the County is entitled to 60 parking spaces. These spaces consist of the majority of the perimeter parking spots, including those shown in the drawings attached. Signage is in place indicating the County's parking spaces.  Should this development proceed, and the parking spaces currently signed to be reserved for County staff be lost, this could have an impact on the County's lease agreement with the landlord/owner of the property.  Realty staff have reviewed the application and note that the current Lease for the Robinson Administration Building includes sixty (60) designated reserved parking spaces for Norfolk County employees including two (2) dedicated parking spaces for Justices of the Peace and two (2) dedicated parking spaces for Ontario Provincial Police. Employee parking has been designated by signage along the perimeter of the parking lot which portions of the parking lot are included in this application.	
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<u>29</u>	A Holding (H) provision on your land zoning should remain in place until the Owner has provided complete accepted engineering drawings, performance securities and entered into a development agreement that has been executed and registered on title.	These matters can be dealt with through the required Site Plan application and through the eventual Site Plan agreement to be executed between the County and the owner. As such, the proposed (H) Hold provision does not need to address these matters but will remain in place with amended provisions to lift the (H) Hold related to other matters as referenced within the proposed Draft Zoning By-law	
	General Notes		
	Securities will be required in the form of a schedule. Any works completed		
	within the Municipal Right-of-Way (R.O.W.) is to be shown as 100% security.		
<u>30</u>	Any works completed within private property is to be shown as 10% security.		
	This can be submitted at time of Site Plan.	Noted	
_	All reports and plans are to be signed and stamped by a Professional Engineer		
<u>31</u>	(P.Eng.).	Noted	
	All reports are to be completed in reference to Norfolk County's Design Criteria		
	and Integrated Sustainable Master Plan (ISMP). Recommendations from all		
<u>32</u>	reports / modelling must be incorporated into the design and is to adhere to		
	Norfolk County's Design Criteria. A copy of this criteria is available upon		
	request.	Noted	
22	Recommendations from all reports (FSR, SWM, TIB, Modelling, etc.) must be		
<u>33</u>	incorporated into the design and be constructed at the developer's expense.	Noted	
<u>34</u>	All applicable permits and inspections to be issued by Public Works.	Noted	
<u>35</u>	35 As-constructed drawings are available upon request. Noted		
	Requir	ed at Zoning By-Law Amendment Stage	
	The following reports/studies will be required at time of a Zoning By-law		
	Amendment:		
<u>36</u>	a. Concept Plan;		
30	b. Functional Servicing Report (as per Norfolk County Design Criteria);		
	c. Water / Sanitary Modelling.		
	d. Storm Water Management Report.		
	e. Traffic Impact Study (as per ISMP Appendix J – TIS Guidelines);	Civil submission materials and updated TIS are provided with this resubmission	
	Sanitary and Water modelling will be required. This is to be completed by		
	Norfolk County's third-party consultant. The cost to complete the modelling and		
	any recommendations from reports are to be implemented into the design at		
	the applicant's expense. The following information will be required to receive a		
27	quote and complete the modelling.		
<u>37</u>	a. General Plan of Services		
	b. Functional Servicing Report;		
	i. Total Wastewater Design Flows;		
	ii. Total Domestic Water and Fire Flows as per Norfolk County Design		
	Criteria Section 10.1.1	Civil submission materials and updated TIS are provided with this resubmission	
	The Functional Servicing Report must include water /sanitary servicing and fire		
	flow calculations. Fire Flow calculations are to be completed in accordance with		
<u>38</u>	"Water Supply for Public Fire Protection 2020" by Fire Underwriters Survey.		
	Once the quote has been received, approval from the applicant will be required		
	before proceeding.	FSR/SWM Report includes required calculations	
	Stormwater Management Report is to be completed as per Norfolk County		
<u>39</u>	Design Criteria. Section 7.0 and Section 8.0 and Section 4.0 of Norfolk		
	County's ISMP.	Noted	
40	Development Engineering will require confirmation of a legal and adequate		
<u></u>	outlet Storm water outlet for this development.	Addressed within FSR/SWM report.	



# 185 ROBINSON ST MIX-USE DEVELOPMENT

185 ROBINSON ST., SIMCOE, ONTARIO

NO. REVISIONS DATE  1. CLIENT 4FEB2 02:  6. CLIENT 24JAN2024  CITY CITY 4FEB2 02:  TO ISSUED DATE	-				í
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GENERAL NOTES

ALL DRAWINGS ARE THE PROPERTY OF THE DESIGNER AND THEY ARE NOT TO BE REPRODUCED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT FROM THE DESIGNER.

CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS BEFORE COMMENCING WORK AND TO REPORT ANY DISCREPANCIES TO THE DESIGNER.

DO NOT SCALE DRAWINGS.

ALL CONSTRUCTION TO BE ACCORDING TO BEST COMMON PRACTICE AND CONFORM TO THE ONTARIO BUILDING CODE.

PRELIMINARY



STOYANOVSKYY ARCHITECTS

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185 ROBINSON ST
MIX-USE

185 ROBINSON ST.,
SIMCOE, ONTARIO

3D VIEW
ARTIST CONCEPT

PROJECT NO 20103 DRAWN R.G.	DRAWING NO	
PLOTTED DATE FEB 2020 SCALE	74	