AECOM

APPENDICES

A. Public Consultation

- A.1 Overview of Municipal Class EA Planning and Consultation Process
- A.2 Notice of Study Commencement and Public Open House (POH) #1
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  - Door Hanger Notice
  - Letter Notice to Schools and Religious Organizations
  - Responses to Notice of Commencement
  - Stakeholder Contact List
  - Mailing Study Area
  - Display Boards
  - Comment Sheets
  - POH #1 Summary Memo
- A.3 Public Open House #2
  - Newspaper Notice
  - Letter Notice
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  - Summary of Comments
  - POH #2 Summary Memo
- A.4 Other Public Consultation
- A.5 Notice of Study Completion

B. Agency and First Nation Correspondence

B.1 Agency Correspondence

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- Letter Notice to Agencies
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- Infrastructure Ontario
- Ministry of Tourism, Culture and Sport
- Ministry of Environment and Climate Change
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- Notice of Study Commencement and POH #1 Letter
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- New Credit First Nation Response
- Chippewas of Rama Response
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- Notice of Study Completion Letter

C. Recommended Design Alternative Plates

D. Transportation Operations, Turning Movement Counts and Signal Timing Plans

E. Transportation Safety Analysis and Photos

F. Terrestrial Investigations

G. Tree Assessment Report

H. Aquatic Investigations

I. Fluvial Geomorphology Report

J. Cultural and Heritage Assessment Report

K. Stage 1 Archaeological Assessment

L. Stormwater Management Report

M. Streetscape Enhancement Concept - Sections

Appendix A

Public Consultation

A.3 Public Open House #2

- Newspaper Notice
- Letter Notice
- Display Boards
- Comment Sheets
- Summary of Comments
- POH #2 Summary Memo

A.4 Other Public Consultation

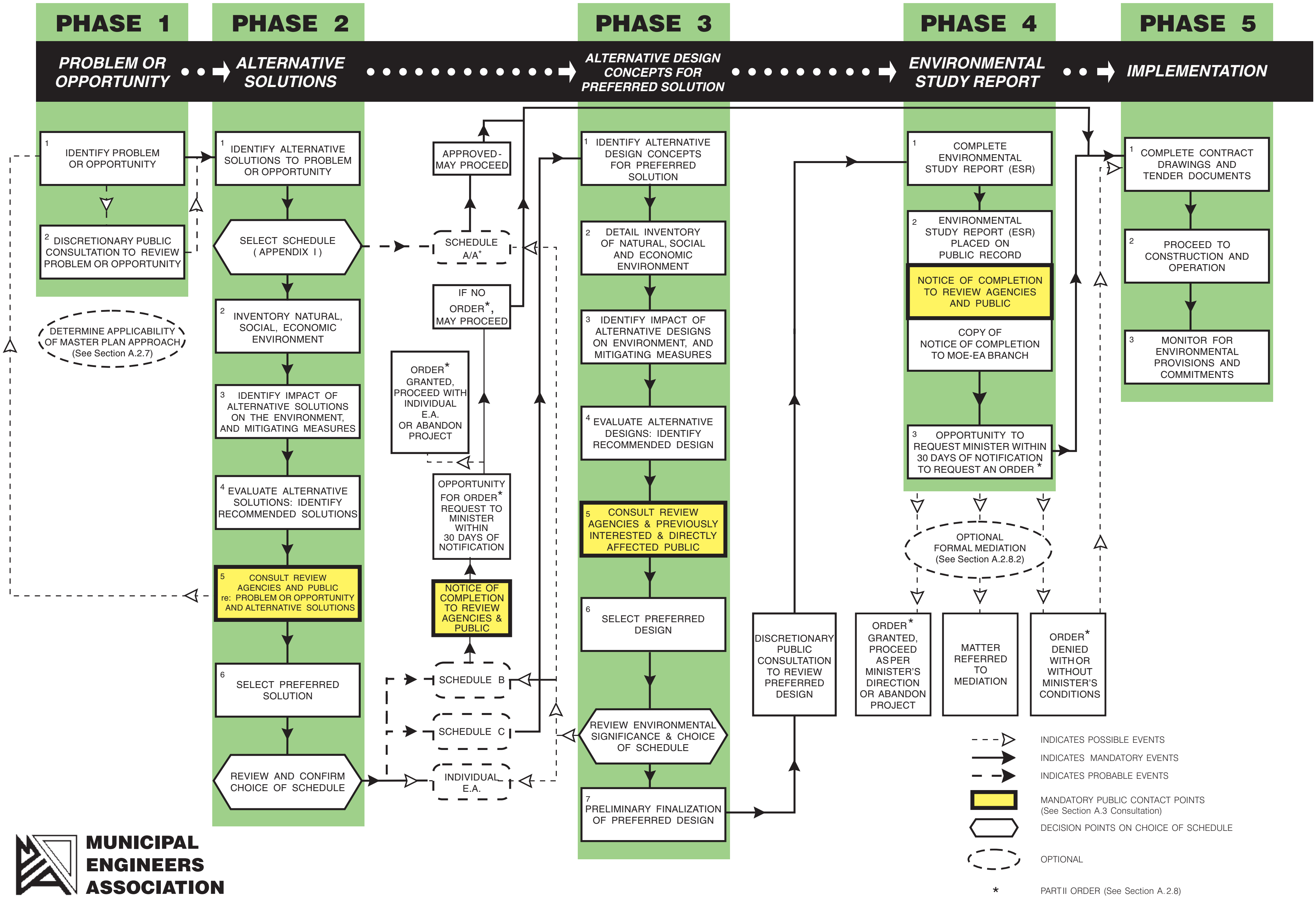
A.5 Notice of Study Completion

A.1 OVERVIEW OF MUNICIPAL CLASS EA PLANNING AND CONSULTATION PROCESS

AECOM

EXHIBIT A.2 MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: *This flow chart is to be read in conjunction with Part A of the Municipal Class EA*



PHASE 1 – *PROBLEM OR OPPORTUNITY*

1 IDENTIFY PROBLEM OR OPPORTUNITY

2 DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PROBLEM OR OPPORTUNITY

DETERMINE APPLICABILITY OF MASTER PLAN APPROACH (See Section A.2.7)

PHASE 2 – *ALTERNATIVE SOLUTIONS*

1 IDENTIFY ALTERNATIVE SOLUTIONS TO PROBLEM OR OPPORTUNITY

SELECT SCHEDULE (APPENDIX I)

2 INVENTORY NATURAL, SOCIAL, ECONOMIC ENVIRONMENT

3 IDENTIFY IMPACT OF ALTERNATIVE SOLUTIONS ON THE ENVIRONMENT, AND MITIGATING MEASURES

4 EVALUATE ALTERNATIVE SOLUTIONS: IDENTIFY RECOMMENDED SOLUTIONS

5 CONSULT REVIEW AGENCIES AND PUBLIC re: PROBLEM OR OPPORTUNITY AND ALTERNATIVE SOLUTIONS

6 SELECT PREFERRED SOLUTION

REVIEW AND CONFIRM CHOICE OF SCHEDULE

SCHEDULE A/A*

APPROVED-MAY PROCEED

IF NO ORDER*, MAY PROCEED

ORDER* GRANTED, PROCEED WITH INDIVIDUAL E.A. OR ABANDON PROJECT

OPPORTUNITY FOR ORDER* REQUEST TO MINISTER WITHIN 30 DAYS OF NOTIFICATION

NOTICE OF COMPLETION TO REVIEW AGENCIES & PUBLIC

SCHEDULE B

SCHEDULE C

INDIVIDUAL E.A.

PHASE 3 – *ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION*

1 IDENTIFY ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION

2 DETAIL INVENTORY OF NATURAL, SOCIAL AND ECONOMIC ENVIRONMENT

3 IDENTIFY IMPACT OF ALTERNATIVE DESIGNS ON ENVIRONMENT, AND MITIGATING MEASURES

4 EVALUATE ALTERNATIVE DESIGNS: IDENTIFY RECOMMENDED DESIGN

5 CONSULT REVIEW AGENCIES & PREVIOUSLY INTERESTED & DIRECTLY AFFECTED PUBLIC

6 SELECT PREFERRED DESIGN

REVIEW ENVIRONMENTAL SIGNIFICANCE & CHOICE OF SCHEDULE

7 PRELIMINARY FINALIZATION OF PREFERRED DESIGN

DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PREFERRED DESIGN

PHASE 4 – *ENVIRONMENTAL STUDY REPORT*

1 COMPLETE ENVIRONMENTAL STUDY REPORT (ESR)

2 ENVIRONMENTAL STUDY REPORT (ESR) PLACED ON PUBLIC RECORD

NOTICE OF COMPLETION TO REVIEW AGENCIES AND PUBLIC

COPY OF NOTICE OF COMPLETION TO MOE-EA BRANCH

3 OPPORTUNITY TO REQUEST MINISTER WITHIN 30 DAYS OF NOTIFICATION TO REQUEST AN ORDER *

OPTIONAL FORMAL MEDIATION (See Section A.2.8.2)

ORDER* GRANTED, PROCEED AS PER MINISTER'S DIRECTION OR ABANDON PROJECT

MATTER REFERRED TO MEDIATION

ORDER* DENIED WITH OR WITHOUT MINISTER'S CONDITIONS

PHASE 5 – *IMPLEMENTATION*

1 COMPLETE CONTRACT DRAWINGS AND TENDER DOCUMENTS

2 PROCEED TO CONSTRUCTION AND OPERATION

3 MONITOR FOR ENVIRONMENTAL PROVISIONS AND COMMITMENTS

- - -▷ INDICATES POSSIBLE EVENTS

⟶ INDICATES MANDATORY EVENTS

– –➔ INDICATES PROBABLE EVENTS

🟨 MANDATORY PUBLIC CONTACT POINTS (See Section A.3 Consultation)

⬡ DECISION POINTS ON CHOICE OF SCHEDULE

◌ OPTIONAL

* PART II ORDER (See Section A.2.8)

MUNICIPAL ENGINEERS ASSOCIATION

A.2 NOTICE OF STUDY COMMENCEMENT AND PUBLIC OPEN HOUSE #1

AECOM

Newspaper Notice

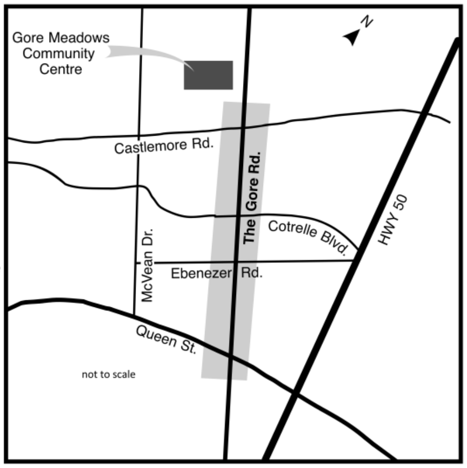
Region of Peel

Public Notice

Environmental Assessment Study

NOTICE OF STUDY COMMENCEMENT AND FIRST PUBLIC OPEN HOUSE FOR THE GORE ROAD

Peel Region is growing and to stay ahead of future development and demands, we are starting a Municipal Class Environmental Assessment (EA) study that will set the ultimate plan for The Gore Road between Queen Street East and Castlemore Road (see map).



Background

Planning for road improvements begins 5 to 10 years before construction starts. The 2013 expansion of The Gore Road to four lanes was a result of a 2002 EA study. The Region's Long Range Transportation Plan shows that future growth to 2031 will require further improvements to The Gore Road.

Planning for the Road Ahead

Our EA study will be completed in keeping with the *Ontario Environmental Assessment Act*, and will follow the Municipal Class EA (Schedule C) process. The project team will examine a full range of alternatives and improvements. Population growth, environmental impacts, walking and cycling features and effective movement of traffic will be considered.

Planning Your Way

You will be consulted throughout this study and asked to help shape the future of our community. You can get involved by attending our first Public Open House where you can ask questions, review project information, and provide input. The Public Open House will be held:

Date: Thurs., May 29, 2014
Place: Gore Meadows Community Centre, Room 3
10150 The Gore Road, Brampton (just north of Castlemore Road)
Time: 5:30pm to 8:30pm

Your Involvement is Important

If you are unable to attend and want to learn more, visit the project website peelregion.ca/TheGoreRoad or contact either of the following team members:

Neal Smith, C.E.T.
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9
Tel: 905-791-7800 ext. 7866,
Toll Free: 1-888-919-7800, Fax: 905-791-1442
neal.smith@peelregion.ca

Stephen Schijns, P.Eng
Project Manager
AECOM
5080 Commerce Blvd.
Mississauga, ON, L4W 4P2
Tel: 905-238-0007 Direct: 905-206-8136
Fax: 905-238-0038
stephen.schijns@aecom.com

The Region of Peel is committed to ensure that all Regional services, programs and facilities are inclusive and accessible for persons with disabilities. Please contact the Project Manager if you need any disability accommodations to participate in the Open House.

With the exception of personal information, all comments will beome part of the public record of the study. The study is being conducted according to the requirements of the Municipal Class Environmental Assessment, which is a planning process approved under *Ontario's Envionmental Assessment Act.*

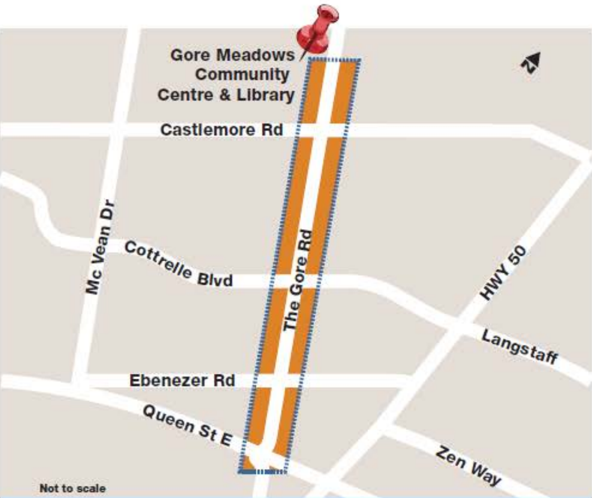
Door Hanger Notice

Peel Region is one of the fastest growing areas in Canada. As our population grows so does our demand for safe and efficient roadways. So, to stay ahead of future development and demands, we are starting a Municipal Class Environmental Assessment (EA). Getting this EA started now will create the ultimate plan for The Gore Road between Queen Street East and Castlemore Road in the City of Brampton (see map below).

You're Invited!

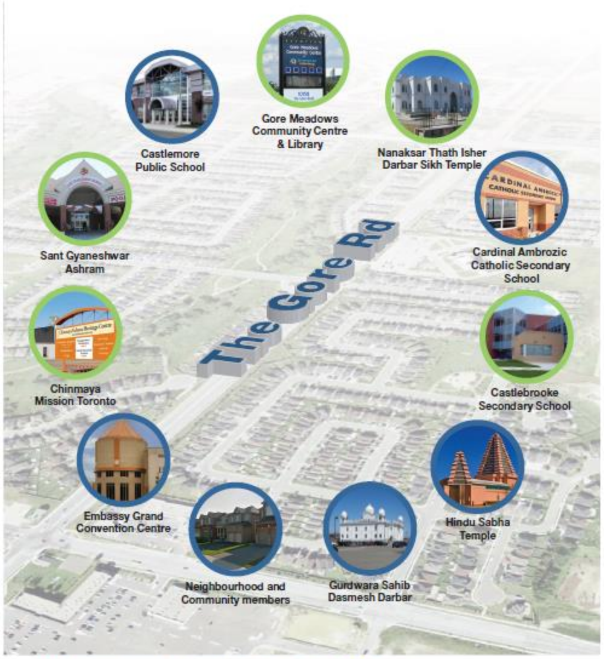
Join us for a Public Open House

Thursday May 29, 2014
5:30 pm to 8:30 pm
Gore Meadows Community Centre & Library, Room 3,
10150 The Gore Road, Brampton



Your Feedback Is Important. The Region of Peel understands that good planning involves the community, and that better decisions are made when many perspectives are considered. That's why we're inviting all members of the community to attend a Public Open House.

Your opinion counts and your voice matters. We encourage you to participate in this process through our in-person events or online. If you are unable to attend and wish for additional information or to be added to the mailing list for this project, please visit the project website: peelregion.ca/TheGoreRoad



Planning For the Road Ahead

The Region's long range plans show that future growth will eventually require further improvements to The Gore Road. Even though construction may not start for several years, it makes sense to start planning now.

You may also contact:

Neal Smith, C.E.T.
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9
Tel: 905-791-7800 ext. 7866
Toll Free: 1-888-919-7800
Fax: 905-791-1442
neal.smith@peelregion.ca

Letter Notice to Schools and Religious Organizations

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Tim Lariviere
Principal
Cardinal Ambroziac Catholic Secondary School
10 Castle Oaks Crossing
Brampton, Ontario L6P 3A2

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

The Region of Peel has initiated a Municipal Class Environmental Assessment (Class EA) Study for improvements to The Gore Road, from Queen Street to Castlemore Road in the City of Brampton. The purpose of this letter is to inform you of the study and to invite your input. A copy of the notice is attached with details of the upcoming Public Open House (POH) scheduled for Thursday May 29th, 2014.

Background

The study is being conducted in accordance with the approved requirements for a Schedule "C" project as described in the Municipal Engineers Association's Municipal Class Environmental Assessment (EA) document (October 2000, as amended in 2007 and 2011).

The recent widening of The Gore Road stems from planning work that was completed over a decade ago to accommodate the growth that we see today and expect by 2020. Since good planning takes time, we're starting now to complete the necessary studies for the Gore Road to be ready for future growth beyond 2020.The study will evaluate:

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- property requirements.

Request for Meeting

A key component of the study is consultation with interested stakeholders (including schools and religious/spiritual institutions). In order to learn about what is important to the community and how stakeholders can be engaged, we would like to meet with you and/or designated staff. We are also interested in learning about past experience from the last widening of The Gore Road and what you think the ultimate The Gore Road should look like. It is our intention that as the project proceeds additional meetings may be scheduled to review study findings and receive feedback.

Next Steps

We have targeted the week of May 19, 2014 for meetings with schools and religious/spiritual institutions and will be contacting you in the near future for available dates and times. If you have any questions or comments, or would like additional information, please do not hesitate to contact me as per below.

Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Region of Peel
Working for you

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May 9, 2014

Cathy Semler
Principal
Castlebrooke Secondary School
10 Gardenbrooke Trail
Brampton, Ontario L6P 3L1

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May 9, 2014

Marcia Moorcroft
Principal
Castlemore Public School
9916 The Gore Road
Brampton, ON L6P 0A7

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Neal Smith

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Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

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FOR 40 YEARS

May 9, 2014

Property Owner
Hindu Sabha Temple
9225 The Gore Road
Brampton, Ontario L6S 5Y8

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May 9, 2014

Property Owner
Gurdwara Sahib Dasmesh Darbar
4555 Ebenezer Road
Brampton, ON L6P 2R2

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Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

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Property Owner
Sant Gyaneshwar Ashram
8887 The Gore Road
Brampton, Ontario L6P 2K9

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Neal Smith

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Project Manager | Infrastructure Programming & Studies
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Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Region of Peel
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TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Property Owner
Chinmaya Venduta Heritage Centre
8832 The Gore Road
Brampton, Ontario L6P 0B1

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Neal Smith

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Project Manager | Infrastructure Programming & Studies
Transportation Division
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TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Property Owner
Nanaksar Thath Isher Darbar Sikh Temple
9954 The Gore Road
Brampton, Ontario L6Y 4V7

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Request for Meeting

A key component of the study is consultation with interested stakeholders (including schools and religious/spiritual institutions). In order to learn about what is important to the community and how stakeholders can be engaged, we would like to meet with you and/or designated staff. We are also interested in learning about past experience from the last widening of The Gore Road and what you think the ultimate The Gore Road should look like. It is our intention that as the project proceeds additional meetings may be scheduled to review study findings and receive feedback.

Next Steps

We have targeted the week of May 19, 2014 for meetings with schools and religious/spiritual institutions and will be contacting you in the near future for available dates and times. If you have any questions or comments, or would like additional information, please do not hesitate to contact me as per below.

Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Property Owner
Ebenezer Community Hall
4494 Ebenezer Road
Brampton, Ontario L6P 1R9

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

The Region of Peel has initiated a Municipal Class Environmental Assessment (Class EA) Study for improvements to The Gore Road, from Queen Street to Castlemore Road in the City of Brampton. The purpose of this letter is to inform you of the study and to invite your input. A copy of the notice is attached with details of the upcoming Public Open House (POH) scheduled for Thursday May 29th, 2014.

Background

The study is being conducted in accordance with the approved requirements for a Schedule “C” project as described in the Municipal Engineers Association’s Municipal Class Environmental Assessment (EA) document (October 2000, as amended in 2007 and 2011).

The recent widening of The Gore Road stems from planning work that was completed over a decade ago to accommodate the growth that we see today and expect by 2020. Since good planning takes time, we’re starting now to complete the necessary studies for the Gore Road to be ready for future growth beyond 2020.The study will evaluate:

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May 9, 2014

Property Owner
The Old Ebenezer Pioneer Chapel/
Ebenezer, Toronto Gore Historical Foundation
8999 The Gore Road
Brampton, Ontario L6P 2P7

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May 9, 2014

Property Owner
Grand Empire Banquet and Convention Centre
100 Nexus Avenue
Brampton, Ontario L6P 3R6

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FOR 40 YEARS

May 9, 2014

Property Owner
Embassy Convention Centre
8800 The Gore Road
Brampton, Ontario L6P 0B1

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Encl.: Notice of Study Commencement and Public Open House # 1

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May 9, 2014

Property Owner
The Gore Meadows Community Centre & Library
10150 The Gore Road
Brampton, Ontario L6P 0A6

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Queen Street to Castlemore Road, City of Brampton

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Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

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Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Responses to Notice of Commencement

Stakeholder Contact List

The Gore Road Municipal Class Environmental Assessment

Project Mailing List –Public Open House #2

February 8, 2016

		AGENCY/STAKEHOLDER NAME	ADDRESS	CONTACT NAME	TITLE	SALUTATION	PHONE/FAX/EMAIL	CC/COMMENTS
A. FEDERAL AGENCIES								
		Department of Fisheries and Oceans Canada	District Office, 3027 Harvester Road, Unit 304 Burlington, ON L7R 4K3	Paul Savoie	Impact Assessment Biologist Fish Habitat Management	Mr. Savoie	T : 905-639-8687 F : 905-639-3549	
B. PROVINCIAL AGENCIES								
		Ministry of the Environment and Climate Change Central Region, Technical Support	5775 Yonge Street, 9th Floor North York, ON M2M 4J1	Trevor Bell	Environmental Resource Planner and Environmental Assessment Coordinator	Mr. Bell	T: 416-326-3577 trevor.bell@ontario.ca	
		Ministry of the Environment and Climate Change					MEA.Notices.EAAB@ontario.ca	NOTICE OF COMPLETION ONLY
		Infrastructure Ontario	1 Dundas Street West, Suite 2000 Toronto, ON M5G 2L5	Lisa Myslicki	Environmental Advisor	Ms. Myslicki	Lisa.myslicki@infrastructureontario.ca	
		Ministry of Natural Resources and Forestry	50 Bloomington Road West Aurora, ON L4G 3G8	Mark Heaton	Management Biologist	Mr. Heaton	T: (905) 713-7406 mark.heaton@ontario.ca	
		Ministry of Tourism, Culture and Sport	401 Bay Street, Suite 1700 Toronto, ON M7A 0A7	Malcolm Horne	Archaeology Review Officer Culture Programs Unit	Mr. Horne	T: (416) 314-7146 malcolm.horne@ontario.ca	
		Ministry of Municipal Affairs and Housing	College Park, 2nd Floor 777 Bay Street Toronto, ON M5G 2E5	Victor Doyle	Manager, Community Planning and Development	Mr. Doyle	T: (416) 585-6109 victor.doyle@ontario.ca	Michelle Moretti, Planner, Community Planning and Development, MMAH
		Ontario Provincial Police	2682 Keele Street Toronto, ON M3M 3G5	Brent Mikstas	Inspector Mikstas	Mr. Mikstas	T: (416) 235-4981	
C. OTHER REVIEW AGENCIES								
		Toronto and Region Conservation Authority	5 Shoreham Drive Downsview, ON M3N 1S4	Sharon Lingertat	Peel Region/Durham Region, Environmental Assessment Planning	Ms. Lingertat	T: (416) 661-6600 F: (416) 661-6898 slingertat@trca.on.ca	
		Toronto and Region Conservation Authority	5 Shoreham Drive Downsview, ON M3N 1S4	Victoria McGrath	Humber Watershed Specialist	Ms. McGrath	T: (416) 661-6600 F: (416) 661-6898 vmcgrath@trca.on.ca	
		Peel District School Board	5650 Hurontario Street Mississauga, ON L5R 1C6	Paul Mountford	Intermediate Planning Officer Senior Planner/Manager	Mr. Mountford	T : (905) 890-1010 ext.2217 paul.mountford@peelsb.com	Steve Hare, Senior Planner/Manager, PDSB • **Letter to note; will be contacting school principals directly for meeting prior to Public Open House #1.**
		Dufferin-Peel Catholic District School Board	40 Matheson Boulevard West Mississauga, ON L5R 1C5	Krystina Koops	Planner	Ms Koops	T: (905) 890-0708 ext. 24407 krystina.koops@dpcdsb.org	Nicole Cih • **Letter to note; will be contacting school principals directly for meeting prior to Public Open House #1..**
D. REGIONAL/MUNICIPAL AGENCIES								
1. REGION OF PEEL								
		Region of Peel Ambulance and Emergency Services	299 Maingate Drive, Mississauga, ON L4W 1G6	Peter Dundas	Director	Mr. Dundas	T: (905) 791-7800 ext.3921	

E-MAIL	CUSTOM LETTER	AGENCY/STAKEHOLDER NAME	ADDRESS	CONTACT NAME	TITLE	SALUTATION	PHONE/FAX/EMAIL	CC/COMMENTS
		Peel Regional Police Corporate Planning and Resources	7750 Hurontario Street Brampton, ON L6V 3W6	Mike Grodzinski	Operation Planning	Mr. Grodzinski	T: (905) 453-2121 ext.4740	
		Peel Regional Police 21 Division	10 Peel Centre Drive, Suite C Brampton, ON L6T 4B9	Steve Wollaston	Superintendent	Mr. Wollaston	T: (905) 453-3311 ext.2100 21div.superintendent@peelpolice.on.ca	
		Region of Peel Clerks Department	10 Peel Centre Drive, Suite A, 5th Floor Brampton, ON L6T 4B9	Kathryn Lockyer	Regional Clerk	Ms. Lockyer	kathryn.lockyer@peelregion.ca	
		Region of Peel – Councillor John Sprovieri	10 Peel Centre Drive, Suite A, 5th Floor Brampton, ON L6T 4B9	John Sprovieri	Councillor	Mr. Sprovieri		• **To be notified directly by Peel Region Project Manager**
		Region of Peel Traffic Engineering		Mohammed Hassan		Mr. Hassan	Mohammed.hassan@peelregion.ca	•
		Region of Peel Traffic Safety		Seema Ansari		Ms. Ansari	Seema.ansari@peelregion.ca	•
		Region of Peel Traffic Signals		Steve Lonz		Mr. Lonz	Steve.lonz@peelregion.ca	•
		Region of Peel Roads Capital		Jibril Farah		Mr. Farah	Jibril.farah@peelregion.ca	•
		Region of Peel Roads Capital		John Hasselbacher		Mr. Hasselbacher	John.hasselbacher@peelregion.ca	•
		Region of Peel Roads Capital		Bob Nieuwenhuysen		Mr. Nieuwenhuysen	Bob.nieuwenhuysen@peelregion.ca	•
		Region of Peel Roads Capital		Solmaz Zia		Ms. Zia	Solmaz.zia@peelregion.ca	•
		Region of Peel Infrastructure Programming & Studies		Sally Rook	Manager	Sally Rook	sally.rook@peelregion.ca	•
		Region of Peel Transportation System Planning		Eric Chan		Mr. Chan	Eric.chan@peelregion.ca	•
		Region of Peel Goods Movement		Kathryn Dewar		Ms. Dewar	Kathryn.dewar@peelregion.ca	•
		Region of Peel Sustainable Transportation		Wayne Chan		Mr. Chan	Wayne.chan@peelregion.ca	•
		Region of Peel TDM Projects		Arthur Lo		Mr. Lo	Arthur.lo@peelregion.ca	•
		Region of Peel TDM Projects		Erica Duque		Ms. Duque	Erica.duque@peelregion.ca	•
		Region of Peel Realty		Tony Zois		Mr. Zois	Tony.zois@peelregion.ca	•
		Region of Peel Water Program Planning & Compliance		Imran Motala		Mr. Motala	Imran.motala@peelregion.ca	•
		Region of Peel Roads Operations		John Kolb		Mr. Kolb	John.kolb@peelregion.ca	•

		AGENCY/STAKEHOLDER NAME	ADDRESS	CONTACT NAME	TITLE	SALUTATION	PHONE/FAX/EMAIL	CC/COMMENTS
		Region of Peel Roads Operations		Mark Crawford		Mr. Crawford	Mark.crawford@peelregion.ca	•
		Region of Peel Health		Aimee Powell		Ms. Powell	Aimee.powell@peelregion.ca	•
		Region of Peel Health		Lorenzo Mele		Mr. Mele	Lorenze.mele@peelregion.ca	•
		Region of Peel Accessibility		Meenu Sikand		Meenu Sikand	Meenu.sikand@peelregion.ca	•
2.		**CITY OF BRAMPTON**						
		City of Brampton Works and Transportation	8850 McLaughlin Road, Unit #2 Brampton, ON L6Y 5T1	Compton Bobb	Project Engineer	Mr. Bobb	T: (905) 874-2581 Compton.Bobb@brampton.ca	• **Will distribute to Brampton contacts.**
		City of Brampton Planning, Design and Development	2 Wellington Street West Brampton, ON L6Y 4R2	John Corbett	Commissioner	Mr. Corbett	T: (905) 874-2050 john.corbett@brampton.ca	
		City of Brampton Planning, Design and Development	2 Wellington Street West Brampton, ON L6Y 4R2	John Allison	Landscape Technologist	Mr. Allison	T : 905-874-3880 John.allison@brampton.ca	
		City of Brampton Engineering and Construction Division Works and Transportation Department	8850 McLaughlin Road Brampton, ON L6Y 5T1	Chris Duyvestyn	Manager, Infrastructure Planning	Mr. Duyvestyn	T: (905) 874-2500 chris.duyvestyn@brampton.ca	
		City of Brampton		Antonietta Minichillo	Heritage Co-ordinator (Bramwest and Churchville)	Ms. Minichillo	Antonietta.minichillo@brampton.ca	
		City of Brampton Planning Design and Development		John Allison		Mr. Allison	John.allison@brampton.ca	
		City of Brampton Development		Daniel Walters	Landscape Technologist, Open Space	Mr. Walters	Daniel.walters@brampton.ca	
		City of Brampton		Chris Duyvestyn	Manager of Infrastructure Planning	Mr. Duyvestyn	Chris.duyvestyn@brampton.ca	
		City of Brampton		Chris LaFleur	Project Leader, ZUM	Mr. LaFleur	Chris.lefleur@brampton.ca	
		City of Brampton Transit Services	185 Clark Boulevard Brampton, ON L6T 4G6	Craig Sherwood	Planning Co-ordinator	Mr. Sherwood	craig.sherwood@brampton.ca	
		City of Brampton Fire and Emergency Services	8 Rutherford Road Brampton, ON L6W 3J1	Andy MacDonald	Fire Chief	Mr. MacDonald	T: (905) 874-2721 andy.macdonald@brampton.ca	
		City of Brampton Community Services	2 Wellington Street West Brampton, ON L6Y 4R2	Jamie Lowery	Commissioner	Mr. Lowery	T: 905-874-2323	
		City of Brampton Clerk's Department	2 Wellington Street West Brampton, ON L6Y 4R2	Peter Fay	City Clerk	Mr. Fay	T: (905) 874-2172 cityclerksoffice@brampton.ca	
		City of Brampton – Councillor Vicky Dhillon	2 Wellington Street West Brampton, ON L6Y 4R2	Vicky Dhillon	City Councillor	Councillor Dhillon	T: (905) 874-2609 Vicky.dhillon@brmapton.ca	• Wards 9 and 10 **To be notified directly by Peel Region Project Manager**

E. ABORIGINAL ORGANIZATIONS								
		Aboriginal Affairs and Northern Development Canada, Consultation and Accommodation Unit	300 Sparks Street, Room 205, Ottawa, ON K1A 0H4	Allison Berman	Regional Subject Expert for Ontario	Ms. Berman	cau-uca@aadnc-aandc.gc.ca T: (613) 943-5488	• See website about one window approach to consultation : https://www.aadnc-aandc.gc.ca/eng/1331832983717/1331833056925
		Ministry of Aboriginal Affairs – Consultation Unit	160 Bloor Street East, 4th Floor Toronto, ON M7A 2E6			Ms. Johnson	Maa.ea.review@ontario.ca	• See website about one window approach to consultation : http://www.ontario.ca/government/environment-assessments-consultng-aboriginal-communities
F. FIRST NATIONS								
		Alderville First Nation	P.O. Box 46/11696 2nd Line Alderville, Ontario K0K 2X0	James Marsden		Ms. Marsdsen		
		Beausoliel First Nation	11 Ogemaa Miikaan Christian Island, Ontario L9M 0A9	Roland Monague		Mr. Monague		
		Chippewas of Georgina Island	R.R. #2, Box N-13 Sutton West, ON L0E 1R0	Donna Big Canoe		Donna Big Canoe		
		Chippewas of Mnjikinig	5884 Rama Road, Suite 200 Rama, ON L3V 6H6	Sharon Stinson Henry		Sharon Stinson Henry		
		Credit River Metis Council	160 Main Street, Suite 561 Brampton, ON L6W 4R1	Steven Sarrazin		Steven Sarrazin		
		Curve Lake First Nation	Curve Lake Post Office Curve Lake, ON K0L 1R0	Phyllis Williams		Phyllis Whillams		
		Haudenosaunee Confederacy Development Institute	16 Sunrise Court, Suite 407 Ohsweken, ON N0A 1M0	Hazel Hill		Hazel Hill		
		Haundenosaunee Confederacy Chiefs Council	2634- 6th Line Road RR #2 Ohsweken, ON N0A 1N0	Allen MacNaughton		Allen MacNaughton		
		Hiawatha First Nation	123 Paudash Street Keene, ON K0L 2G0	Sandra Moore		Sandra Moore		
		Mississaugas of the New Credit First Nation	2789 Mississauga Road RR #6 Hagersville, ON N0A 1H0	Bryan LaForme		Bryan LaForme		
		Mississaugas of Scugog Island First Nation	22521 Island Road Port Perry, ON L9L 1B6	Tracy Gauthier		Tracy Gauthier		
		Six Nations of the Grand River Territory	1695 Chiefswood Road Ohsweken, ON N0A 1M0	William Montour		William Montour		
		The Chiefs of Ontario	111 Peter Street, Suite 804 Toronto, ON M5V 2H1	Kathleen Padulo		Kathleen Padulo		
		The Metis Nation of Ontario	500 Old St. Patrick Street, Unit 3 Ottawa, ON K1N 9G4	Mark Bowler		Mark Bowler		
G. OTHER STAKEHOLDER ORGANIZATIONS								
		Brampton Bicycle Advisory Committee		David Laing	Chair	Mr. Laing	david@daylelaing.com	• Schedule meeting before Public Open House #1

		Brampton Environmental Planning Advisory Committee		Chandra Urquhart	Legislative Co-ordinator	Ms. Urquhart	T: (905) 874-2116 cityclerksoffice@brampton.ca	
		Brampton Environmental Commission Advisory Panel	14 Steven Harris Drive Toronto, ON M9C 1V1			Sir or Madam		
		Community Environmental Alliance of Peel	222 Advance Blvd, Unit 7 Brampton, ON L6T 4Y7	Ranjana Mitra	Executive Director	Ms. Mitra	905-463-9941	
		Brampton Historical Society	32 Wellington St. E. Brampton, ON L6W 1Y4	Peter Murphy		Mr. Murphy		
		Brampton Safe City Association	**18 George Street North Brampton, ON L6X 1R2**			**Sir or Madam**	**T: (905) 793-5484**	**RETURNED MAIL**
H.	**COMMUNITY FACILITIES**							
		Cardinal Ambroziac Catholic Secondary School	10 Castle Oaks Crossing Brampton, Ontario L6P 3A2	Tim Lariviere	Principal	Mr. Lariviere	T: 905-913-2989	• Letter to request meeting prior to Public Open House #1
		Castlebrooke Secondary School	10 Gardenbrooke Trail Brampton, Ontario L6P 3L1	Cathy Semler	Principal	Ms. Semler	T: 905-796-4570	• Letter to request meeting prior to Public Open House #1
		Castlemore Public School	9916 The Gore Road Brampton, ON L6P 0A7	Marcia Moorcroft	Principal	Ms. Moorcroft	T: 905-913-0845 marcia.moorcroft@peelsb.com	• Letter to request meeting prior to Public Open House #1
		Hindu Sabha Temple	9225 The Gore Road Brampton, Ontario L6S 5Y8			Property Owner	T: 905-794-4638	• Letter to request meeting prior to Public Open House #1
		Gurdwara Sahib Dasmesh Darbar	4555 Ebenezer Road Brampton, ON L6P 2R2			Property Owner	T: 905-794-4664	• Letter to request meeting prior to Public Open House #1
		Sant Gyaneshwar Ashram	8887 The Gore Road Brampton, Ontario L6P 2K9			Property Owner	T:905-794-5530	• Letter to request meeting prior to Public Open House #1
		Chinmaya Venduta Heritage Centre	8832 The Gore Road Brampton, Ontario L6P 0B1			Property Owner	T: 905-913-2377	• Letter to request meeting prior to Public Open House #1
		Nanaksar Thath Isher Darbar Sikh Temple	9954 The Gore Road Brampton, Ontario L6Y 4V7			Property Owner	T: 647-308-0962	• Letter to request meeting prior to Public Open House #1
		Ebenezer Community Hall	4494 Ebenezer Road Brampton, Ontario L6P 1R9			Property Owner		
		The Old Ebenezer Pioneer Chapel/ Ebenezer, Toronto Gore Historical Foundation	8999 The Gore Road Brampton, Ontario L6P 2P7			Property Owner	old.ebenezer.chapel@gmail.com	
		Grand Empire Banquet and Convention Centre	100 Nexus Avenue Brampton, Ontario L6P 3R6			Property Owner		
		Embassy Convention Centre	8800 The Gore Road Brampton, Ontario L6P 0B1			Property Owner		
		The Gore Meadows Community Centre & Library	10150 The Gore Road Brampton, Ontario L6P 0A6			Property Owner		
I.	**PUCC**							
		MTS Allstream		Ian Fleming	EA Coordinator	Mr. Fleming	utility.circulations@mtsallstream.com	
		Hydro One Brampton	175 Sandalwood Parkway West Brampton, ON L7A 1E8	Robert Evangelista	Engineering Supervisor – Development	Mr. Evangelista	Ph. 905-840-6300 Ext.5508 Fax. 905-840-1305 revangelista@hydroonebrampton.com	
		Hydro One Brampton		Linda Morson	–EA Corodinator	Ms. Morson	lmorson@hydroonebrampton.com	

The Gore Road Municipal Class Environmental Assessment

Project Mailing List –Public Open House #2

February 8, 2016

		Hydro One Brampton		Henri Gamboa		Mr. Gamboa	Henri.gamboa@hydroonebrampton.com	
		Hydro One Telecom		Ian Mitchell	EA Coordinator	Mr. Mitchell	Ian.mitchell@hydroone.com	
		Hydro One		Dan Beardsall		Mr. Beardsall	Dan.beardsall@hydroone.com	
		Ontario Power Generation	Hydro One – Sustainable Development 9th Floor 700 University Avenue Toronto, ON M5G 1X6	Cara Clairman		Ms. Clairman		
		Enbridge Gas Distribution Inc.		Jamie Comper		Mr. Comper	jamie.comper@enbridge.com	
		Enbridge Gas Distribution Inc.		Diana Beaulne	Mark-Up Administrator	Ms. Beaulne	markups@enbridge.com	
		Enbridge		Emilio Labra		Mr. Labra	Emilio.labra@enbridge.com	
		Enbridge		Andrea Dinner		Ms. Dinner	Andrea.dinner@enbridge.ca	
		Rogers Cable		Edgar Henriquez	EA Coordinator	Mr. Henriquez	Edgar.henriquez@rci.rogers.com	
		Rogers		Michelle Vivar		Ms. Vivar	Michelle.vivar@rci.rogers.com	
		Rogers		Adele Biggs		Ms. Biggs	Adele.biggs@rci.rogers.com	
		Bell Canada Municipal Operations Centre		Diana Velez	C/o Netricom	Ms. Velez	Bell.moc@netricom.com	
		Bell Canada		Michael Dobson		Mr. Dobson	Michael.dobson@bell.ca	
		Bell Canada		Bradley Boulton		Mr. Boulton	Bradley.boulton@bell.ca	
J. PUBLIC CONTACTS AND REQUESTS TO BE ADDED TO MAILING LIST (Add as Requested)								
		Weston Consulting	1660 N. Service Rd. E Suite 114 Oakville, ON L6H 7G3	Alan Young	Senior Associate	Mr. Young	T: 1-800-363-3558 ayoung@westonconsulting.com	
			1 Cliff Swallow Court Brampton, ON L6R 1E4	Lisa Stokes		Ms. Stokes	Lisastokes66@gmail.com	
			20 Banington Crescent Brampton, ON L7A 1G4	Gerald Pyjor		Mr. Pyjor	Storz100mm@yahoo.ca	
				Frances Johnston		Ms. Johnston	jamestonholsteins@gmail.com	
				Leonardo Romero		Mr. Romero	romero@gmail.com	
				George Shepperdley		Mr. Shepperdley	shepp@rogers.com	Committee Member of the Brampton Advisory Committee and Bike Brampton and Brampton Cycling Club
K. FRONTING PROPERTY OWNERS								
		(Separate list provided by Region)						
L. BUSINESSES								
		• Will receive hand delivered post card prior to Public Open House #2						
		• Add as requested						

M.	**PIC #1 ATTENDEES**							
		Poulos & Chung Limited	535 Bur Oak Avenue Markham, ON L6C 2S5	Esteban Campion	Transportation Planner		T: 905-479-7942 ecampion@pouloschung.com	
		Subzi Mandi Cash & Carry	8897 The Gore Road Unit 30 Brampton, ON L6T 3Y7	Gurmit Singh			T: 905-794-6112 F: 905-794-6118	
		Grand Empire Banquet and Convention Centre	100 Nexus Avenue Brampton, ON L6P 2K9	Phyllis	Event Coordinator		T: 905-794-4441 Phyllis@grandempirebanquet.com	
		Asian Cash & Carry	8917 The Gore Road Unit 11 & 12 Brampton, ON L1P 3Y7				T: 905-794-0014	
		Medical Care Store	4550 Ebenezer Road Unit 9 Brampton, ON L6P 2R2	Faisal Minhas	Operations Manager		T: 905-799-9270 info@medicalcarestore.com	
		Starz Computer & Dish	8917 The Gore Road Unit 6 Brampton, ON L6P 2L1				T: 905-913-1013	
		Khalsa Montessori School	4535 Ebenezer Road Unit 2 Brampton, ON L6P 2P7	Harpreet Singh	Director		T: 905-913-0801 info@kmschool.org	
		Infinity Event Group	8800 The Gore Road Brampton, ON L6P 0B1	Stephanie LaViola	Sales Representative	Ms. LaViola	T: 905-794-9588 x 104 Stephanie@infinityeventgroup.ca	
N.	**PIC #2 ATTENDEES**							
			61 Fieldview Drive Brampton, ON L6P 2Y2	Anoop Bah		Anoop Bah	T: 905-488-0618	
			8 Franco Street Brampton, ON L6P 1H2	Darcy Grewal		Darcy Grewal	T: 647-868-1945	
			58 Campwood Crescent Brampton, ON L6P 3S6	Chetan Shah		Chetan Shah	T: 905-915-6844 Ckshah68@gmail.com	
				Hitesh Shah			T: 416-662-6789	
			28 Timberwolf Road Brampton, ON L6P 2B3	Arlyce Abuan		Arlyce Abuan	T: 416-258-5462	
			66 Mission Ridge Trail Brampton, ON L6P 0B5	Sunesh Rajaure		Sunesh Rajaure	T: 647-521-7143 rajauresunesh@gmaill.com	
		Peel District School Board	81 Bloomsbury Avenue Brampton, ON L6P 1S6	Amar Singh		Mr. Singh	Amar.singh@peelsb.com	
		Brampton Cycling Advisory Committee	120 Fallingdale Crescent Brampton, ON L6T 3J6	Pauline Thornham		Ms. Thornham	Pauline.thornham@rogers.com	
		Brampton Cycling Advisory Committee	74 Cavendish Crescent Brampton, ON L6T 1Z4	Steve Laidlaw		Mr. Laidlaw	mofflaw@pathcom.com	
			38 Granite Ridge Crescent Brampton, ON L6R 3H7	Kashmir & Ghrdeep Singh		Mr. & Mrs. Singh		
			8 Whitford Court Brampton, ON L6R 2S2	Amandeep Taank		Amandeep Taank		

			40 Hillson Court Brampton, ON L6P 1C4	Lucy Cipollone		Ms. Cipollone	lucycip@yahoo.ca	
			201 Millway Avenue Vaughan, ON L4K 3W4	Josh Berry		Mr. Berry	jberry@westonconsulting.com	

Mailing Study Area

Properties Selected for Generating Mailing Addresses

POH 1 Display Boards

Municipal Class Environmental Assessment
The Gore Road
Queen Street East to Castlemore Road

Public Open House # 1

Date: Thursday May 29, 2014
Time: 5:30pm to 8:30pm
Location: Gore Meadows Community Centre

Planning for the Road Ahead

Region of Peel
Working for you

Welcome to Public Open House # 1

We invite you to learn about the Municipal Class Environmental Assessment for The Gore Road (from Castlemore Road to Queen Street East)

Questions? Ask any member of the team here tonight. If we don’t have an answer, we’ll get it for you

This evening we will introduce you to the project, specifically:

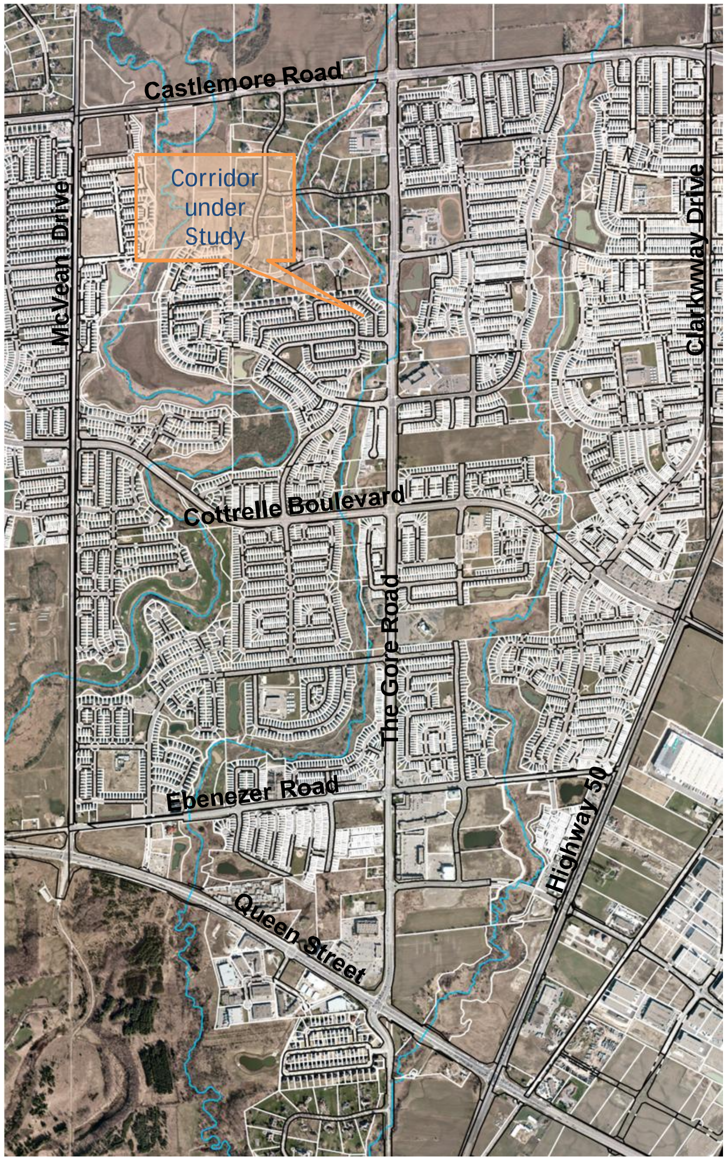
- What this study is about
- Why this planning study is being done
- What has happened so far
- What the planning process is moving forward
- How you can help plan the improvements to The Gore Road

We are looking for your feedback. Please take a sheet from the registration table and record your comments on:

- The work we have done to date. What areas of study are important to you? The environment? The cultural features? The flow of transportation?
- The proposed criteria for evaluating the improvements
- Please submit your comment sheet here or send your feedback to Neal Smith, Project Manager, Region of Peel – neal.smith@peelregion.ca

Why This Study? Why Now?

- We are one of the fastest growing Regions in Canada. As our population grows, so does our demand for safe and efficient roadways that accommodate cars, transit, pedestrians and cyclists
- The recent widening of The Gore Road stems from planning work that was completed over a decade ago to accommodate the growth that we see today and expect by 2020
- Since good planning takes time, we're starting now to investigate options and complete the necessary studies for The Gore Road to be ready for future growth beyond 2020



Region of Peel
Working for you

3 Making The Gore Road Better

Complete Streets. The intent is for The Gore Road to be as functional and comfortable as possible for all who use it. This includes children, seniors, cyclists, motorists, transit users and pedestrians, including those with disabilities. Ensuring that there is a place for trees and the natural environment are other key characteristics of a ‘complete street’

- Recent improvements to The Gore Road have included the addition of 2 lanes, sidewalks, intersection redesign and turning lanes
- Other work included bridge widening, utility relocation, drainage improvements and safety measures such as school crossings
- Design concepts for this study will consider:
  - Better transit facilities (e.g., bus bays, shelters)
  - Continuous sidewalks and safer pedestrian crossings
  - Space for cyclists
  - Traffic signal coordination
  - New or modified bridges
  - Additional through lanes or turning lanes
  - Multi-use path to The Gore Road Meadows Community Centre

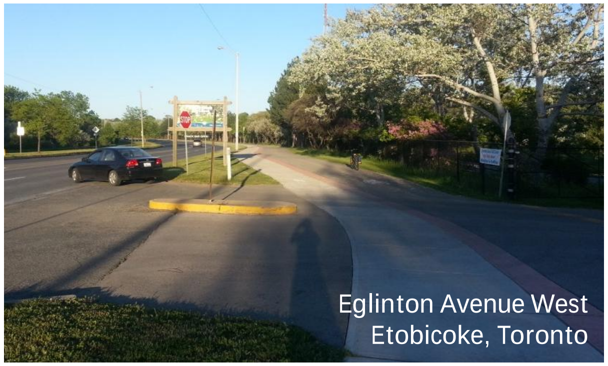
Source: Complete Streets by Design,
Toronto Centre for Active Transportation

Region of Peel
Working for you

4

Design Ideas to Consider

Many cities have found ways to improve the safety and attractiveness of walking and cycling. Here are some ideas that may be considered for The Gore Road:



Eglinton Avenue West
Etobicoke, Toronto

- Bike path and sidewalk set back to create car waiting area at stop sign for minor cross street and reduce blockage of sidewalks and paths

Rochussenstraat
Rotterdam, The Netherlands

- Separate areas for pedestrians, cyclists, and bus loading at bus stops

Eendrachtsplein
Rotterdam, The Netherlands

- Protected waiting area behind the curb for waiting through and turning cyclists
- Setback crosswalk reduces pedestrian crossing distance

- Separate bicycle and pedestrian crossings where multi-use pathways cross an intersection
- Bicycle detection through in-pavement detectors and/or push buttons

Finch Hydro Corridor Trail
North York, Toronto

- Dedicated traffic signals for left turns, right turns, bicycles, and pedestrians to reduce conflicts between turning vehicles and crossing cyclists / pedestrians

Bedumerweg
Groningen, The Netherlands

- High-visibility crosswalk and bicycle markings at conflict areas
- Two-stage turn queue boxes for bicycle left turns

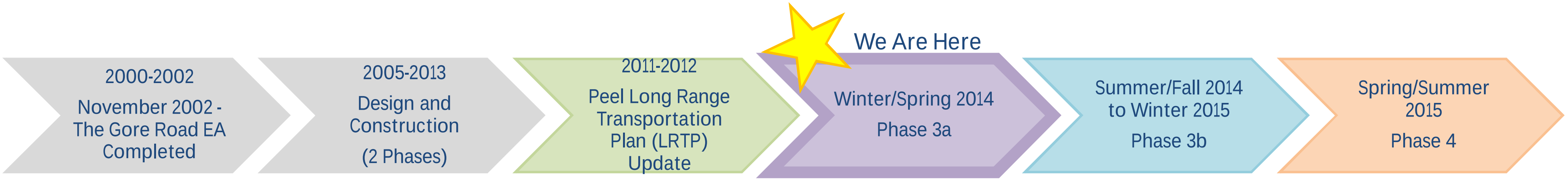
Sherbourne Street
Toronto

Source of all photos: AECOM

Region of Peel
Working for you

Planning for the Road Ahead

5 Study Schedule and Planning Process



2000-2002

November 2002 - The Gore Road EA Completed

Recommendations included:

- The Gore Road widening from Queen Street East to Castlemore Road (2 to 4 lanes in certain sections)
- Realigning the centreline south of Fitzpatrick Drive to mitigate impacts to cemeteries and watercourses

2005-2013

Design and Construction

(2 Phases)

This phase involved:

- Detailed design and approvals
- Acquiring 45m of right-of-way
- Construction in phases

2011-2012

Peel Long Range Transportation Plan (LRTP) Update

This phase involved:

- Identifying The Gore Road improvements (e.g., future widening, transit enhancements and active transportation)
- High level evaluation of alternative solutions
- Addressed Phases 1 and 2 of the Class Environmental Assessment Process

We Are Here

Winter/Spring 2014

Phase 3a

This phase involves:

- Confirm Phases 1 and 2 of the LRTP
- Problem and opportunity statement
- Document existing and future conditions (e.g., traffic, natural, socio-economic and cultural environments)
- Field investigations (e.g., natural environment)
- Preliminary design concepts

Summer/Fall 2014 to Winter 2015

Phase 3b

This phase involves:

- Review and consider input received during and following Public Open House # 1
- Evaluation of alternative design concepts
- Preliminary recommended design concept
- Project description
- Mitigation measures
- Next steps

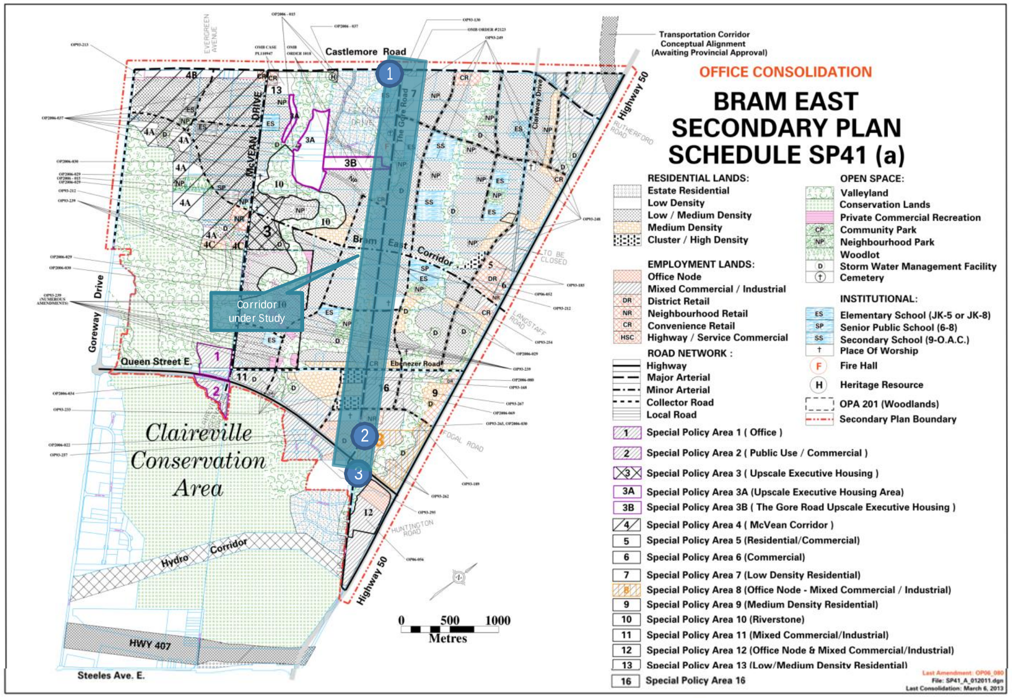
Spring/Summer 2015

Phase 4

This phase involves:

- Review and consider input received during and following Public Open House # 2
- File Environmental Study Report
- Public opportunity to request additional studies and review by the Minister of the Environment

6 Future Land Use



NOTICE: OFFICIAL PLAN AMENDMENT AND ZONING BY-LAW AMENDMENT

A PROPOSAL HAS BEEN MADE TO:
AMEND THE OFFICIAL PLAN AND ZONING BY-LAW FROM ESTATE RESIDENTIAL TO COMMERCIAL TO PERMIT A RETAIL COMMERCIAL AND OFFICE DEVELOPMENT

Owner: 1433468 ONTARIO INC.
Agent: GAGNON & LAW URBAN PLANNERS LTD.

For further information, phone the City of Brampton Planning, Design & Development Department 905 (874-2050) and refer to File #C09E10.009

DATE SIGN ERECTED: NOVEMBER 1, 2012

NOTICE: APPLICATION TO AMEND THE OFFICIAL PLAN ZONING BY-LAW, AND DRAFT PLAN OF SUBDIVISION

A PROPOSAL HAS BEEN MADE TO:
AMEND THE OFFICIAL PLAN AND ZONING BY-LAW FROM EMPLOYMENT TO RESIDENTIAL AND DRAFT PLAN OF SUBDIVISION FOR A TOTAL OF 630 RESIDENTIAL UNITS (SINGLE DETACHED, SEMI - DETACHED, TOWNHOUSES, LIVE-WORK, AND APARTMENTS), PARK, OPEN SPACE, AND STORMWATER MANAGEMENT POND

Owner: TACC HOLBORN CORPORATION.
Agent: GAGNON & LAW URBAN PLANNERS LTD.

For further information, phone the City of Brampton Planning, Design & Development Department (905) 874-2050 and refer to File #C10E04.005, 21T-13004B

DATE SIGN ERECTED: MAY 31 , 2013

NOTICE: OFFICIAL PLAN and ZONING BY-LAW AMENDMENTS

A PROPOSAL HAS BEEN MADE TO:

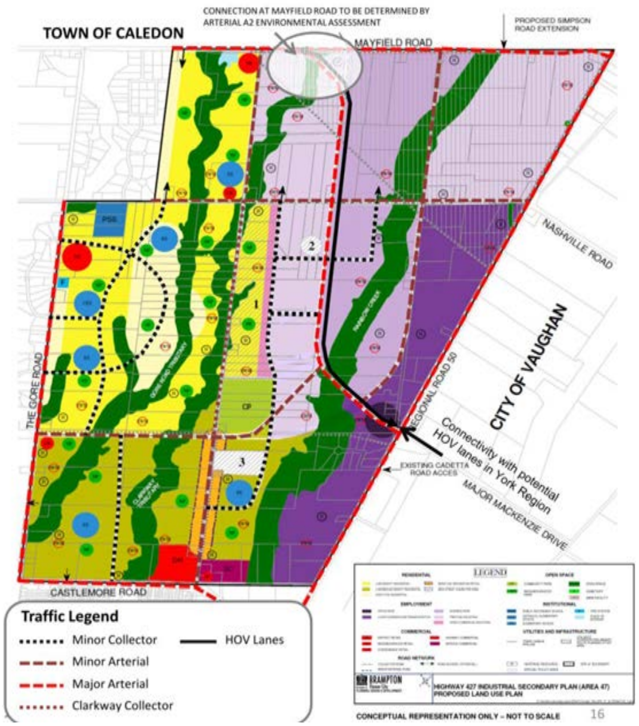
DEVELOP THE LANDS WITH A TWO-STOREY BUILDING FOR HIGHWAY COMMERCIAL USES CONTAINING A GAS BAR, CAR WASH, CONVENIENCE STORE AND TWO TAKE-OUT RESTAURANTS ON THE GROUND FLOOR AND OFFICES ABOVE.

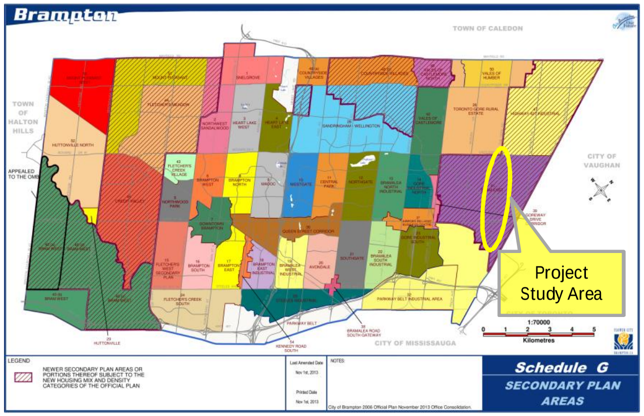
Owner: 2182036 Ontario Inc. 647-267-5756
Agent: Weston Consulting 905-738-8080

For Further Information, phone the City of Brampton Planning & Infrastructure Services Department 905-874-2050 and refer to File C10E04.006

DATE SIGN ERECTED: MARCH 18, 2014

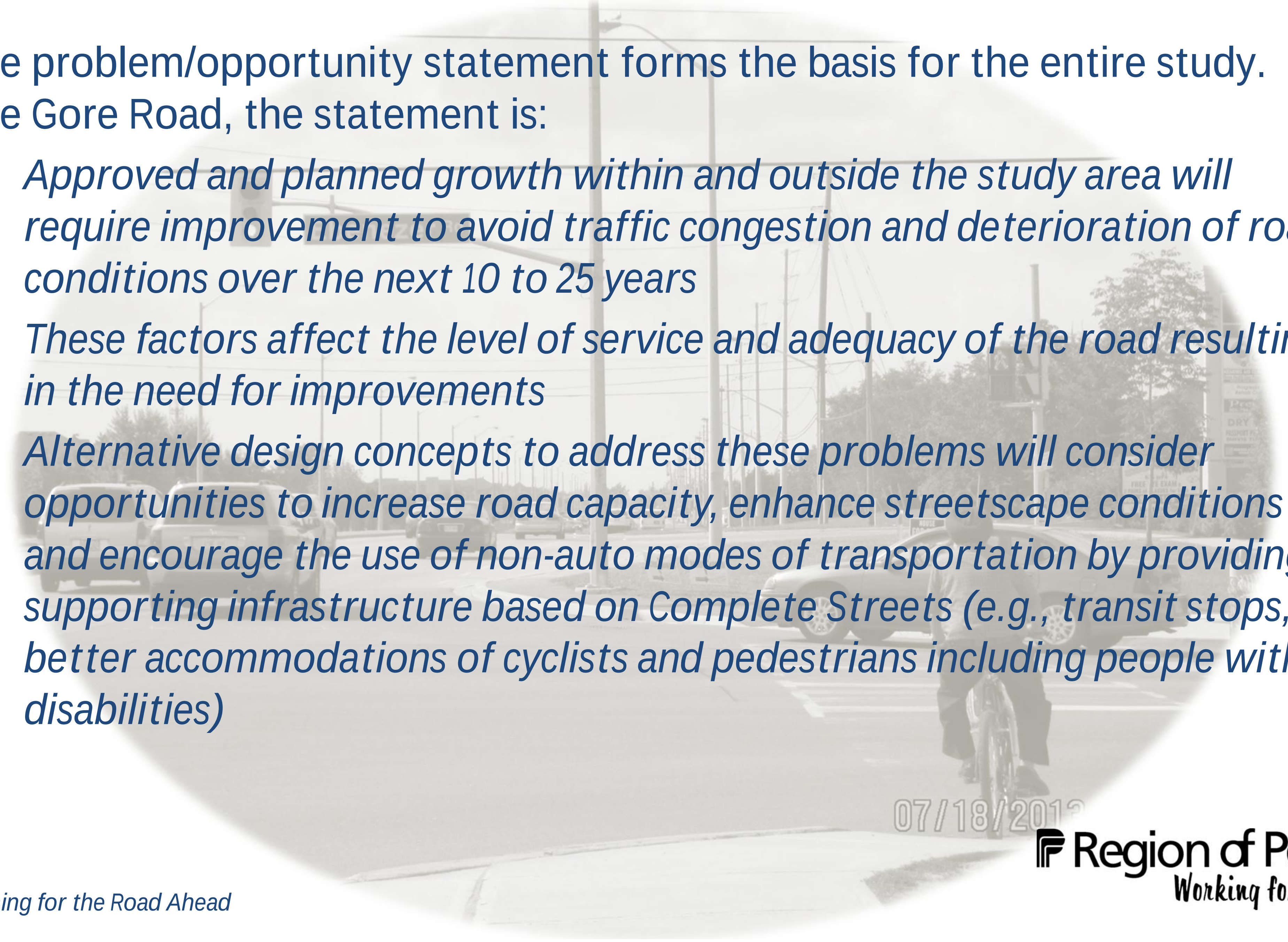
City of Brampton, Secondary Plan Area 47





Planning for the Road Ahead

7 Problem/Opportunity Statement

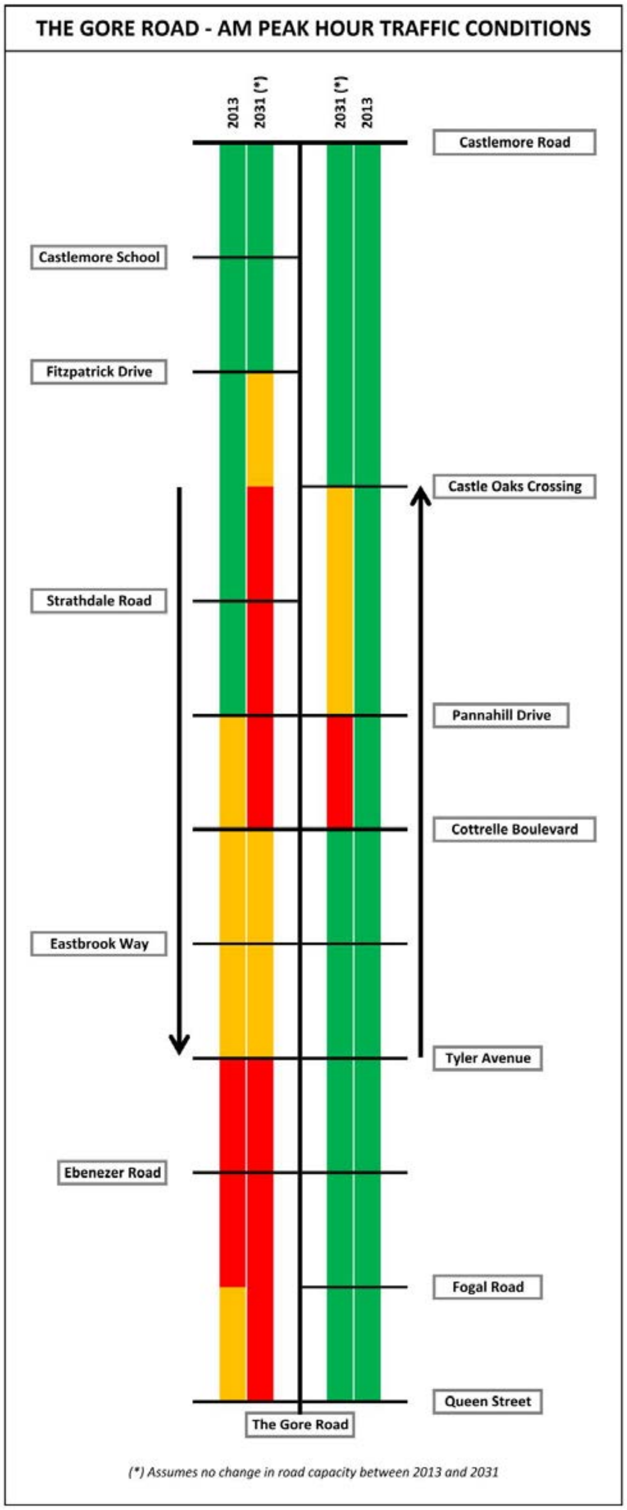


The problem/opportunity statement forms the basis for the entire study. For The Gore Road, the statement is:

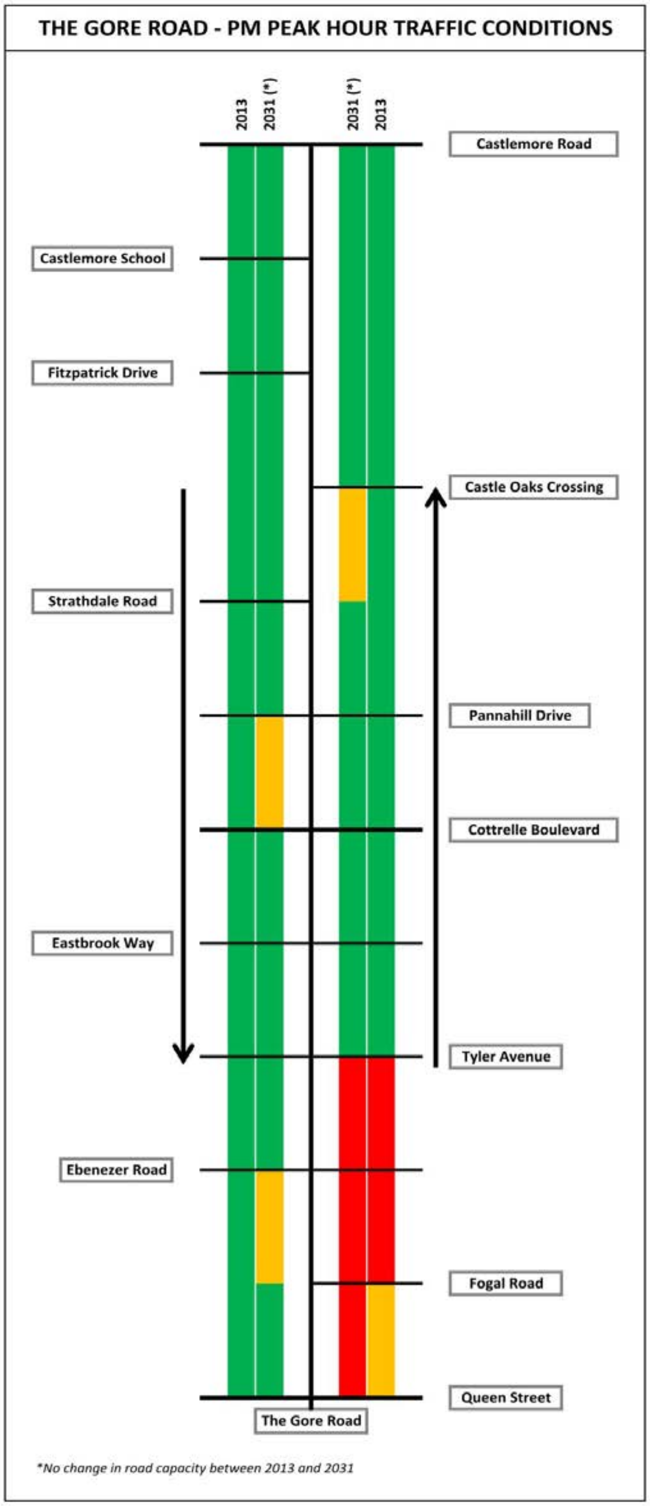
- *Approved and planned growth within and outside the study area will require improvement to avoid traffic congestion and deterioration of road conditions over the next 10 to 25 years*
- *These factors affect the level of service and adequacy of the road resulting in the need for improvements*
- *Alternative design concepts to address these problems will consider opportunities to increase road capacity, enhance streetscape conditions and encourage the use of non-auto modes of transportation by providing supporting infrastructure based on Complete Streets (e.g., transit stops, better accommodations of cyclists and pedestrians including people with disabilities)*

Region of Peel
Working for you

8 Transportation – Existing and Future Conditions



(*) Assumes no change in road capacity between 2013 and 2031



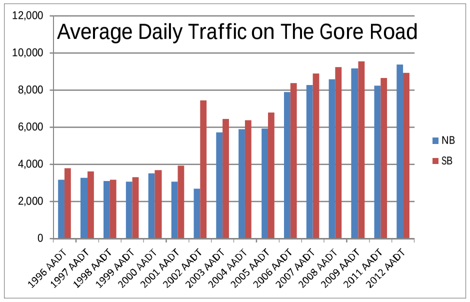
**No change in road capacity between 2013 and 2031*

Legend

🟩 Operates Well (Avg. delay less than 30 seconds per vehicle)
🟨 Moderate Congestion (Avg. delay between 30 seconds and 60 seconds per vehicle)
🟥 Major Congestion (Avg. delay greater than 60 seconds per vehicle)

Note: The specified delay ranges were estimated by comparing existing (2013) and future (2031) link traffic volumes to a planning level link capacity. Traffic growth rates and link capacities were obtained from the Peel Region Long Range Transportation Plan (LRTP) travel demand forecasting model.

9 Transportation – Operations and Safety



Traffic Volumes/Growth

- The Gore Road has experienced dramatic growth in usage since the 1990s but demand has leveled off since 2006. Planned development to the north of Castlemore Road and beyond is expected to trigger a surge in future demand. The Gore Road will be congested when that development is complete (after 2020)

Intersection Operations/Congestion

- With the recent widening, all intersections on The Gore Road currently operate well, with the exception of Queen Street, where several movements are delayed during peak periods. Delays are also known to occur during concentrations of school, religious, or banquet traffic

Vehicular Safety

- We are continuing to investigate the safety record of The Gore Road, but nothing unusual or problematic has emerged yet

Transit

- In peak periods, there is a bus on The Gore Road every 12 minutes south of Cottrelle, and every 20 minutes to the north. Brampton Transit plans to increase service in accordance with demand. Brampton has designated The Gore Road as a Primary Transit Corridor

Pedestrian Movement and Personal Safety

- A multi-use trail is planned for the west side of The Gore Road
- Improvements can be made in maintenance practices that will help the pedestrian environment


Need to maintain clear paths for pedestrians

Cycling Activity and Safety

- Only Castle Oaks Crossing has bike lanes today

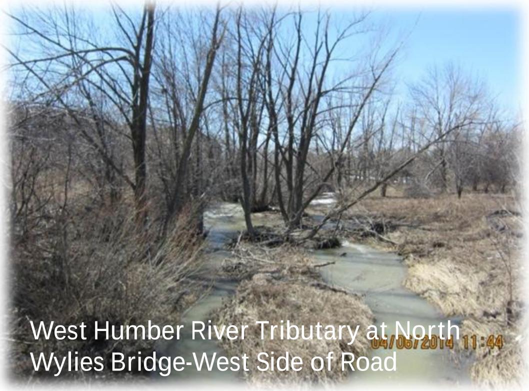

Bicycle Lane on Castle Oaks Crossing

Existing Environmental Conditions: West Humber Tributary

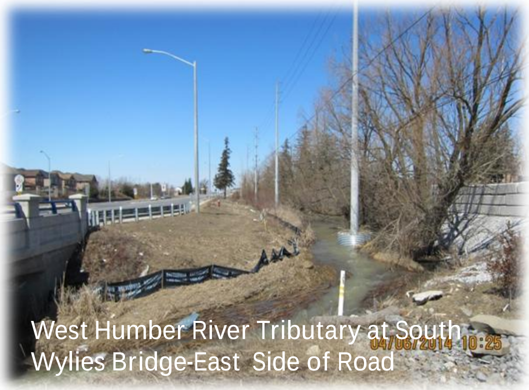
- Fluvial geomorphology is used to understand the historical and possible future movement of the stream channel allows for the proper planning of road structures such as bridges and culverts
- So far, we have reviewed historical aerial photography as well as surficial geology, land use and topography
- Future activities include a field assessment along the stream to collect additional important data

Existing Environmental Conditions: Aquatic (water)

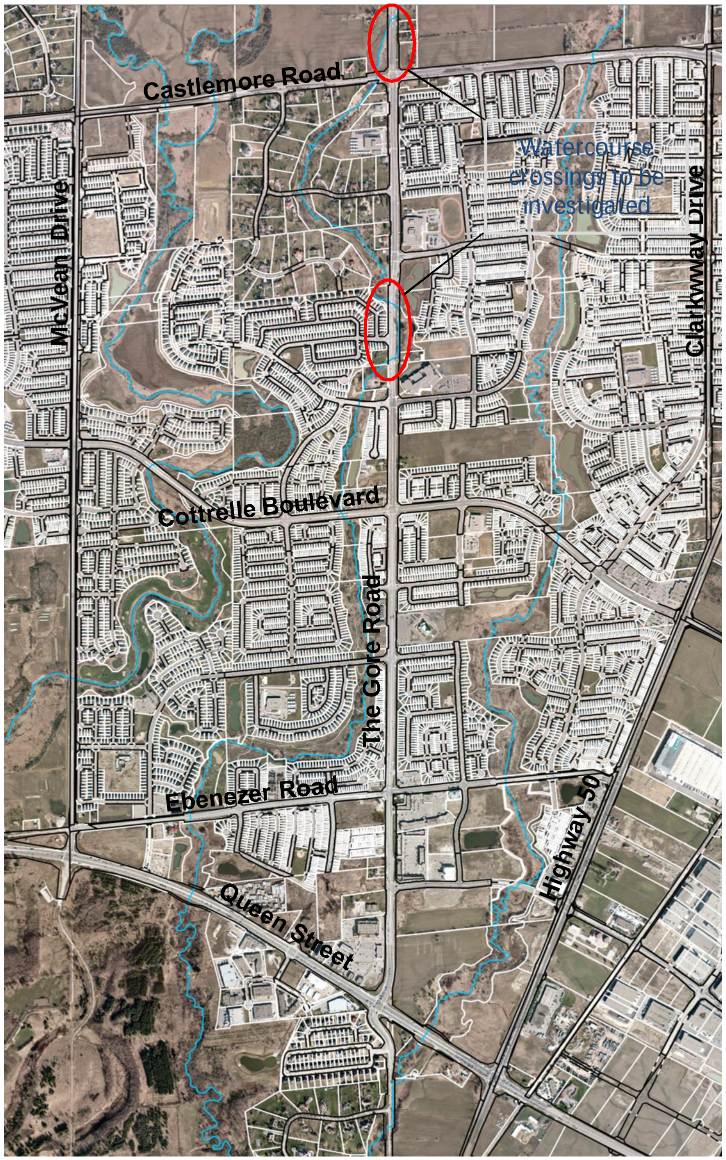
- Field investigations on various aquatic features of the adjacent stream will identify how road improvements could affect fish communities and habitat
- Preliminary research has confirmed that this is currently classified as a degraded warm water stream with no sensitive species
- Future investigations will study fish habitat features such as:
  - Bank stability
  - Barriers to fish movement
  - Aquatic vegetation



West Humber River Tributary at North Wylies Bridge-West Side of Road



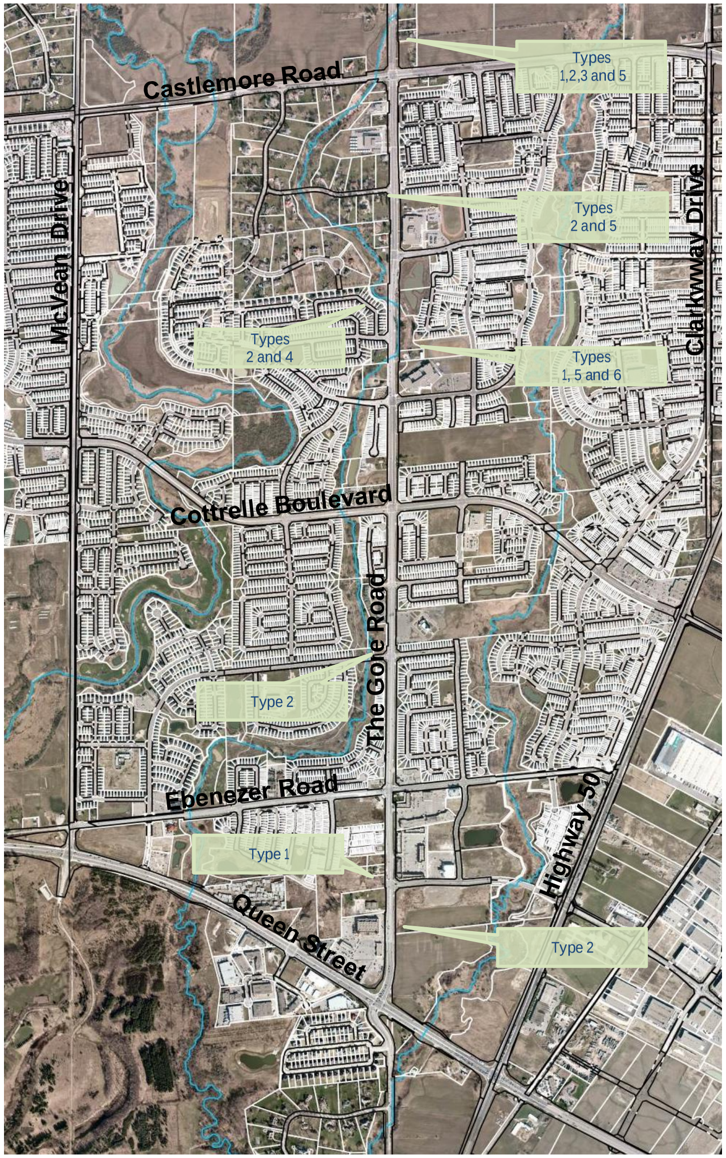
West Humber River Tributary at South Wylies Bridge-East Side of Road



Planning for the Road Ahead

Existing Environmental Conditions: Terrestrial (on ground)

- The following 6 vegetation types are found within the study area:
  1. Mineral Cultural Meadow Ecosite
  2. Dry-Moist Old Field Meadow Type
  3. Fresh-Moist Ash Lowland Deciduous Forest Type
  4. Fresh-Moist Willow Lowland Deciduous Forest Type
  5. Cattail Mineral Shallow Marsh Type
  6. Reed-canary Grass Mineral Meadow Marsh Type
- None of the above communities are considered to be rare within the Region of Peel or Provincially Significant
- A tree inventory survey will be completed along the entire corridor
- Project study area will also be screened for potential Species at Risk (e.g., Butternut Tree, Barn Swallows)



Cattail Mineral Shallow Marsh Type

Fresh Moist Ash Lowland Deciduous Forest Type

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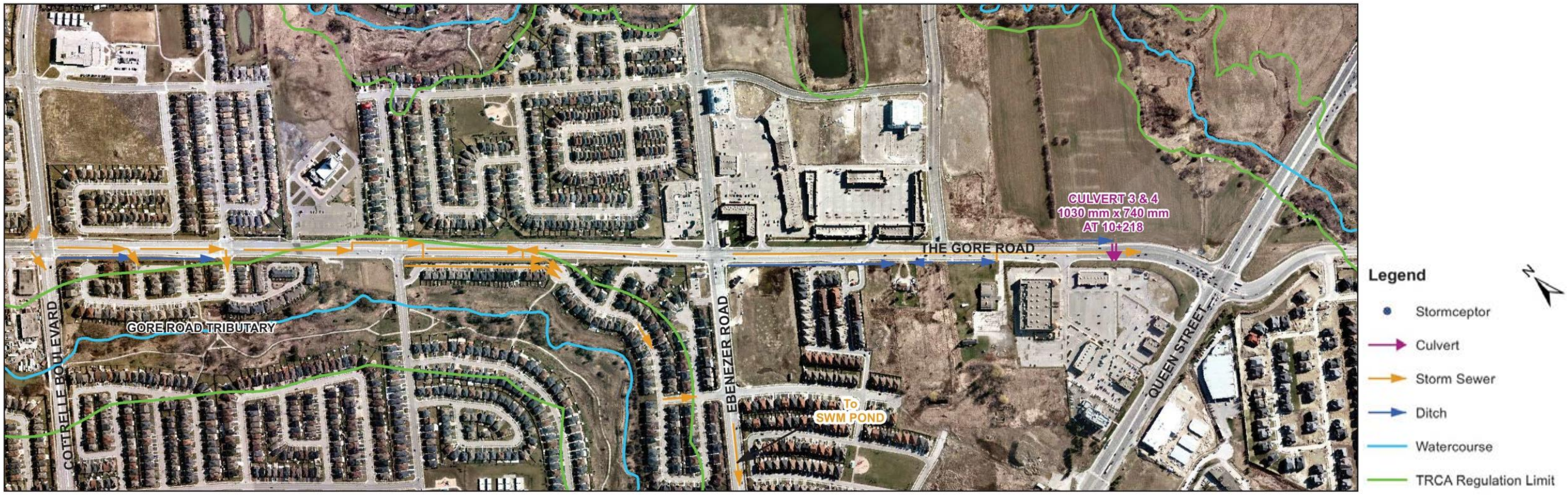
Existing Environmental Conditions: Drainage and Stormwater Management



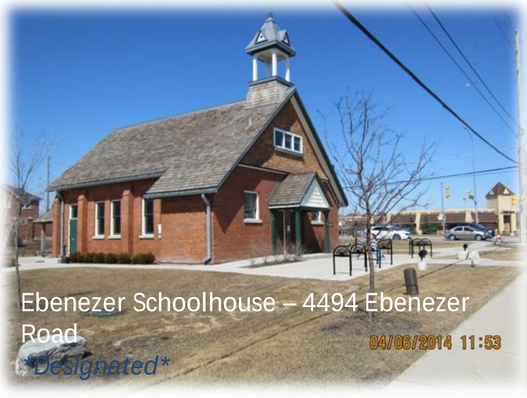
Existing Environmental Conditions: Archaeology and Built Heritage

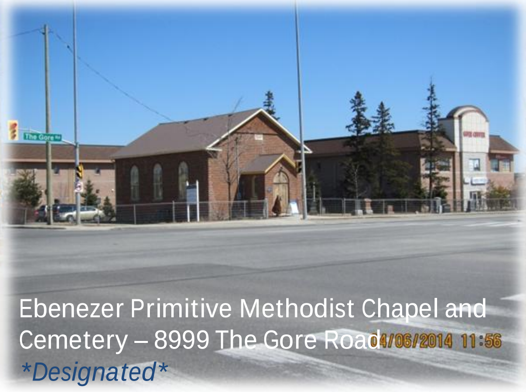
Archaeology

- The existing road does not have any archaeological interest, however, there are 12 areas in the surrounding area that may be of archaeological interest

Built Heritage

- The following cultural heritage resources are located near The Gore Road


Ebenezer Schoolhouse – 4494 Ebenezer Road
Designated


Ebenezer Primitive Methodist Chapel and Cemetery – 8999 The Gore Road
Designated


Mature Spruce Tree Line

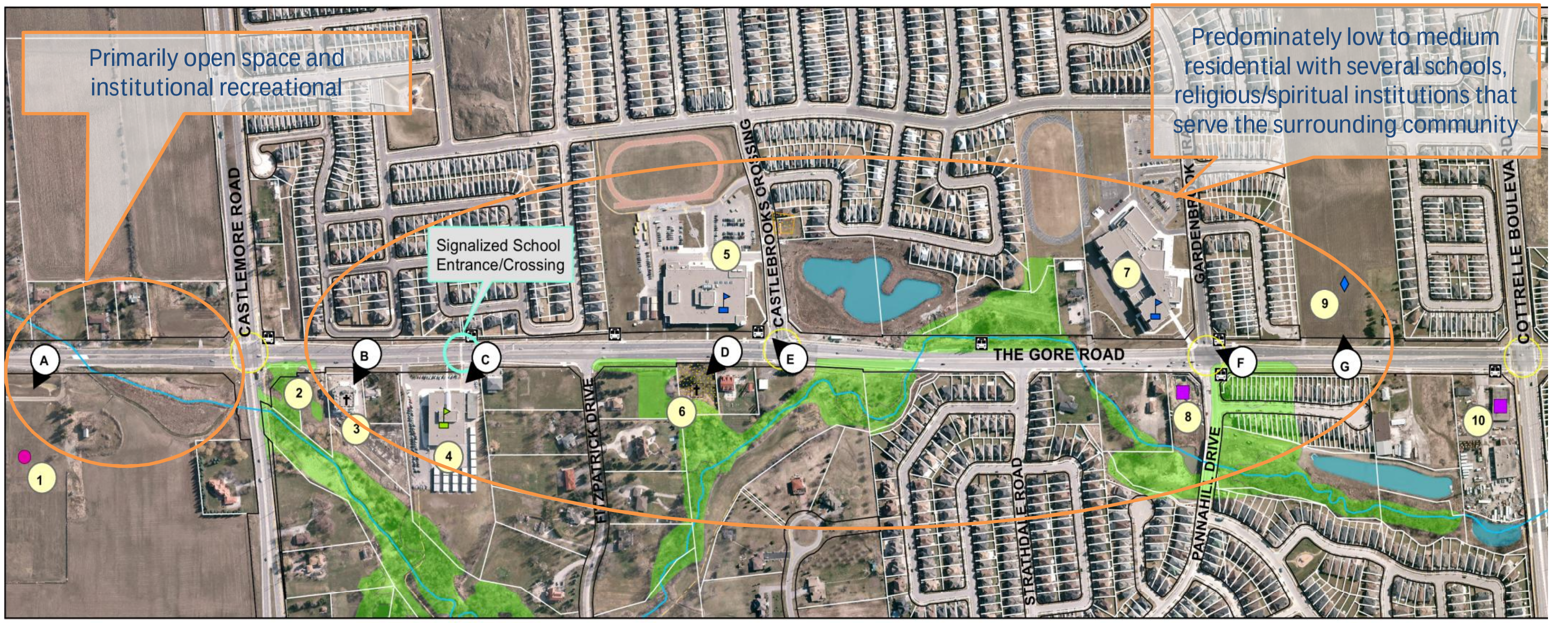

St. John Cemetery

- Ebenezer Schoolhouse (today Ebenezer Community Hall) recently went through a full restoration

Region of Peel
Working for you

Planning for the Road Ahead

15 Existing Land Uses – North Area



Land Uses

1. Gore Meadows Community Centre & Library
2. Vacant – Future Retail Commercial/Office Development
3. Nanaksar Thath Isher Darbar Sikh Temple
4. Castlemore Public School
5. Cardinal Ambrozic Catholic Secondary School
6. St. John Cemetery
7. Castlebrooke Secondary School
8. Commercial (under development – future Asian Food centre)
9. Vacant (future development – to be determined)
10. Retail Commercial

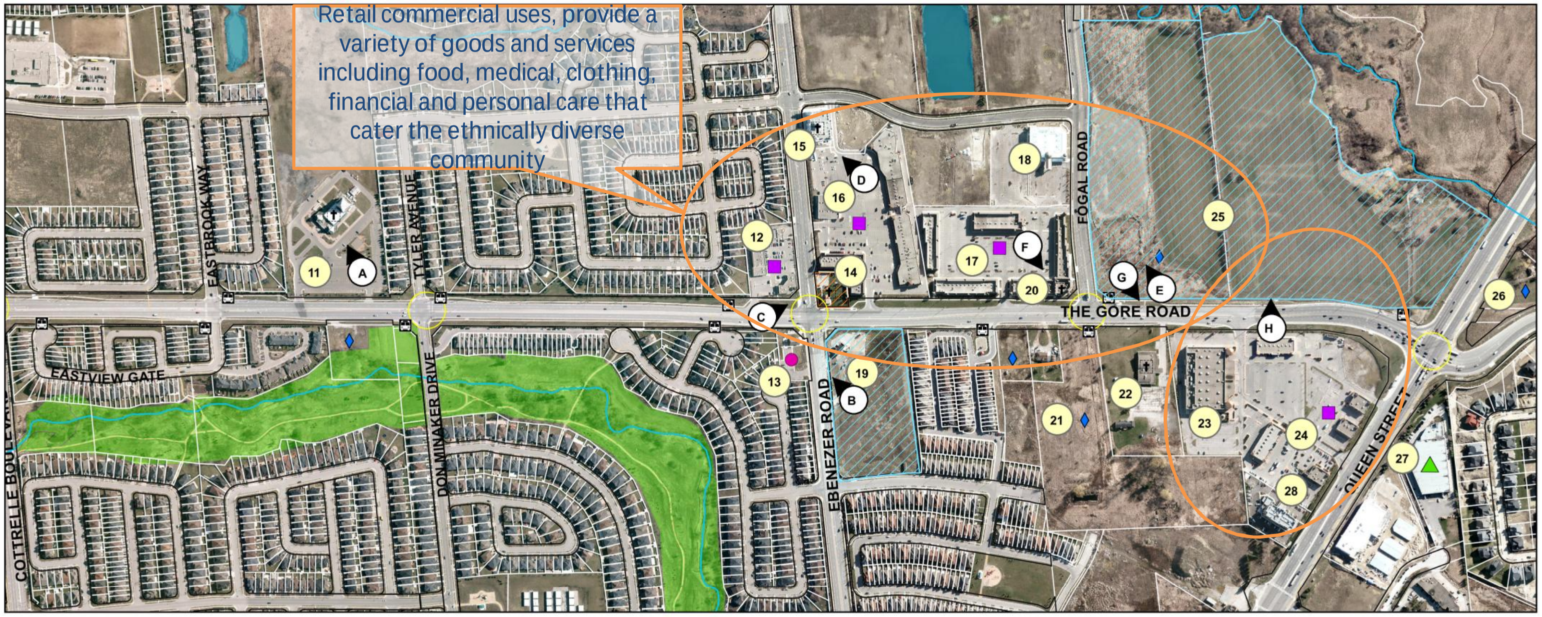
Legend

- Elementary School
- Secondary School
- ● Community Centre
- ▲ Industrial
- Brampton Transit Bus Stop
- ■ Commercial
- ○ Signalized Intersection
- ✝ Spiritual Centres
- ◆ Vacant Lands
- Watercourse
- Trails
- ① Land Use Feature ID #
- Ⓐ Land Use Feature Photo
- ▨ Cemetery
- 🟩 Natural Cover

Region of Peel
Working for you

Planning for the Road Ahead

Existing Land Uses – South Area



Retail commercial uses, provide a variety of goods and services including food, medical, clothing, financial and personal care that cater the ethnically diverse community

Land Uses

- (11) Hindu Sabha Temple
- (12) Retail Commercial
- (13) Ebenezer Community Hall (formerly Ebenezer School)
- (14) Ebenezer Chapel and Cemetery
- (15) Gurdwara Sahib Dasmesh Darbar Temple
- (16) Retail Commercial
- (17) Retail Commercial
- (18) Grand Empire Banquet and Convention Centre
- (19) Townhouses (under development)
- (20) Sant Gyaneshwar Hindu Ashram
- (21) Vacant (future development-to be determined)
- (22) Chinmaya Mission Toronto
- (23) Embassy Grand Convention Centre
- (24) Retail Commercial
- (25) Vacant-Future Low and Medium Residential
- (26) Vacant - Future Highway Commercial
- (27) Industrial-Light Manufactoring (EM Plastics and Electric Products Ltd.)
- (28) Hampton Inn Hotel

Legend

- Elementary Schoo
- Secondary School
- ● Community Centre
- ▲ Industrial
- Brampton Transit Bus Stop
- ■ Commercial
- ○ Signalized Intersection
- ✝ Spiritual Centres
- ◆ Vacant Lands
- Watercourse
- Trails
- (1) Land Use Feature ID #
- (A) Land Use Feature Photo
- ▨ Lands Under Development or subject to a Municipal Planning Application Process
- ▨ Cemetery
- 🟩 Natural Cover

Region of Peel
Working for you

Planning for the Road Ahead

17 Preliminary Evaluation Criteria

- Before we can decide on the best alternatives for The Gore Road, we need to identify the criteria that will be used to evaluate the alternatives
- Please use the comment sheet to tell us which criteria are important to you

Technical

Transportation

- Effect on transit, cycling and pedestrian facilities
- Effect on local street connectivity
- Effect on safety
- Effect on overall network delay and future road capacity beyond 2020

Constructability

- Effect on ease of construction including phasing

Stormwater Management

- Effect on stormwater management including drainage patterns

Utility Conflicts

- Effect on existing utilities located within and outside of the Region's right of way

Natural Environment

Terrestrial Features

- Effects on terrestrial habitats or functions (e.g., trees, shrubs, vegetation)
- Effect on terrestrial species including Species at Risk

Aquatic Features

- Effects on aquatic habitat or functions
- Effect on aquatic species including Species at Risk

Groundwater and Surface Water

- Effect on groundwater
- Effect on surface water

Socio-Economic Environment

Property Requirements

- Effect on public property
- Effect on private property

Overall Community

- Effect on existing established communities and businesses, noise/dust/vibration
- Effect on planned future land use along corridor

Street Character and Vibrancy

- Effect on visual character of road corridor
- Effect on urban design

Cultural Environment

Archaeological Resources

- Effect on known or potential significant archaeological resources

Built Heritage and Cultural Landscape

- Effect on built heritage resources and cultural landscape features

Costs

- Effect on value/cost-benefit and affordability

Region of Peel
Working for you

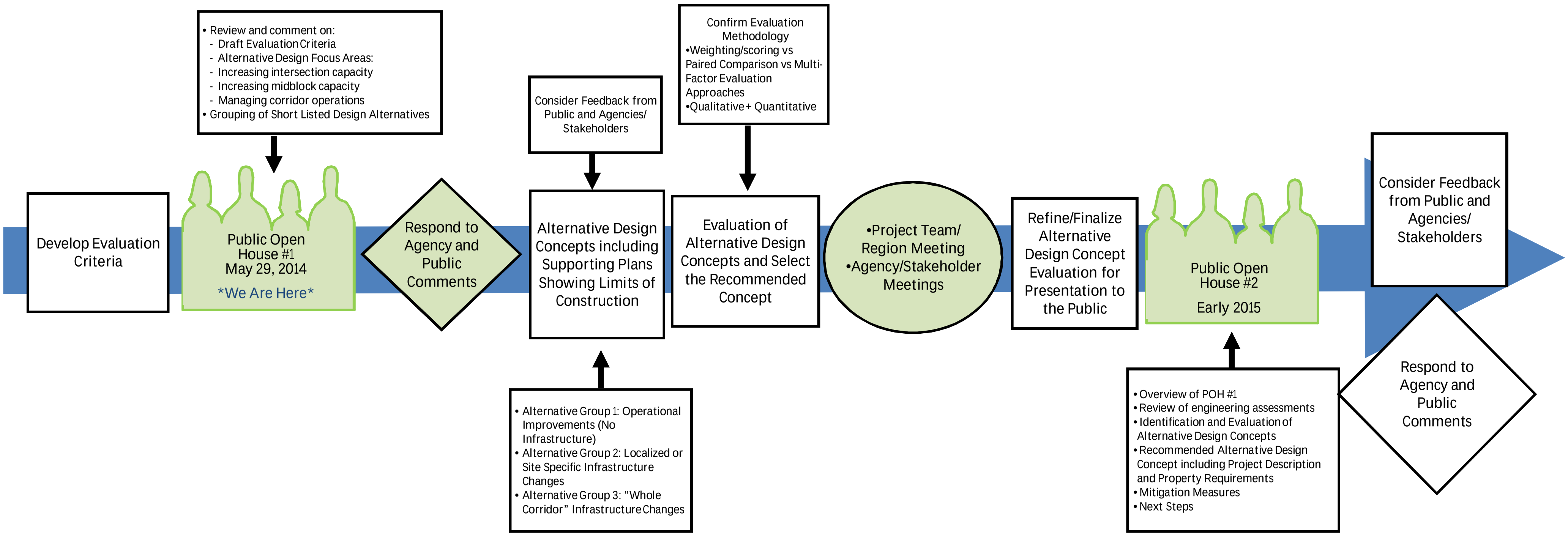
18 Alternatives Under Consideration

- Many alternatives are being considered to address problems and opportunities:

"Long List" of Alternative Ideas	Screening Result	Alternative Groups for Further Study
1. Increase Intersection Capacity		Alternative Group 1: Operational Improvements (No Infrastructure) 1a) More green time for N-S traffic 1b) Increase cycle length 1c) Coordinate signal timing 1d) Signage review/ improvement
a. More green time for North-South traffic	Carry Forward (Group 1) (for testing and refinement)	
b. Longer traffic signal cycle length	Carry Forward (Group 1)	
c. Double left turn lanes	Carry Forward (Group 2)	
d. High-capacity intersection designs to reduce turning traffic conflicts	Carry Forward (Group 2) (at grade options)	
e. Pedestrian bridges or tunnels across The Gore Road	Set Aside, not appropriate in this context	
f. Wide median for two-stage pedestrian crossings	Set Aside, excessive penalties to pedestrians	
2. Increase Roadway Capacity		Alternative Group 2: Localized Site Specific Infrastructure Changes 2a) Double left turn lanes 2b) High-Capacity intersection designs 2c) Reduce driveway left turns 2d) Implement bus bays
a. Adding one through lane in each direction throughout the corridor	Carry Forward (Group 3)	
b. Use reversible lanes to increase peak direction capacity without widening in both directions	Carry Forward (Group 3) (five-lane option with tidal flow operation)	
3. Manage Gore Road Operations		
a. Reduce the number of intersections and driveways	Carry Forward (Group 3)	
b. Implement bus bays	Carry Forward (Group 2)	
c. Restrict left turns (in peak periods, or all day)	Carry Forward (Group 2)	
d. Restrict truck traffic	No Further Action, trucks already restricted from using The Gore Road	Alternative Group 3: "Whole of Corridor" Infrastructure Changes 3a) Adding one lane in each direction in part or all of the corridor 3b) Five-lane configuration with Tidal Flow operation (reversible median lane) 3c) Eliminate midblock left turns
e. Coordinate signal timing	Carry Forward (Group 1)	
f. Increase the speed limit	Set Aside, not desirable	
g. Ensure road signs are clear and properly located	Carry Forward (Group 1)	
h. Restrict advertising and other motorist distractions	No Further Action, By-Laws in place	
i. Providing trip planning and real-time traffic information to influence motorists' decisions to use The Gore Road (time, mode, route of travel)	No Further Action, GTA-wide activity, not specific to The Gore Road	

19

Analysis and Evaluation Process



Develop Evaluation Criteria

- Review and comment on:
  - Draft Evaluation Criteria
  - Alternative Design Focus Areas:
  - Increasing intersection capacity
  - Increasing midblock capacity
  - Managing corridor operations
- Grouping of Short Listed Design Alternatives

Public Open House #1
May 29, 2014
We Are Here

Respond to Agency and Public Comments

Consider Feedback from Public and Agencies/ Stakeholders

Alternative Design Concepts including Supporting Plans Showing Limits of Construction

- Alternative Group 1: Operational Improvements (No Infrastructure)
- Alternative Group 2: Localized or Site Specific Infrastructure Changes
- Alternative Group 3: "Whole Corridor" Infrastructure Changes

Confirm Evaluation Methodology
- Weighting/scoring vs Paired Comparison vs Multi-Factor Evaluation Approaches
- Qualitative + Quantitative

Evaluation of Alternative Design Concepts and Select the Recommended Concept

- Project Team/ Region Meeting
- Agency/Stakeholder Meetings

Refine/Finalize Alternative Design Concept Evaluation for Presentation to the Public

Public Open House #2

Early 2015

- Overview of POH #1
- Review of engineering assessments
- Identification and Evaluation of Alternative Design Concepts
- Recommended Alternative Design Concept including Project Description and Property Requirements
- Mitigation Measures
- Next Steps

Consider Feedback from Public and Agencies/ Stakeholders

Respond to Agency and Public Comments

What’s Next for the Study?

Study’s Next Steps

- Confirm existing conditions through site specific investigations – Spring/Summer 2014
- Describe and evaluate alternative design concepts – Fall/Winter 2014
- Identify preliminary recommended design concept – Early 2015
- Consult with key stakeholders and review agencies prior to Open House # 2
- Notification and hosting of Open House # 2 – Early 2015

Please note, timing and cost of improvements are determined at the end of the study following confirmation of the recommended design alternative(s).

How You Can Participate

Planning Your Way

- The best plan for The Gore Road will be created with input of the community
- Thank you for your participation and feedback today
- Please submit your comment sheet here or send your feedback by email, fax or letter to Neal Smith or Stephen Schijns (see below)
- To stay connected, please visit the study website at www.peelregion.ca/TheGoreRoad
- If you have signed in, you will be added to the study mailing list

Neal Smith, C.E.T
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, Ontario L6T 4B9
Tel: 905-791-7800 ext. 7866
Toll Free: 1-888-919-7800, Fax: 905-791-1442
Email: neal.smith@peelregion.ca

Stephen Schijns, P.Eng
Project Manager
AECOM
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
Tel: 905-238-0007
Direct: 905-206-8136
Email: stephen.schijns@aecom.com

The Gore Road’s Role in the Community

- We want to know what The Gore Road means to you and how it can best suit your needs in the future
- Using the sticky dots, highlight areas on the large map that are of concern and use post-it notes provided here to tell us what you feel should be important considerations when it comes to planning for your road and the community. Use this list to get you thinking:

Place post-it notes on
blank space below

Safety
Economic Vitality
Utilities
Traffic Congestion

Noise
Right of Way Constraints
Water Crossings
Cultural Heritage Resources

School Crossings
Aging Society
Cycling
Crossing Areas between Traffic Lights

Vibration
Walking
Path Connectivity
Stormwater Management

Bridges
Access to Businesses
Nature
Unsignalized Interesctions

POH 1 Comment Sheets

Region of Peel
Working for you

TOUCHING LIVES FOR 40 YEARS

COMMENT SHEET

Class Environmental Assessment Study for The Gore Road Improvements Queen Street to Castlemore Road

☐ We have no concerns and do not need to be involved in this study.
☐ We have no interest / concerns at this time, but wish to remain on the contact list.
☑ We have the following comment(s) and / or information requirements:

I would like to see bike lanes on ~~Gore and~~ + Gore Rd and Hwy 50
I want to see a b~~ike lan~~ ur lanes ~~and~~ on Hwy 50
~~Also~~ Longer left ~~turn~~ + turn signal ~~at~~ at ~~[illegible]~~ Dery
Rd and Breamele City center N~~E~~ W corner

Contact Info:

[redacted]

Please, write, fax or email your comments to:

Neal Smith
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 3B9
Tel: 905.791.7800 x7866
Fax: 905.791.1442

or

VISIT THE WEBSITE TO REVIEW THE OPEN HOUSE INFORMATION @ www.peelregion.ca/TheGoreRoad AND LEAVE US AN ELECTRONIC COMMENT

COMMENT SHEET

Class Environmental Assessment Study for The Gore Road Improvements Queen Street to Castlemore Road

☐ We have no concerns and do not need to be involved in this study.
☐ We have no interest / concerns at this time, but wish to remain on the contact list.
☑ We have the following comment(s) and / or information requirements:

We are developing the NE corner of Queen St. E / The Gore Rd. We would like the property impacts to this site to be minimized. Thank You

Contact Info:

[redacted]

Please, write, fax or email your comments to:

Neal Smith
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 3B9
Tel: 905.791.7800 x7866
Fax: 905.791.1442

or

VISIT THE WEBSITE TO REVIEW THE OPEN HOUSE INFORMATION @ www.peelregion.ca/TheGoreRoad AND LEAVE US AN ELECTRONIC COMMENT

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

COMMENT SHEET

Class Environmental Assessment Study for
The Gore Road Improvements
Queen Street to Castlemore Road

☐ We have no concerns and do not need to be involved in this study.
☐ We have no interest / concerns at this time, but wish to remain on the contact list.
☑ We have the following comment(s) and / or information requirements:

1) Approch to adjacent Buildings like Nanaksar temple/ ~~Com~~ Plaza on Gore/Fogal ~~is~~ should be looked upon and in future buildings also.
2) Adjacent buildings/Plaza should be architecturally contemporary
3) This area has lot of aging population, so Walkway & pedestrial crossing - designed keeping them in mind.
4) Don't allow Trucks as Hwy 50 is closeby

Contact Info:

[redacted]

Please, write, fax or email your comments to:

Neal Smith
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 3B9
Tel: 905.791.7800 x7866
Fax: 905.791.1442

or

VISIT THE WEBSITE TO REVIEW THE OPEN HOUSE INFORMATION @ www.peelregion.ca/TheGoreRoad AND LEAVE US AN ELECTRONIC COMMENT

Region of Peel
Working for you

40 Years TOUCHING LIVE
FOR 40 YEARS

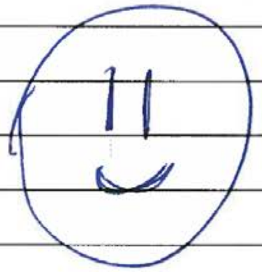
COMMENT SHEET

Class Environmental Assessment Study for
The Gore Road Improvements
Queen Street to Castlemore Road

☐ We have no concerns and do not need to be involved in this study.
☐ We have no interest / concerns at this time, but wish to remain on the contact list.
☐ We have the following comment(s) and / or information requirements:

①: grat plans

(2). go ahead.



Contact Info:

[redacted]

Please, write, fax or email your comments to:

Neal Smith
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 3B9
Tel: 905.791.7800 x7866
Fax: 905.791.1442

or

VISIT THE WEBSITE TO REVIEW THE OPEN HOUSE INFORMATION @ www.peelregion.ca/TheGoreRoad AND LEAVE US AN ELECTRONIC COMMENT

COMMENT SHEET

Class Environmental Assessment Study for
The Gore Road Improvements
Queen Street to Castlemore Road

☐ We have no concerns and do not need to be involved in this study.
☐ We have no interest / concerns at this time, but wish to remain on the contact list.
☑ We have the following comment(s) and / or information requirements:

Hoping There is no widening to 6 lanes
on the Gore Road

Contact Info:

[redacted]

Please, write, fax or email your comments to:

Neal Smith
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 3B9
Tel: 905.791.7800 x7866
Fax: 905.791.1442

or

VISIT THE WEBSITE TO REVIEW THE OPEN HOUSE INFORMATION @ www.peelregion.ca/TheGoreRoad AND LEAVE US AN ELECTRONIC COMMENT

[redacted]

POH 1 Summary Memorandum

AECOM
3 – 30 Hannover Drive
St. Catharines, ON, Canada L2W 1A3
www.aecom.com

905 682 0212 tel
905 682 4495 fax

Memorandum

To	Neal Smith	Page	1of 2
CC	Liz Brock - Peel Region; Steve Schijns, Jessica Mollo - AECOM		
Subject	The Gore Road Class EA: Phases 1 and 2 Consultation Summary		
From	Karl Grueneis		
Date	June 5, 2014	Project Number	60311637

1. Public Open House Notification:

The first of two Public Open Houses was held on May 29, 2014 from 5:30pm to 8:30pm at the Gore Meadows Community Centre, Brampton. Notification of Public Open House (POH) #1 was undertaken by publishing notices (see attached Notice of Study Commencement and First Public Open House) in the Brampton Guardian (May 8 and 22, 2014), and hand delivery of a door hanger (attached) to residents along and surrounding The Gore Road corridor (see attached notification area map). Other notices included hand delivery of post cards (same as door hanger) to local businesses in addition to notice mail out to review agencies and stakeholders. Approximately 5,000 door hangers and 200 post cards were distributed in the study area between May 26 and 27. The Notice of Study Commencement and POH #1 was mailed to review agencies and stakeholders including First Nations (see attached project mailing list) during the week of May 5, 2014. To date, no responses have been received with the exception of a response from Alderville First Nation who indicated that the proposed project is deemed a level 3, having minimal potential to impact First Nations' rights. Alderville would like to be informed of any archaeological findings, burial sites or any environmental impacts, should any occur.

Notice of POH #1 was also communicated via the Region's project web page peelregion.ca/TheGoreRoad which went live on Monday, May 15, 2014. The web page provides various links to study documents including study key messages, POH #1 information boards, notifications and study area aerial plans in addition to a link to provide comments and/or questions. As of June 5, the web page has received 151 views (3:15 minutes average time viewing) and no comments or questions have been submitted.

2. POH #1 Summary:

The POH was conducted in an open house (drop-in) format, with display material and study documentation available for review. Representatives from both the Region of Peel and AECOM were in attendance to discuss the information presented, receive comments and answer questions.

The purpose of the POH # 1 was to introduce the project, share study findings to date and seek comments on the following key information:

- Study background schedule and planning process
- Road design considerations
- Study area features
- Existing conditions
- Proposed evaluation criteria
- Screening of long list of alternative ideas
- Analysis and evaluation process
- Next steps

A large role plan of The Gore Road was also laid out in the middle of the room to generate discussion along with a board encouraging attendees to note elements of importance to be considered in the planning of the road improvements.

Seventeen people attended the PIC (see attached sign-in sheet) including local residents, Councilor John Sprovieri, Dan Labrecque – Public Works Commissioner, developer consultants, and members of the general public.

3. Comments Received - Feedback

General one on one discussions and issues raised by attendees are summarized below:

- Request confirmation on The Gore Road and Queen Street intersection property impacts for following proposed developments (consultant representatives added to contact list):
  - South east quadrant (proposed gas station)
  - North east quadrant (proposed residential/mixed use development)
- Fogel Drive/Gore Road Plaza traffic backs up on weekends – consider right turn exit lane to allow better flow outbound
- What elements (e.g. multi-use path) can be advanced in next few years? (Councilor Sprovieri)
- Safety concerns related to Castlemore Public School road crossing – consider bridge over The Gore Road?

Five comment sheets were received (see attached) and are summarized as follows:

- Support for bicycle lanes
- Road widening and any Queen Street intersection alignment should minimize property impacts – taking at north east corner of The Gore Road and Queen Street (proposed residential/mixed use development)
- Access to adjacent community facilities should be considered (e.g. Nanaksan Temple, Shopping Plazas)
- Study area includes many seniors who have specific needs
- Do not support widening to 6 lanes or trucks on The Gore Road
- General support for the project

Specific Feedback – The Gore Road’s Role in the Community

The following areas of community importance were identified by several attendees through the use of post-it notes.

- Safety
- Walking
- Nature
- Cycling
- Bridges
- School crossing
- Approach to adjacent building
- Stormwater Management
- Aging society
- Architectural look of adjacent building
- Transit

The above will be considered in the development of road improvement design concepts.

4. Summary:

Considerable outreach efforts were undertaken by the Region in getting the word out about the study and how the community can get involved. The first POH was generally well attended and no serious comments or issues have been raised to date.

A.3 PUBLIC OPEN HOUSE # 2

Newspaper Notice

Region of Peel
Working for you

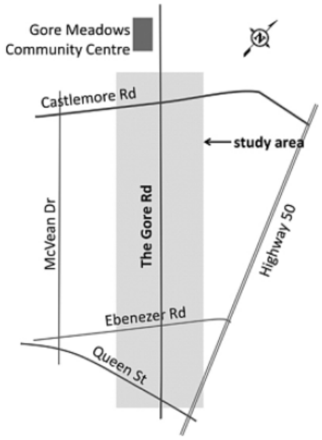
Public Notice

THE GORE ROAD

Municipal Class Environmental Assessment from Queen Street to Castlemore Road

This is the second and final **Public Open House** for the proposed improvements to The Gore Road. It will present the preliminary recommended alternative design and proposed impacts as well as provide an opportunity for you to comment.

Please join us at the second
Public Open House
Tuesday, Feb. 23, 2016
Gore Meadows Community Centre
(across from the snack bar)
10150 The Gore Rd.
Brampton, Ontario
6:30 p.m. to 8:30 p.m.



Your opinion matters and we welcome your participation!

For study background details visit us on-line at:
peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm
or call **Neal Smith** at **905-791-7800** extension **7866**

The Region of Peel is committed to ensure that all Regional services, programs and facilities are inclusive and accessible for persons with disabilities. Please contact the project manager if you need any disability accommodations to participate in the public meeting.

This notice was first issued on February 11, 2016

With the exception of personal information, all comments will become part of the public record of the study. The study is being conducted according to the requirements of the Municipal Class Environmental Assessment, which is a planning process approved under Ontario's *Environmental Assessment Act.*

Letter Notice

AECOM

Region of Peel
Working for you

February 9, 2016

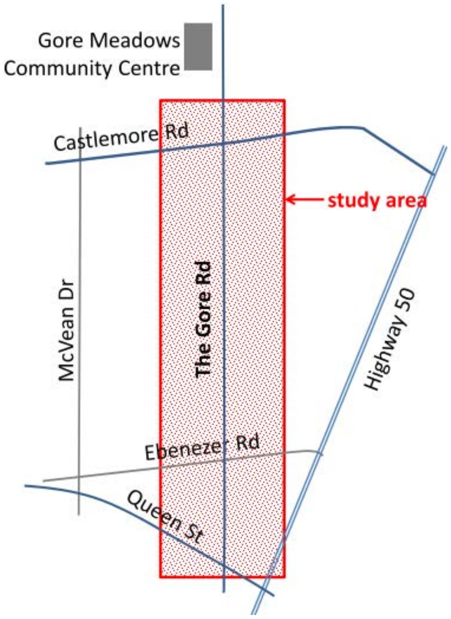
Dear

Re: Notice of Public Open House No. 2
Municipal Class Environmental Assessment Study for Improvements to The Gore Road from Queen Street to Castlemore Road

This is the second Public Open House (POH) for the proposed improvements to The Gore Road.

Please join us and provide your comments at the ***second*** and ***final*** POH where the **preliminary recommended alternative design** and **proposed impacts** will be presented. The POH will be held on:

Date: Tuesday, February 23, 2016
Location: Gore Meadows Community Centre & Library
(across from the snack bar)
Time: 6:30 p.m. to 8:30 p.m.



If you cannot attend the POH and wish to provide comments, please visit our website and use our interactive comment box or, send comments using the attached comment sheet by letter, fax or e-mail. The information boards will be posted on the Region's website following the Open House at:

peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

Sincerely,

Neal Smith, C.E.T.
Project Manager, Infrastructure Programming & Studies
Phone No.: 905-791-7800 ext. 7866
Fax No.: 905-791-1442
Email: neal.smith@peelregion.ca

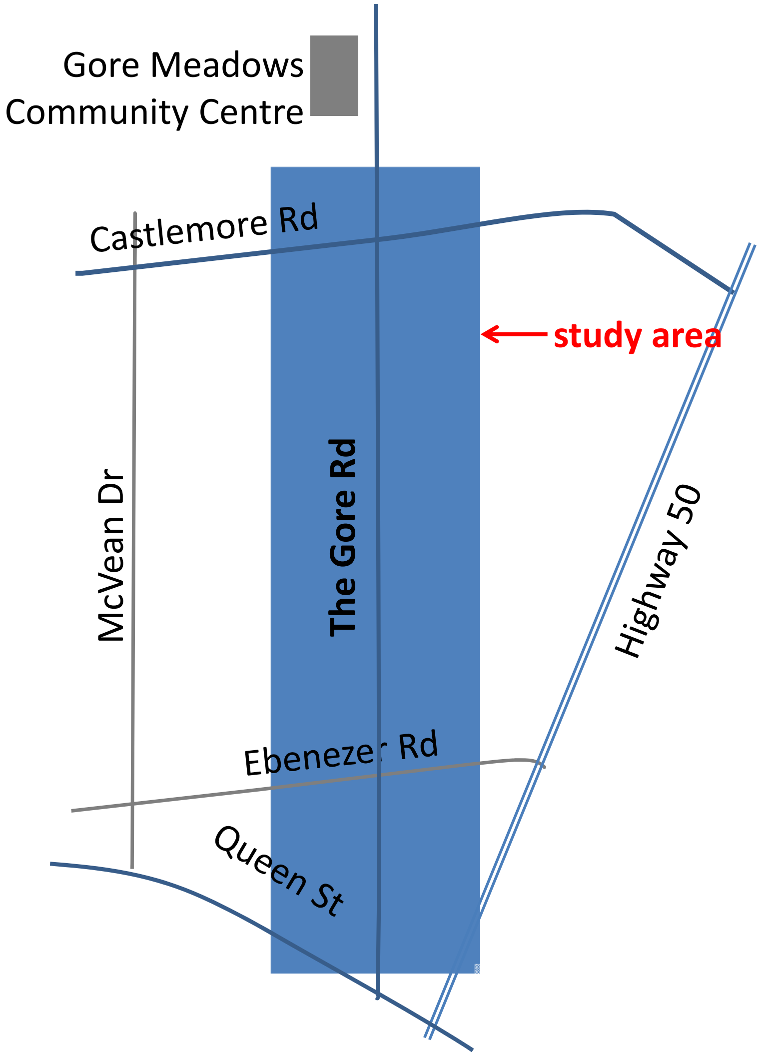
The Region of Peel is committed to ensure that all Regional services, programs and facilities are inclusive and accessible for persons with disabilities. Please contact the project manager if you need any disability accommodations to participate in the public meeting.

Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

Display Boards

Region of Peel
Working for you

W e l c o m e



to **The Gore Road Environmental Assessment**

Queen Street to Castlemore Road

Public Open House #2

February 23, 2016

Please come and visit us opposite the snack bar to find out more about the study

Region of Peel
Working for you

Purpose and Content of Public Open House # 2

The purpose is to update you on the study progress and provide an opportunity for you to comment on the recommended preferred solution and design concept.

The Open House will present information on:

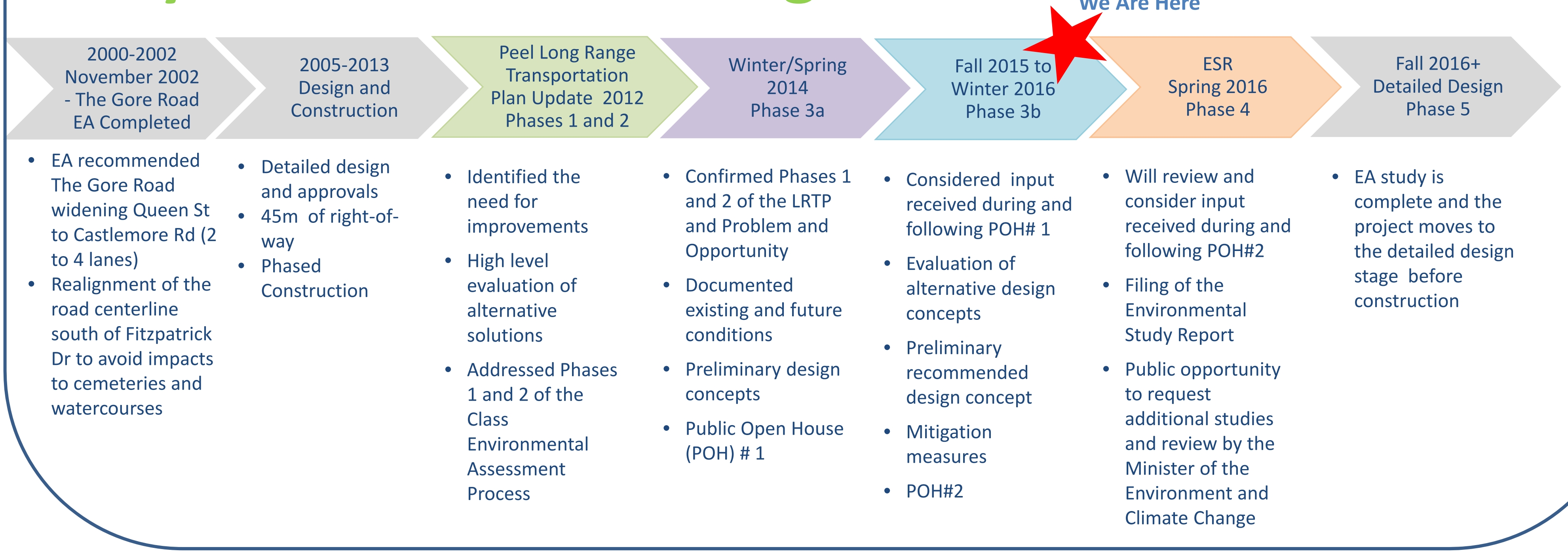
- What has happened since the first Open House
- The overall preliminary recommended design including any property requirements
- Key features of the design including the use of a “Complete Streets” approach and new stormwater management practices
- The potential environmental impacts and ways to reduce the impacts of the preliminary recommended design, and
- The project schedule and next steps

Region of Peel
Working for you

- **Phase 1** •Problem Identifications Steps
- **Phase 2** •Alternative Planning Solution Steps
- **Phase 3** •Alternative Design Concepts for the Preferred Solution
- **Phase 4** •Environmental Study Report (ESR)
- **Phase 5** •Implementation

Phases of the Municipal Class Environmental Assessment process

Study Schedule & Planning Process

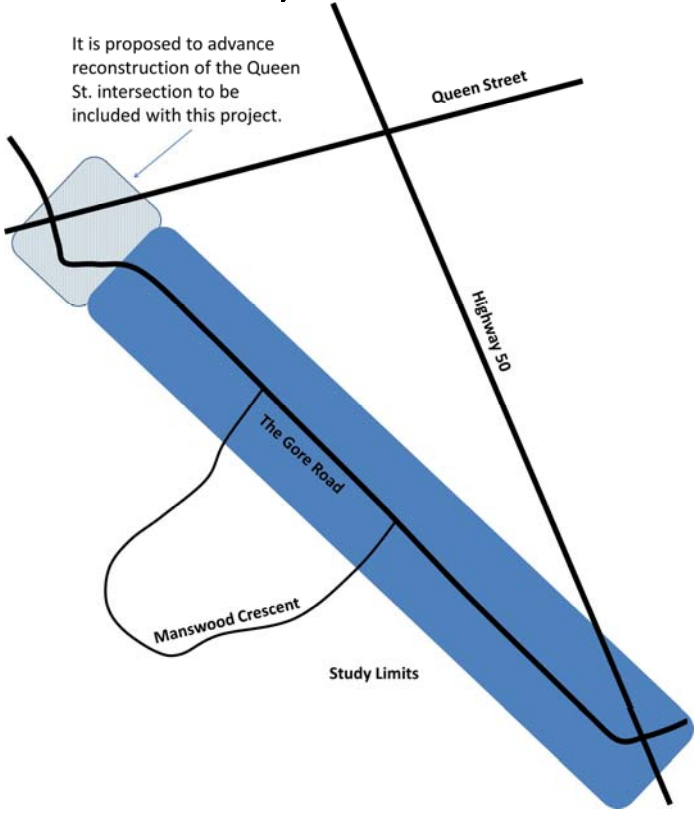

We Are Here

2000-2002 November 2002 - The Gore Road EA Completed	2005-2013 Design and Construction	Peel Long Range Transportation Plan Update 2012 Phases 1 and 2	Winter/Spring 2014 Phase 3a	Fall 2015 to Winter 2016 Phase 3b	ESR Spring 2016 Phase 4	Fall 2016+ Detailed Design Phase 5
• EA recommended The Gore Road widening Queen St to Castlemore Rd (2 to 4 lanes) • Realignment of the road centerline south of Fitzpatrick Dr to avoid impacts to cemeteries and watercourses	• Detailed design and approvals • 45m of right-of-way • Phased Construction	• Identified the need for improvements • High level evaluation of alternative solutions • Addressed Phases 1 and 2 of the Class Environmental Assessment Process	• Confirmed Phases 1 and 2 of the LRTP and Problem and Opportunity • Documented existing and future conditions • Preliminary design concepts • Public Open House (POH) # 1	• Considered input received during and following POH# 1 • Evaluation of alternative design concepts • Preliminary recommended design concept • Mitigation measures • POH#2	• Will review and consider input received during and following POH#2 • Filing of the Environmental Study Report • Public opportunity to request additional studies and review by the Minister of the Environment and Climate Change	• EA study is complete and the project moves to the detailed design stage before construction

Region of Peel
Working for you

What’s happening with other projects in the area?

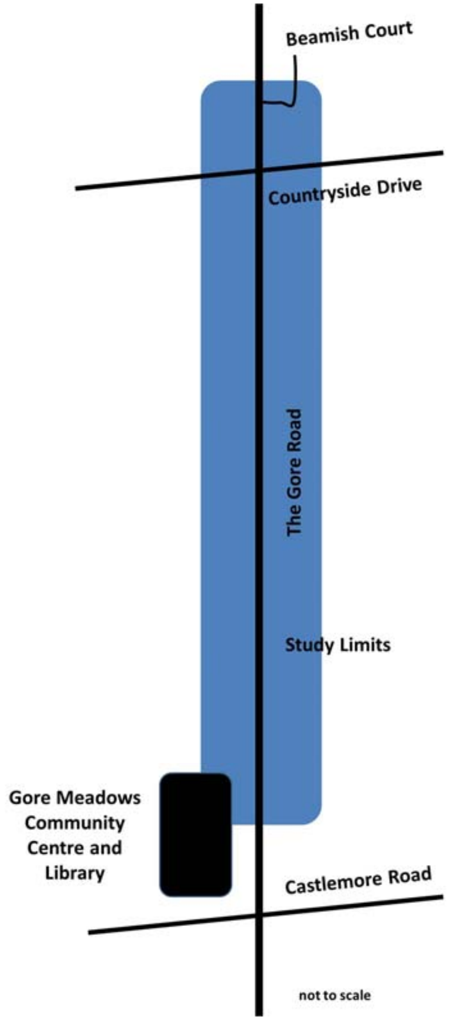
Widening Project South of The Gore Road Study Area



It is proposed to advance reconstruction of the Queen St. intersection to be included with this project.

- The design has been completed for the 2 to 4 lane widening.
- The project construction is anticipated to start late summer/early fall 2016 and will span two seasons with an approximate completion date of summer 2018

Widening Project North of The Gore Road Study Area



The construction project is underway and will widen The Gore Road from 2 to 4 lanes within the study limits shown Anticipated project completion is summer 2016

Region of Peel
Working for you

Public Feedback

Minimize impacts from any widening

Improve traffic flow at the Queen St intersection

The study area includes many seniors who have specific needs

There is support for bicycle facilities

Access to adjacent community facilities should be considered, i.e. temples and shopping

Do not widen to 6 lanes or allow trucks on The Gore Rd

What we heard from you…….

Region of Peel
Working for you

A Complete Street Approach

A Complete Street is designed for all ages, abilities, and modes of travel. On Complete Streets, safe and comfortable access for pedestrians, bicycles, transit users and people with disabilities is not an afterthought, but an integral planning feature. *Source – Complete Streets Canada*

The Improvements to The Gore Road finished in 2013 included:

- 2 additional traffic lanes
- sidewalks
- intersection redesign with turning lanes
- safety measures such at school crossings
- bridge widening
- utility relocation
- drainage improvements

Staff will consider the following design elements for re-constructing The Gore Road as a **complete street**:

- Additional transit facilities (e.g., bus bays, shelters)
- Continuous sidewalks and / or Multi-use Trails with safe pedestrian/cyclist crossings
- Space for cyclists
- Improved turning efficiency at the Queen Street intersection
- Modified bridges
- Additional through lanes or turning lanes at intersections
- Narrowed lanes to support the posted speed; and a review of the posted speed
- Streetscaping to make the corridor a pleasant space and create a distinctive corridor identity

Region of Peel
Working for you

Confirmation of Phase 2 Preferred Solution

- Maintain the existing 4 traffic lanes throughout The Gore Road corridor Modify intersections for transit, active transportation and turning
- Narrow lane widths to keep the traffic moving at the posted speed
- Improve active transportation infrastructure (biking and walking)
- Provide the opportunity for a healthy lifestyle through connected multi-use trails (complete streets approach)
- Improve safety with signalized bike / pedestrian crossing (location(s) to be confirmed)
- Manage traffic flow at the Queen Street intersection through signal timing improvements

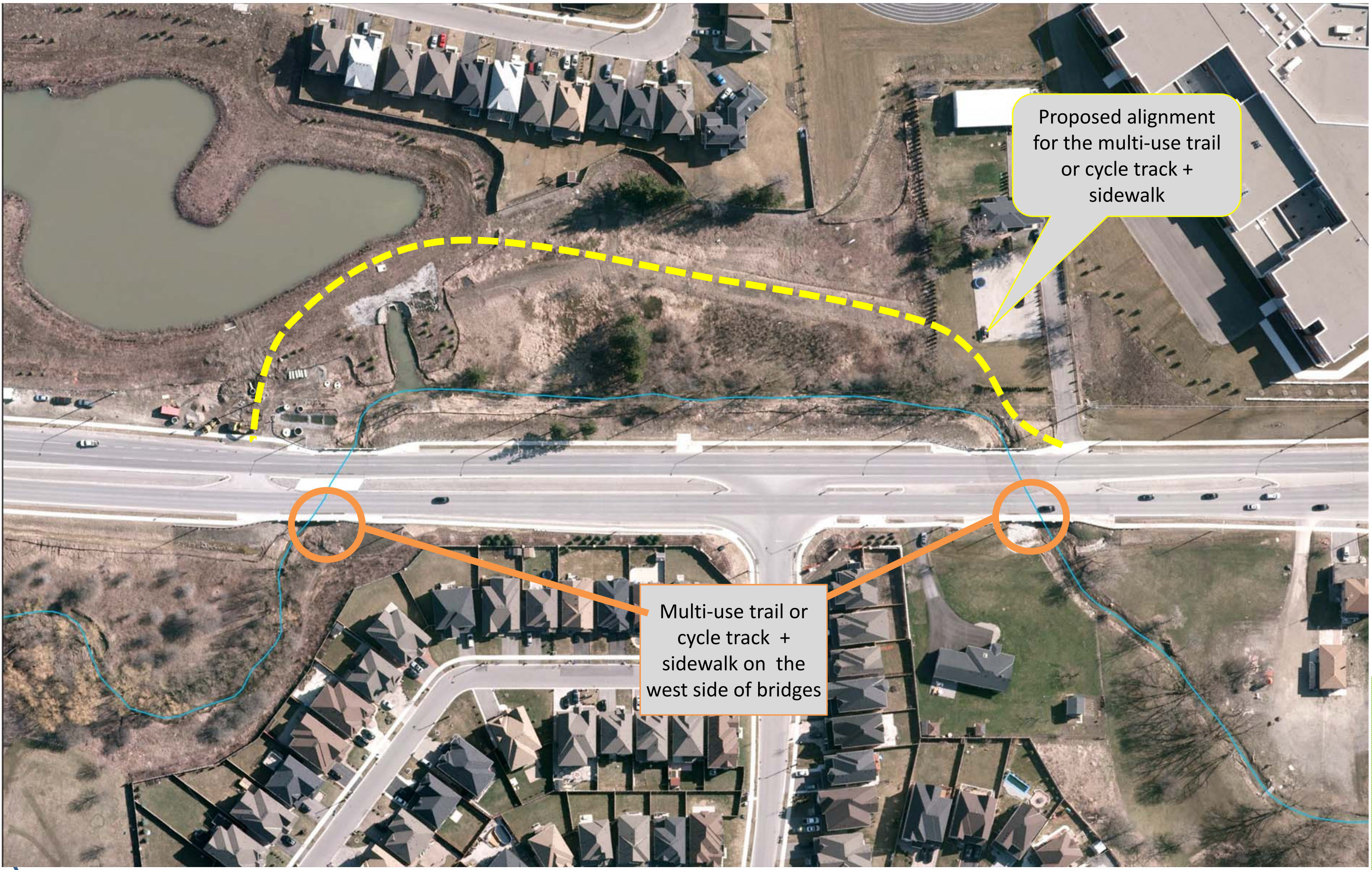
Examples of multi-use trail and cycle track from other jurisdictions.

Source: www.rutlandreder.com

Source: city of Ottawa

Moving People Options

at the Two Bridge Crossings



Recommended based on:

- *Least impact to vegetation around watercourse*
- *Promotes ecological educational activities in relation to the watercourse*
- *Maintains the existing right/left turn lanes*
- *Provides opportunities for LID stormwater management practices*

The complete corridor design is shown on the roll plan.

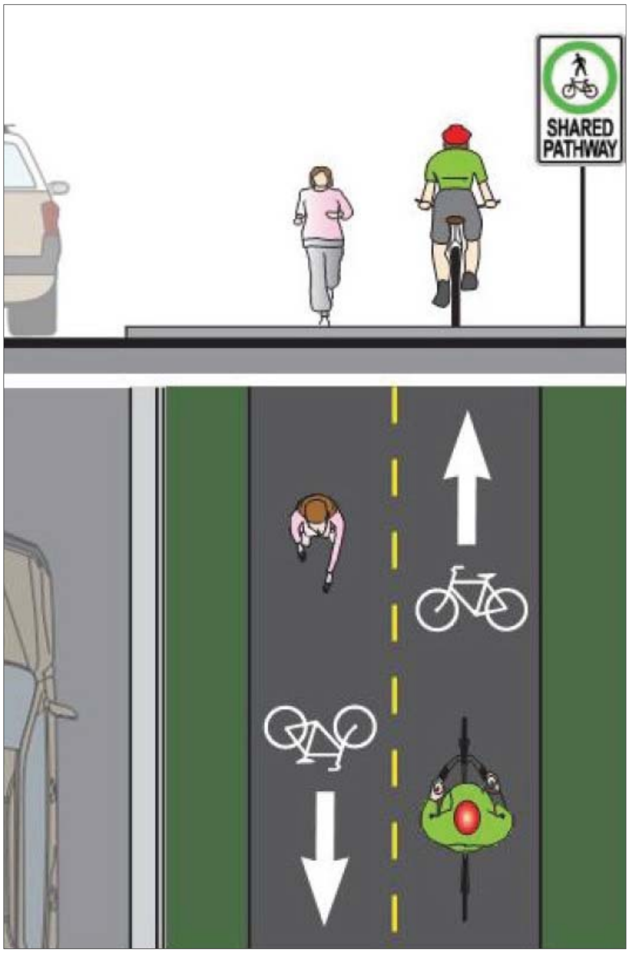
Active Transportation

To learn more about the Active Transportation Plan or to access information on biking and trails visit us online at: www.walkandrollpeel.ca

Recommendations for the study area include:

- 2 way multi-use trails on the east and west sides of The Gore Road ***or*** a raised uni-directional cycle track on each side *(or a combination of both - final configuration to be confirmed in detailed design)*
- Cross ride treatments to assist cycling movements at the intersections
- Pedestrian / cyclist crossing at the school locations

Illustrated Two Way Multi-use Trail



Cycle-Track

Multi-use Trail

Region of Peel
Working for you

Managing Stormwater

Low Impact Development practices are recommended to manage stormwater at various locations throughout the corridor. Facilities may be located adjacent to or under walkways, multi-use trails and or lay-by parking.

Low Impact Development (LID) practices use simple, cost effective landscape features and other techniques to filter, store, infiltrate and use rain where it falls.

Further information can be found at www.peelregion.ca/planning/officialplan/focus-climate.htm

LID facilities as shown below may include (examples only):

Bioretention

- Works to reduce rain runoff volume, lessens peak flow rates and removes stormwater pollutants

Permeable Pavement

- Works to reduce rain runoff volume and removes stormwater pollutants
- Aesthetic value -various colors and patterns

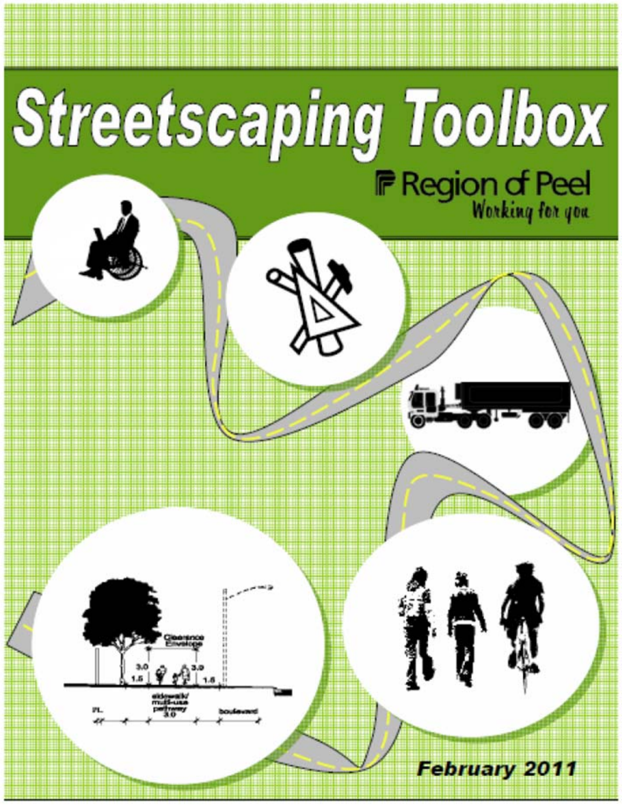
Enhanced Grass Swales

- Works to reduce rain runoff volume and removes stormwater pollutants

Streetscape Design Considerations

Staff may consider the following options for streetscaping improvements in detailed design:

- Benches
- Tree plantings
- Decorative flower pots
- Public art
- Transit shelters
- Wayfinding signage
- Pedestrian scale lighting
- Decorative treatments
- Crosswalk treatments
- Median plantings
- Garbage receptacles



Streetscaping Toolbox

Region of Peel
Working for you

February 2011

Region of Peel
Working for you

Commitment Highlights

The vision for the corridor is a "community for life". Working with you, to create a healthy, safe and connected community.

The Construction Project team will ensure:

Natural Environment

- all regulatory requirements to protect the environment are followed
- a tree protection and replanting plan is prepared
- construction occurs outside of the nesting bird window
- a visual reptile survey is prepared

Social Environment

- traffic management plan is developed to minimize disruption during construction
- access to existing properties, business, institutions and commercial areas are maintained during and after construction
- the implementation of infrastructure to support healthy lifestyle activities (e.g. walking, biking, etc.)

Cultural Heritage and Archaeology

- the completion of the Stage 2 archaeological assessment in detailed design
- no impacts to existing archaeological and cultural heritage resources

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Working for you

What happens next?

- receive public comments by **March 11, 2016**
- consider public input
- confirm the recommended design concept
- document the study findings and results and incorporate them along with the recommended design concept into an Environmental Study Report (ESR)
- issue a notice of completion to adjacent property owners within the corridor and members of the public who registered at the Public Open Houses
- advertise the study completion in local newspapers
- place the ESR document on public review for 30 days

Please tell us what you think:

You can review the boards on our website and provide comment at:

www.peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

or fill out the comment sheet today and submit, or send comments by email/fax/letter to either project manager:

Neal Smith, C.E.T.
Region of Peel
Transportation Division
10 Peel Centre Drive, Suite B,
4th Floor
Brampton, ON L6T 4B9
Tel: 905-791-7800 ext. 7866
Toll Free: 1-888-919-7800
Fax: 905-791-1442
Email: neal.smith@peelregion.ca

Stephen Schijns, P.Eng
Project Manager
AECOM
5080 Commerce Boulevard
Mississauga, Ontario L4W 4P2
Tel: 905-238-0007
Direct: 905-206-8136
Email: stephen.schijns@aecom.com

Region of Peel
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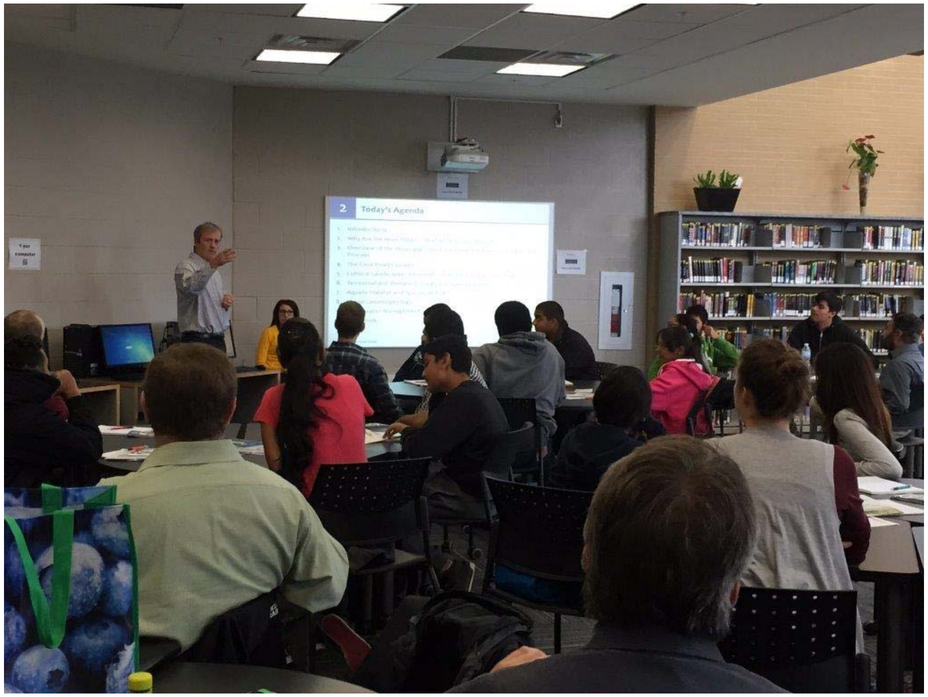
Youth Engagement

In the fall of 2014 the EA project team had the opportunity to engage the Grade 11 students of ***Castlebrooke Secondary School Environmental Studies Class*** *(assisted by their teacher Beth Lisser, Science/Special Education) in the environmental study work that was being conducted within the study area and adjacent to the school.*



The students worked in the field with the project specialists for:

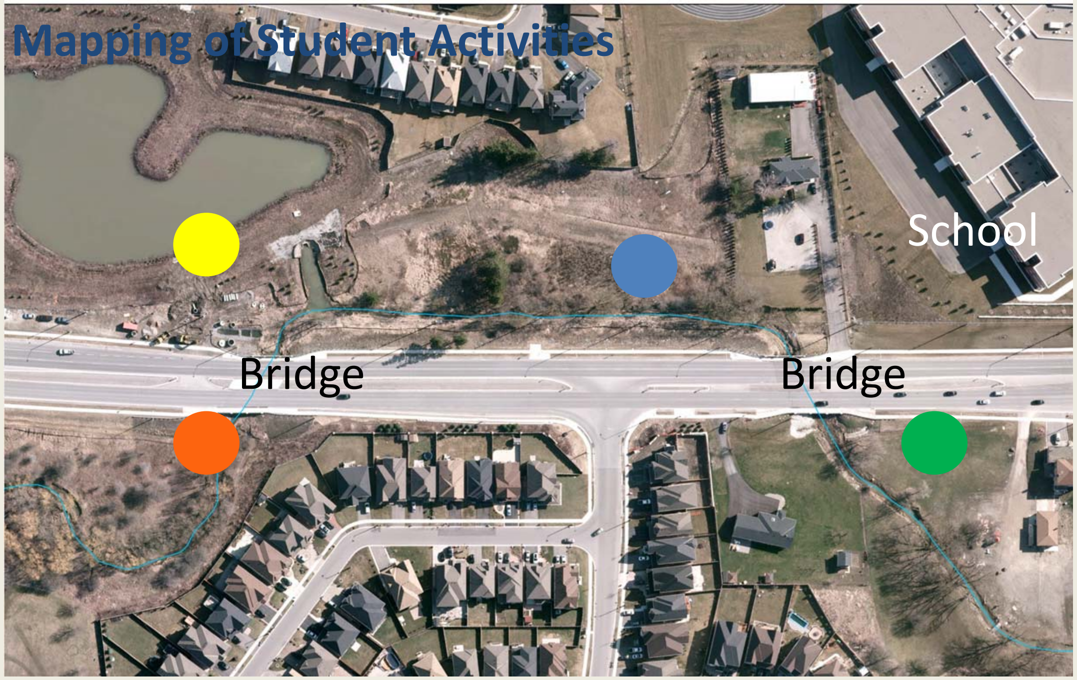
- ***stormwater management***
- ***terrestrial ecology***
- ***fluvial geomorphology, and***
- ***aquatic habitat***

Some of their activities included taking measurements and recording details on:

- ***water quality and flow***
- ***use of an auger to take soil samples***
- ***measurement of the depth of water and speed of the stream***
- ***the path of stormwater released from the road, and***
- ***plant and animal species within the study area***

Please come and visit the project website and see the PowerPoint presentation developed by the students on their environmental learning and the issues they identified within the corridor.

Youth Engagement



Location and Type of Study

- 🔵 Terrestrial Ecology
- 🟢 Fluvial Geo-morphology
- 🟠 Aquatic Habitat
- 🟡 Storm Water Management

POH 2 Comment Sheets

AECOM

Region of Peel
Working for you

Comment Sheet

The Gore Road Municipal Class Environmental Assessment

from Queen Street to Castlemore Road

Public Open House No. 2

Tuesday, February 23, 2016

1. Do you agree with the recommended road design to maintain the existing four traffic lanes and implement "complete streets" elements (e.g., multi-use trails, cross ride treatments at intersections, two stage pedestrian crossing at school locations)

   ☑ yes

   ☐ no   If no, please indicate why.

2. A cycle track is an exclusive bike facility that is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at street level or raised. By separating cyclists from motor traffic, cycle tracks can offer a higher level of safety comfort than bike lanes and are attractive to a wider range of users. Would you use a raised cycle track along the corridor that is separated from the roadway?

   ☑ yes

   ☐ no   If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

3. What is your preference? ☑ Cycle Track + Sidewalk   ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

add trails to neighbourhoods

Public Works

10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

5. My interest is? (check all applicable)
   - ☑ direct access onto The Gore Road
   - ☐ residential property
   - ☐ business/commercial
   - ☑ other (specify)

6. If you would like to be contacted, please give us your information.

Name: ________________________

Address: ________________________

Telephone/Email: ________________________

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peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

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Project Manager, Infrastructure Programming & Studies
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Region of Peel
Working for you

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Example of Raised Cycle Track
Source of Photo: City of Ottawa

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Left turn signal on Gore Rd and Castlemore intersection (Taking left on Castlemore facing north)

Public Works

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from Queen Street to Castlemore Road

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   - ☐ yes
   - ☑ no   If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

Preferably separate from the road.
A multi-use trail

3. What is your preference? ☐ Cycle Track + Sidewalk   ☑ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

N/A

5. My interest is? (check all applicable)
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Region of Peel
Working for you

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Example of Raised Cycle Track

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   ☐ yes

   ☑ no If no, please indicate why.

its a waste of road surface being designated to bike when there is hardly any bike around specialty in Brampton. look at downtown bike lanes they have reduced motor lanes for the amount of bike uses.

3. What is your preference? ☐ Cycle Track + Sidewalk ☑ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

Public Works

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   ☑ yes
   ☐ no If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

3. What is your preference? ☐ Cycle Track + Sidewalk ☑ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

   Heavy truck traffic in the residential area should be avoided.

Public Works

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   ☒ yes
   ☐ no If no, please indicate why.

I don't live in the area, but I could either ride or bus here + ride to the Gore Meadows Rec. Centre.

3. What is your preference? ☒ Cycle Track + Sidewalk ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

① Cycling needs much more attention in Brampton, + multi-use is a compromise. We need bike lanes. This would be a good start, with destinations on the route
② Reducing from 6 (proposed) lanes to 4 means that the greater capacity + speed of bike lanes would help alleviate congestion.

5. My interest is? (check all applicable)
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Example of Raised Cycle Track
Source of Photo: City of Ottawa

3. What is your preference? ☐ Cycle Track + Sidewalk ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

North bound left turn on Castlemore
it takes five lights to get through.
during peak hours.

Spoke c̄ Nathan

Public Works

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Tel: 905-791-7800 www.peelregion.ca

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* burning out of street lights & not being replaced in timely manner.

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3. What is your preference? ☑ Cycle Track + Sidewalk   ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

No, I like the suggested design

5. My interest is? (check all applicable)
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   - ☑ residential property
   - ☐ business/commercial
   - ☐ other (specify)

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Example of Raised Cycle Track
Source of Photo: City of Ottawa

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Make sure that the bus stops have shelters.

Public Works

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   - ☐ business/commercial
   - ☐ other (specify)

6. If you would like to be contacted, please give us your information.

Name: ____________________

Address: ____________________

Telephone/Email: ____________________

Thank you for participating in this study. For more information please visit our website. You can also provide comments on-line at:

peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

Comment sheets may be placed in the comment box at the Open House or sent to Neal Smith, Project Manager, by **Tuesday, March 8, 2016.**

Neal Smith, C.E.T.
Project Manager, Infrastructure Programming & Studies
Public Works, Region of Peel
10 Peel Centre Drive, 4th Floor, Suite B
Brampton, ON L6T 4B9
Tel: 905-791-7800 x7866 / Fax 905-791-1442
Email: neal.smith@peelregion.ca

Note: Comments and information regarding this project are being collected in accordance with the ***Municipal Freedom of Information & Protection of Privacy Act*** for the purpose of meeting environmental assessment requirements. With the exception of personal information, all comments will become a part of the public record.

Region of Peel
Working for you

Comment Sheet

The Gore Road Municipal Class Environmental Assessment

from Queen Street to Castlemore Road

Public Open House No. 2

Tuesday, February 23, 2016

1. Do you agree with the recommended road design to maintain the existing four traffic lanes and implement "complete streets" elements (e.g., multi-use trails, cross ride treatments at intersections, two stage pedestrian crossing at school locations)
   - ☒ yes
   - ☐ no If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

2. A cycle track is an exclusive bike facility that is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at street level or raised. By separating cyclists from motor traffic, cycle tracks can offer a higher level of safety comfort than bike lanes and are attractive to a wider range of users. Would you use a raised cycle track along the corridor that is separated from the roadway?
   - ☒ yes
   - ☐ no If no, please indicate why.

THE SAFETY FACTOR WILL INCREASE USAGE AND ENCOURAGE MORE DESTINATION BASED CYCLING.

3. What is your preference? ☒ Cycle Track + Sidewalk ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

BUILD IT AND THEY WILL COME.

Public Works

10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

5. My interest is? (check all applicable)
   - ☐ direct access onto The Gore Road
   - ☐ residential property
   - ☐ business/commercial
   - ☒ other (specify) BUILDING BETTER NEIGHBOURHOODS

6. If you would like to be contacted, please give us your information.

Name: ____________________

Address: ____________________

Telephone/Email: ____________________

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   ☐ no If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

2. A cycle track is an exclusive bike facility that is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at street level or raised. By separating cyclists from motor traffic, cycle tracks can offer a higher level of safety comfort than bike lanes and are attractive to a wider range of users.
   Would you use a raised cycle track along the corridor that is separated from the roadway?
   ☑ yes
   ☐ no If no, please indicate why.

3. What is your preference? ☑ Cycle Track + Sidewalk ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

Very pleased to see separated. cycling infrastructure.

Public Works

10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

5. My interest is? (check all applicable)
   - ☐ direct access onto The Gore Road
   - ☐ residential property
   - ☐ business/commercial
   - ☐ other (specify)

6. If you would like to be contacted, please give us your information.

Name: ______________________________

Address: ______________________________

Telephone/Email: ______________________________

Thank you for participating in this study. For more information please visit our website. You can also provide comments on-line at:

peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

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Email: neal.smith@peelregion.ca

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Region of Peel
Working for you

Comment Sheet

The Gore Road Municipal Class Environmental Assessment

from Queen Street to Castlemore Road

Public Open House No. 2

Tuesday, February 23, 2016

1. Do you agree with the recommended road design to maintain the existing four traffic lanes and implement "complete streets" elements (e.g., multi-use trails, cross ride treatments at intersections, two stage pedestrian crossing at school locations)

   ☑ yes

   ☐ no If no, please indicate why.

2. A cycle track is an exclusive bike facility that is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at street level or raised. By separating cyclists from motor traffic, cycle tracks can offer a higher level of safety comfort than bike lanes and are attractive to a wider range of users. Would you use a raised cycle track along the corridor that is separated from the roadway?

   ☑ yes

   ☐ no If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

3. What is your preference? ☑ Cycle Track + Sidewalk ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

Is it possible to planted more green trees on the both sides of the roads, which reduces the global warming ~~formed~~ and makes the ~~envir~~ healthy and greenary environment.

Public Works

10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

5. My interest is? (check all applicable)
   - ☐ direct access onto The Gore Road
   - ☐ residential property
   - ☐ business/commercial
   - ☑ other (specify) Work in the community to teach people stay on fresh air environment. Make our place greenary!! Green Green Green.

6. If you would like to be contacted, please give us your information.

[redacted]

Thank you for participating in this study. For more information please visit our website. You can also provide comments on-line at:

peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

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Working for you

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The Gore Road Municipal Class Environmental Assessment

from Queen Street to Castlemore Road

Public Open House No. 2

Tuesday, February 23, 2016

1. Do you agree with the recommended road design to maintain the existing four traffic lanes and implement "complete streets" elements (e.g., multi-use trails, cross ride treatments at intersections, two stage pedestrian crossing at school locations)

   ☑ yes
   ☐ no If no, please indicate why.

2. A cycle track is an exclusive bike facility that is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at street level or raised. By separating cyclists from motor traffic, cycle tracks can offer a higher level of safety comfort than bike lanes and are attractive to a wider range of users. Would you use a raised cycle track along the corridor that is separated from the roadway?

   ☑ yes
   ☐ no If no, please indicate why.

Example of Raised Cycle Track
Source of Photo: City of Ottawa

3. What is your preference? ☑ Cycle Track + Sidewalk ☐ Multi-use Trail only

4. Do you have any questions or comments on other aspects of the study or the preliminary recommended design?

   No

Public Works

10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

5. My interest is? (check all applicable)
   - ☐ direct access onto The Gore Road
   - ☐ residential property
   - ☑ business/commercial
   - ☐ other (specify)

6. If you would like to be contacted, please give us your information.

Name: ______

Address: ______

Telephone/Email: ______

Thank you for participating in this study. For more information please visit our website. You can also provide comments on-line at:

peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

Comment sheets may be placed in the comment box at the Open House or sent to Neal Smith, Project Manager, by **Tuesday, March 8, 2016**.

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Public Works, Region of Peel
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Brampton, ON L6T 4B9
Tel: 905-791-7800 x7866 / Fax 905-791-1442
Email: neal.smith@peelregion.ca

[redacted]

Note: Comments and information regarding this project are being collected in accordance with the ***Municipal Freedom of Information & Protection of Privacy Act*** for the purpose of meeting environmental assessment requirements. With the exception of personal information, all comments will become a part of the public record.

POH 2 Summary of Comments

POH #2 Summary of Comments

	Attendee	Question 1: Agree with recommended design and complete streets approach?	Question 2: Would you use a raised cycle track?	Question 3: What is your preference? Cycle track and sidewalk or Multi-use Trail?	Question 4: do you have any questions or comments on other aspects of the study or preliminary recommended design?
1.	N/A	Yes	Yes	Cycle Track and sidewalk	Add trails to neighbourhoods
2.	Anoop Bal 61 Fieldview Drive	N/A	N/A	Cycle Track and sidewalk	Left turn signal on The Gore Road and Castlemore intersection (taking left on Castlemore facing north).
3.	N/A	Yes	No. Preferably separate from road. A multi-use trail.	Multi-use Trail	N/A
4.	Darcy Grewal 8 Franco Street	Yes	No. Waste of road structure being designated to bike when there is hardly any bikes around especially in Brampton. Look of downtown bike lanes they have reduced motor lanes for the amount of bike uses.	Multi-use Trail	N/A
5.	Chetan Shah 58 Campwood Crescent	Yes	Yes	Multi-use Trail	Heavy truck traffic in the residential area should be avoided.
6.	N/A	Yes	Yes. Doesn't live in the area, but could either ride or bus to the area and the Gore Meadows Community Centre.	Cycle Track and sidewalk	1) Cycling needs much more attention in Brampton and multi-use is a compromise. Needs bike lanes. This would be a good start with destinations on the route. 2) Reducing from 6 (proposed) lanes to 4 means that the greater capacity and speed of bike lanes would help alleviate congestion.
7.	N/A	Yes	Yes	Cycle Track and sidewalk	N/A
8.	Hitesh Shah	N/A	N/A	N/A	• Northbound left turn on Castlemore takes five lights to get through during peak hour. Spoke with Nathan. • Burnt out street lights not being replaced in a timely manner
9.	Arlyce Abuan 28 Timberwolf Road	Yes	Yes	Cycle Track and sidewalk	Likes the suggested design.
10.	N/A	N/A	N/A	N/A	Make sure that bus stops have shelters.
11.	N/A	Yes	Yes. The safety factor will increase usage and encourage more destination based cycling.	Cycle Track and sidewalk	Build it and they will come.

POH #2 Summary of Comments

	Attendee	**Question 1: Agree with recommended design and complete streets approach?**	**Question 2: Would you use a raised cycle track?**	**Question 3: What is your preference? Cycle track and sidewalk or Multi-use Trail?**	**Question 4: do you have any questions or comments on other aspects of the study or preliminary recommended design?**
12.	N/A	Yes	Yes	Cycle Track and sidewalk	Very pleased to see separated cycling infrastructure.
13.	Sunesh Rajaure 66 Mission Ridge Trail (works in the community to teach people stay on fresh air environment. Mark air place greenery)	Yes	Yes	Cycle Track and sidewalk	Is it possible to plant more green trees on both sides of the road which reduces the global warming and makes the healthy and green environment.
14.	Leonardo Romero			Cycle track and sidewalk	
15.	Gerald Pyjor 20 Banington Crescent	Yes	Yes Would prefer a raised cycle track- would encourage a wider range of cyclists to use it and helps to avoid conflicts with pedestrians.	Cycle Track and sidewalk	Past multi-use trails have fallen short of usability. They work like and look like a wide sidewalk. Too many conflict areas (e.g., pedestrians, dog walkers, vehicles at intersections)
16.	George Shepperdly Committee Member of Brampton Advisory Committee Committee Member of Bike Brampton and Member of Brampton Cycling Club				In favour of bicycle lanes, next best thing would be separate bicycle track and sidewalk on both sides of The Gore Road.
17.	Carl Minicucci c/o 90 Fifth Avenue Vaughan, ON	No Disagree with road widening initiatives as it will create both safety concerns and be counter-intuitive as an invitation to use The Gore Road as a major thoroughfare	No No substantial evidence of demand for cycle lanes. Opposed to bicycle lanes.	Neither is preference (multi use trail checked off)	Would like to see evidence and conclusive 3rd party studies on demand for cycle lanes.
18.	Dayle Laing Committee Secretary, BikeBrampton and Member of Brampton Cycling Advisory Committee				Supportive of complete streets approach. Would like to see separated cycle track
19.	David Laing	Yes Appreciate the use of LID features	Yes, as long as there is a logical/seamless connection at either end of cycle track connecting to other bicycle on road facilities or merging onto shared lanes.	Cycle track and sidewalk	What will be the linkages from the facilities built on this section of The Gore Road and the road improvements to the north and south as well as connection points to Queen Street and Castlemore Road.
20.	N/A	Yes	Yes	Cycle Track and sidewalk	Past multi-use trails have fallen

	Attendee	Question 1: Agree with recommended design and complete streets approach?	Question 2: Would you use a raised cycle track?	Question 3: What is your preference? Cycle track and sidewalk or Multi-use Trail?	Question 4: do you have any questions or comments on other aspects of the study or preliminary recommended design?
			Feels this would encourage a wider range of cyclists to use it. Cycle tracks help to avoid conflicts with pedestrians that are encountered on multi-use trails.		short in usability and do not help bicycle commuters. Too many possible conflict areas
21.	Frances Johnston				Bicycles off the road is much safer. Multi-use trail would be satisfactory. Ensure bridges are wide enough to accommodate people walking. Sidewalk should not jut into the road allowance as it does on the bridges and near the schools.

AECOM

POH 2 Summary Memo

AECOM
3 – 30 Hannover Drive 905 682 0212 tel
St. Catharines, ON, Canada L2W 1A3 905 682 4495 fax
www.aecom.com

Memorandum

To	Neal Smith	Page	1
CC	Liz Brock, Karl Grueneis		
Subject	**The Gore Road Municipal Class EA: Summary of Public Open House # 2**		
From	Stephen Schijns and Jessica Mollo		
Date	March 1, 2016	Project Number	60311637

1. Notice of Public Open House # 2

Notification of Public Open House (POH) # 2 was undertaken by publishing notices (refer to **Attachment A**) in the Brampton Guardian on February 11 and 18, 2016. The notice, along with a comment sheet was also sent to residents and businesses fronting The Gore Road corridor.

Regulatory agencies were notified of the second POH via letter (with a comment sheet) during the week of February 8, 2016. A Technical Agency committee meeting was held with the City of Brampton, Toronto and Region Conservation Authority, Enbridge and Bike Brampton prior to the second POH to present the preliminary recommended design concept and gather input on the concept. Any comments received were discussed and incorporated into the design of the project.

2. Public Open House #2

The second POH was held on February 23, 2016 from 6:30pm to 8:30pm at the Gore Meadows Community Centre, Brampton. Because public meetings can be poorly attended, the POH followed a “Places and Spaces” public outreach approach where the POH was conducted in the main hallway of the community centre opposite the snack bar as an open house (drop-in) format. The Region’s decision to have the POH in the main hallway was to generate interest not only from those who received the notice, but also go where the people are including those who via The Gore Road access-use the community centre. Display material was available for review and a large roll plan of The Gore Road preliminary recommended design was also laid out to generate discussion with those walking by. Representatives from both the Region of Peel and AECOM were in attendance to discuss the information presented, receive comments and answer questions.

The purpose of POH # 2 was to present:

- What has happened since POH # 1;
- The overall preliminary recommended design including property requirements;
- Key features of the preliminary recommended design that includes the “Complete Street” approach;
- Potential environmental impacts and methods of reducing the impacts; and
- Project schedule and next steps.

Eleven people signed into the POH (refer to **Appendix B** for the sign in sheet) including local residents, Regional Councillor John Sprovieri, Public Works Commissioner Dan Labrecque, developer consultants, members of Brampton Cycling Advisory Committee, Peel District School Board representatives, and members of the general public.

Numerous other passers-by (up to 30) reviewed the displays and discussed the project with staff but did not sign in. It is noted that many of those who did not sign in took a comment sheet.

2.1 Summary of Discussions and Comments Received

General one-on-one discussions with attendees showed support for the proposed cycle track and sidewalk or multi-use trail along the corridor and in front of schools. The cycling committee also supported the cycling facilities as they will provide connections to other areas of the City. There were no complaints about congestion nor was any interest expressed in road widening. Some attendees were interested in the timing and implications on the corridor with respect to planned development to the north of the study area, infill within the study area, and the extension of Highway 427. There was general support for the study recommendations and no complaints about the project.

Directly impacted property owners attended and discussed their property situations in detail. This included the property owner at 9601 The Gore Road, located on the east side of The Gore Road at the south Wylie Bridge where property is needed for the multi-use trail.

Thirteen comment sheets (refer to **Attachment C**) were received and are summarized as follows:

- 11/14 agreed with the “Complete Streets” approach presented, 3/14 did not respond;
- 9/14 would use a raised cycle track, 2/14 would not use a raised cycle track and 3/14 did not respond; and
- 9/14 preferred a cycle track and sidewalk rather than a multi-use trail, 3/14 preferred a multi-use trail and 2/14 did not respond.

Additional general comments received relate to the turning signals at the intersection of Castlemore Road and The Gore Road, and need for cycling improvements, shelters at bus stops, preference for cycle tracks and sidewalks and landscaping along The Gore Road. A discussion was also held regarding the widening of The Gore Road and how the traffic flows down the corridor, the bottle neck at the Queen Street intersection and how the improvements at this intersection will keep traffic moving. Additional comments can also be found in **Attachment C**.

A.4 OTHER PUBLIC CONSULTATION

AECOM

Boerema, Gerrit

Subject: FW: Streetscape Enhancements, The Gore Rd

From: [redacted]
Date: August 5, 2016 at 10:24:45 AM EDT
To: Neal Smith <neal.smith@peelregion.ca>
Subject: Streetscape Enhancements, The Gore Rd
Reply-To: [redacted]

This email was sent by the following person. Please reply to them:

Sender's Name: [redacted]
Sender's Email: [redacted]

The message was submitted through an Automated Email Service on Peel's Website
Fri Aug 5 10:24:47 2016:

Hi! I live just off The Gore Rd on Don Minaker Dr and have just come to learn about this project. I believe the main issue for The Gore Rd is it being unattractive and dirty. There is a lack of trees and the plants already planted do not look great at all. I would suggest landscaping similar to Torbram Rd from Bovaird to Queen. There is a row of trees next to the road, then a sidewalk/multi-use trail, and another row of trees in front of residential fences. Also, the fencing used throughout the study area (chain-link) does not fit into the desired streetscape at all. It is strongly suggested to replace all of the chain-link fencing on The Gore Rd to a nicer black metal picket fence used in newer subdivisions. Also, not related to streetscape, transit / transportation should be a priority as there is at least one accident every two weeks on The Gore/Ebenezer intersection and Bus Route 50's service does not keep up with demand. Thank you for reading this!

It is the Region of Peel's policy to reply to e-mails within two working days.

For assistance, please contact the webmaster@peelregion.ca

:: NOTE ABOUT CONTACT INFORMATION ::
Contact information can be forged. There is no way to accurately verify a person's name and email address on the Internet.

A.5 NOTICE OF STUDY COMPLETION

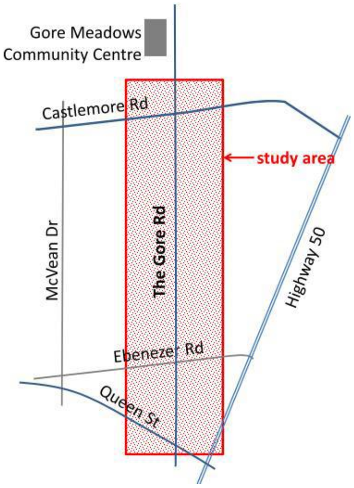
Region of Peel
Working for you

Public Notice

THE GORE ROAD

Municipal Class Environmental Assessment Schedule C
from Queen Street to Castlemore Road
Notice of Study Completion

The study has been completed and the Environmental Study Report that details the planning, consultation and the decision making process for the recommended design is available for review.



Study Highlights
The proposed improvement for The Gore Road include:

- Maintain the existing 4 lanes;
- Modify intersections for transit, active transportation and turning;
- Addition of bus stops/bus bays including a new bus shelter (in large island) at a redesigned Queen Street/The Gore Road intersection
- Narrow lane widths;
- Improve safety with signalized bike/pedestrian crossing (location(s) - to be confirmed during detailed design);
- Signal timing improvements at The Gore Road and Queen Street intersection;
- Provide the opportunity for a healthy lifestyle through connections to multi-use trails;
- Sidewalks and raised cycle tracks on both sides of The Gore Road
- On east side of road at the 2 Wylie Bridges, multi-use trail around Wylies Creek
- Cross ride treatments at intersections;
- Pedestrian/cyclist crossings at school locations;
- Low Impact Design (LID) to manage stormwater at various locations throughout The Gore Road corridor; and
- Streetscaping (to be confirmed during design).

Please visit the project website for additional information: http://www.peelregion.ca/pw/transportation/ environ-assess/ea-the-gore-road

Environmental Study Report Review Period

The study documents will be available for review for 30 calendar days at the following location starting on November 17, 2016 and ending on December 16, 2016.

Clerk, Region of Peel 10 Peel Centre Drive 5th Floor, Suite A Brampton, ON L6T 4B9 Phone: 905-791-7800 *Hours:* Mon-Fri: 8:30 am – 4:30 pm	Clerk, City of Brampton 2 Wellington Street West Brampton, ON L6Y 4R2 Phone: 905-874-2000 *Hours:* Mon-Fri: 8:30 am – 4:30 pm	Brampton Public Library Gore Meadows Branch (Community Centre) 10150 The Gore Road Brampton, ON L6P 0A6 Phone: 905-793-4636 *Hours:* Mon-Thurs: 10:00 am – 9:00 pm Fri: 10:00 am – 6:00 pm Sat: 10:00 am – 5:00 pm Sun: 1:00 pm – 5:00 pm

Written comments should be provided to Sally Rook, Manager, Infrastructure Programming & Studies, within the 30 day calendar review period. If you have conerns that cannot be addressed, you may request that the Minister of the Environment and Climate Change make an Order for the project to comply with Part II of the *Environmental Assessment Act*, which addresses individual environmental assessments. The Minister must receive the request at the address below by 4:30pm on December 16, 2016.

Minister, Ministry of the Environment and Climate Change
77 Wellesley St. West, 11th Floor
Toronto, ON M7A 2T5

A copy of the Part II Order request must also be sent to the Manager at the following address:

Sally Rook, C.Tech, PMP
Manager, Infrastructure Programming & Studies
Transportation Division
Region of Peel
10 Peel Centre Dr., 4th Floor, Suite B
Brampton, ON L6T 4B9
Tel: 905-791-7800 ext. 7842

If no Part II Order requests are received then the Region may proceed with the detailed design and construction of the recommended works as presented in the study.

This notice was first issued on November 17, 2016.

With the exception of personal information, all comments will become part of the public record of the study. The study is being conducted according to the requirements of the Municipal Class Environmental Assessment Schedule C, as amended in 2007, 2011 and 2015, which is a planning process approved under Ontario's *Environmental Assessment Act.*

Appendix B

Stakeholder, Agency and First Nations Consultation

B.1 Agency Correspondence

- Stakeholder Contact List
- Letter Notice to Agencies
- Toronto Region Conservation Authority
- Infrastructure Ontario
- Ministry of Tourism, Culture and Sport
- Ministry of Environment and Climate Change
- Agency Workshop Outline
- Agency Workshop Display Boards
- Agency Workshop Summary Memo

B.2 First Nations Correspondence

- Request for Aboriginal Consultation Information
- Notice of Study Commencement and POH #1 Letter
- Alderville First Nation Response
- New Credit First Nation Response
- Chippewas of Rama Response
- Notice of POH #2 Letter
- Notice of Study Completion Letter

B.1 AGENCY CORRESPONDENCE

Stakeholder Contact List

The Gore Road Municipal Class Environmental Assessment

Project Mailing List –Public Open House #2

February 8, 2016

		AGENCY/STAKEHOLDER NAME	ADDRESS	CONTACT NAME	TITLE	SALUTATION	PHONE/FAX/EMAIL	CC/COMMENTS
A. FEDERAL AGENCIES								
		Department of Fisheries and Oceans Canada	District Office, 3027 Harvester Road, Unit 304 Burlington, ON L7R 4K3	Paul Savoie	Impact Assessment Biologist Fish Habitat Management	Mr. Savoie	T : 905-639-8687 F : 905-639-3549	
B. PROVINCIAL AGENCIES								
		Ministry of the Environment and Climate Change Central Region, Technical Support	5775 Yonge Street, 9th Floor North York, ON M2M 4J1	Trevor Bell	Environmental Resource Planner and Environmental Assessment Coordinator	Mr. Bell	T: 416-326-3577 trevor.bell@ontario.ca	
		Ministry of the Environment and Climate Change					MEA.Notices.EAAB@ontario.ca	NOTICE OF COMPLETION ONLY
		Infrastructure Ontario	1 Dundas Street West, Suite 2000 Toronto, ON M5G 2L5	Lisa Myslicki	Environmental Advisor	Ms. Myslicki	Lisa.myslicki@infrastructureontario.ca	
		Ministry of Natural Resources and Forestry	50 Bloomington Road West Aurora, ON L4G 3G8	Mark Heaton	Management Biologist	Mr. Heaton	T: (905) 713-7406 mark.heaton@ontario.ca	
		Ministry of Tourism, Culture and Sport	401 Bay Street, Suite 1700 Toronto, ON M7A 0A7	Malcolm Horne	Archaeology Review Officer Culture Programs Unit	Mr. Horne	T: (416) 314-7146 malcolm.horne@ontario.ca	
		Ministry of Municipal Affairs and Housing	College Park, 2nd Floor 777 Bay Street Toronto, ON M5G 2E5	Victor Doyle	Manager, Community Planning and Development	Mr. Doyle	T: (416) 585-6109 victor.doyle@ontario.ca	Michelle Moretti, Planner, Community Planning and Development, MMAH
		Ontario Provincial Police	2682 Keele Street Toronto, ON M3M 3G5	Brent Mikstas	Inspector Mikstas	Mr. Mikstas	T: (416) 235-4981	
C. OTHER REVIEW AGENCIES								
		Toronto and Region Conservation Authority	5 Shoreham Drive Downsview, ON M3N 1S4	Sharon Lingertat	Peel Region/Durham Region, Environmental Assessment Planning	Ms. Lingertat	T: (416) 661-6600 F: (416) 661-6898 slingertat@trca.on.ca	
		Toronto and Region Conservation Authority	5 Shoreham Drive Downsview, ON M3N 1S4	Victoria McGrath	Humber Watershed Specialist	Ms. McGrath	T: (416) 661-6600 F: (416) 661-6898 vmcgrath@trca.on.ca	
		Peel District School Board	5650 Hurontario Street Mississauga, ON L5R 1C6	Paul Mountford	Intermediate Planning Officer Senior Planner/Manager	Mr. Mountford	T : (905) 890-1010 ext.2217 paul.mountford@peelsb.com	Steve Hare, Senior Planner/Manager, PDSB • **Letter to note; will be contacting school principals directly for meeting prior to Public Open House #1.**
		Dufferin-Peel Catholic District School Board	40 Matheson Boulevard West Mississauga, ON L5R 1C5	Krystina Koops	Planner	Ms Koops	T: (905) 890-0708 ext. 24407 krystina.koops@dpcdsb.org	Nicole Cih • **Letter to note; will be contacting school principals directly for meeting prior to Public Open House #1..**
D. REGIONAL/MUNICIPAL AGENCIES								
1. REGION OF PEEL								
		Region of Peel Ambulance and Emergency Services	299 Maingate Drive, Mississauga, ON L4W 1G6	Peter Dundas	Director	Mr. Dundas	T: (905) 791-7800 ext.3921	

E-MAIL	CUSTOM LETTER	AGENCY/STAKEHOLDER NAME	ADDRESS	CONTACT NAME	TITLE	SALUTATION	PHONE/FAX/EMAIL	CC/COMMENTS
		Peel Regional Police Corporate Planning and Resources	7750 Hurontario Street Brampton, ON L6V 3W6	Mike Grodzinski	Operation Planning	Mr. Grodzinski	T: (905) 453-2121 ext.4740	
		Peel Regional Police 21 Division	10 Peel Centre Drive, Suite C Brampton, ON L6T 4B9	Steve Wollaston	Superintendent	Mr. Wollaston	T: (905) 453-3311 ext.2100 21div.superintendent@peelpolice.on.ca	
		Region of Peel Clerks Department	10 Peel Centre Drive, Suite A, 5th Floor Brampton, ON L6T 4B9	Kathryn Lockyer	Regional Clerk	Ms. Lockyer	kathryn.lockyer@peelregion.ca	
		Region of Peel – Councillor John Sprovieri	10 Peel Centre Drive, Suite A, 5th Floor Brampton, ON L6T 4B9	John Sprovieri	Councillor	Mr. Sprovieri		• **To be notified directly by Peel Region Project Manager**
		Region of Peel Traffic Engineering		Mohammed Hassan		Mr. Hassan	Mohammed.hassan@peelregion.ca	•
		Region of Peel Traffic Safety		Seema Ansari		Ms. Ansari	Seema.ansari@peelregion.ca	•
		Region of Peel Traffic Signals		Steve Lonz		Mr. Lonz	Steve.lonz@peelregion.ca	•
		Region of Peel Roads Capital		Jibril Farah		Mr. Farah	Jibril.farah@peelregion.ca	•
		Region of Peel Roads Capital		John Hasselbacher		Mr. Hasselbacher	John.hasselbacher@peelregion.ca	•
		Region of Peel Roads Capital		Bob Nieuwenhuysen		Mr. Nieuwenhuysen	Bob.nieuwenhuysen@peelregion.ca	•
		Region of Peel Roads Capital		Solmaz Zia		Ms. Zia	Solmaz.zia@peelregion.ca	•
		Region of Peel Infrastructure Programming & Studies		Sally Rook	Manager	Sally Rook	sally.rook@peelregion.ca	•
		Region of Peel Transportation System Planning		Eric Chan		Mr. Chan	Eric.chan@peelregion.ca	•
		Region of Peel Goods Movement		Kathryn Dewar		Ms. Dewar	Kathryn.dewar@peelregion.ca	•
		Region of Peel Sustainable Transportation		Wayne Chan		Mr. Chan	Wayne.chan@peelregion.ca	•
		Region of Peel TDM Projects		Arthur Lo		Mr. Lo	Arthur.lo@peelregion.ca	•
		Region of Peel TDM Projects		Erica Duque		Ms. Duque	Erica.duque@peelregion.ca	•
		Region of Peel Realty		Tony Zois		Mr. Zois	Tony.zois@peelregion.ca	•
		Region of Peel Water Program Planning & Compliance		Imran Motala		Mr. Motala	Imran.motala@peelregion.ca	•
		Region of Peel Roads Operations		John Kolb		Mr. Kolb	John.kolb@peelregion.ca	•

[illegible]	[illegible]	AGENCY/STAKEHOLDER NAME	ADDRESS	CONTACT NAME	TITLE	SALUTATION	PHONE/FAX/EMAIL	CC/COMMENTS
		Region of Peel Roads Operations		Mark Crawford		Mr. Crawford	Mark.crawford@peelregion.ca	•
		Region of Peel Health		Aimee Powell		Ms. Powell	Aimee.powell@peelregion.ca	•
		Region of Peel Health		Lorenzo Mele		Mr. Mele	Lorenze.mele@peelregion.ca	•
		Region of Peel Accessibility		Meenu Sikand		Meenu Sikand	Meenu.sikand@peelregion.ca	•
2.	**CITY OF BRAMPTON**							
		City of Brampton Works and Transportation	8850 McLaughlin Road, Unit #2 Brampton, ON L6Y 5T1	Compton Bobb	Project Engineer	Mr. Bobb	T: (905) 874-2581 Compton.Bobb@brampton.ca	• **Will distribute to Brampton contacts.**
		City of Brampton Planning, Design and Development	2 Wellington Street West Brampton, ON L6Y 4R2	John Corbett	Commissioner	Mr. Corbett	T: (905) 874-2050 john.corbett@brampton.ca	
		City of Brampton Planning, Design and Development	2 Wellington Street West Brampton, ON L6Y 4R2	John Allison	Landscape Technologist	Mr. Allison	T : 905-874-3880 John.allison@brampton.ca	
		City of Brampton Engineering and Construction Division Works and Transportation Department	8850 McLaughlin Road Brampton, ON L6Y 5T1	Chris Duyvestyn	Manager, Infrastructure Planning	Mr. Duyvestyn	T: (905) 874-2500 chris.duyvestyn@brampton.ca	
		City of Brampton		Antonietta Minichillo	Heritage Co-ordinator (Bramwest and Churchville)	Ms. Minichillo	Antonietta.minichillo@brampton.ca	
		City of Brampton Planning Design and Development		John Allison		Mr. Allison	John.allison@brampton.ca	
		City of Brampton Development		Daniel Walters	Landscape Technologist, Open Space	Mr. Walters	Daniel.walters@brampton.ca	
		City of Brampton		Chris Duyvestyn	Manager of Infrastructure Planning	Mr. Duyvestyn	Chris.duyvestyn@brampton.ca	
		City of Brampton		Chris LaFleur	Project Leader, ZUM	Mr. LaFleur	Chris.lefleur@brampton.ca	
		City of Brampton Transit Services	185 Clark Boulevard Brampton, ON L6T 4G6	Craig Sherwood	Planning Co-ordinator	Mr. Sherwood	craig.sherwood@brampton.ca	
		City of Brampton Fire and Emergency Services	8 Rutherford Road Brampton, ON L6W 3J1	Andy MacDonald	Fire Chief	Mr. MacDonald	T: (905) 874-2721 andy.macdonald@brampton.ca	
		City of Brampton Community Services	2 Wellington Street West Brampton, ON L6Y 4R2	Jamie Lowery	Commissioner	Mr. Lowery	T: 905-874-2323	
		City of Brampton Clerk's Department	2 Wellington Street West Brampton, ON L6Y 4R2	Peter Fay	City Clerk	Mr. Fay	T: (905) 874-2172 cityclerksoffice@brampton.ca	
		City of Brampton – Councillor Vicky Dhillon	2 Wellington Street West Brampton, ON L6Y 4R2	Vicky Dhillon	City Councillor	Councillor Dhillon	T: (905) 874-2609 Vicky.dhillon@brmapton.ca	• Wards 9 and 10 **To be notified directly by Peel Region Project Manager**

E. ABORIGINAL ORGANIZATIONS								
		Aboriginal Affairs and Northern Development Canada, Consultation and Accommodation Unit	300 Sparks Street, Room 205, Ottawa, ON K1A 0H4	Allison Berman	Regional Subject Expert for Ontario	Ms. Berman	cau-uca@aadnc-aandc.gc.ca T: (613) 943-5488	• See website about one window approach to consultation : https://www.aadnc-aandc.gc.ca/eng/1331832983717/1331833056925
		Ministry of Aboriginal Affairs – Consultation Unit	160 Bloor Street East, 4th Floor Toronto, ON M7A 2E6			Ms. Johnson	Maa.ea.review@ontario.ca	• See website about one window approach to consultation : http://www.ontario.ca/government/environment-assessments-consultng-aboriginal-communities
F. FIRST NATIONS								
		Alderville First Nation	P.O. Box 46/11696 2nd Line Alderville, Ontario K0K 2X0	James Marsden		Ms. Marsdsen		
		Beausoliel First Nation	11 Ogemaa Miikaan Christian Island, Ontario L9M 0A9	Roland Monague		Mr. Monague		
		Chippewas of Georgina Island	R.R. #2, Box N-13 Sutton West, ON L0E 1R0	Donna Big Canoe		Donna Big Canoe		
		Chippewas of Mnjikinig	5884 Rama Road, Suite 200 Rama, ON L3V 6H6	Sharon Stinson Henry		Sharon Stinson Henry		
		Credit River Metis Council	160 Main Street, Suite 561 Brampton, ON L6W 4R1	Steven Sarrazin		Steven Sarrazin		
		Curve Lake First Nation	Curve Lake Post Office Curve Lake, ON K0L 1R0	Phyllis Williams		Phyllis Whillams		
		Haudenosaunee Confederacy Development Institute	16 Sunrise Court, Suite 407 Ohsweken, ON N0A 1M0	Hazel Hill		Hazel Hill		
		Haundenosaunee Confederacy Chiefs Council	2634- 6th Line Road RR #2 Ohsweken, ON N0A 1N0	Allen MacNaughton		Allen MacNaughton		
		Hiawatha First Nation	123 Paudash Street Keene, ON K0L 2G0	Sandra Moore		Sandra Moore		
		Mississaugas of the New Credit First Nation	2789 Mississauga Road RR #6 Hagersville, ON N0A 1H0	Bryan LaForme		Bryan LaForme		
		Mississaugas of Scugog Island First Nation	22521 Island Road Port Perry, ON L9L 1B6	Tracy Gauthier		Tracy Gauthier		
		Six Nations of the Grand River Territory	1695 Chiefswood Road Ohsweken, ON N0A 1M0	William Montour		William Montour		
		The Chiefs of Ontario	111 Peter Street, Suite 804 Toronto, ON M5V 2H1	Kathleen Padulo		Kathleen Padulo		
		The Metis Nation of Ontario	500 Old St. Patrick Street, Unit 3 Ottawa, ON K1N 9G4	Mark Bowler		Mark Bowler		
G. OTHER STAKEHOLDER ORGANIZATIONS								
		Brampton Bicycle Advisory Committee		David Laing	Chair	Mr. Laing	david@daylelaing.com	• Schedule meeting before Public Open House #1

		Brampton Environmental Planning Advisory Committee		Chandra Urquhart	Legislative Co-ordinator	Ms. Urquhart	T: (905) 874-2116 cityclerksoffice@brampton.ca	
		Brampton Environmental Commission Advisory Panel	14 Steven Harris Drive Toronto, ON M9C 1V1			Sir or Madam		
		Community Environmental Alliance of Peel	222 Advance Blvd, Unit 7 Brampton, ON L6T 4Y7	Ranjana Mitra	Executive Director	Ms. Mitra	905-463-9941	
		Brampton Historical Society	32 Wellington St. E. Brampton, ON L6W 1Y4	Peter Murphy		Mr. Murphy		
		Brampton Safe City Association	**18 George Street North Brampton, ON L6X 1R2**			**Sir or Madam**	**T: (905) 793-5484**	RETURNED MAIL
H. COMMUNITY FACILITIES								
		Cardinal Ambroziac Catholic Secondary School	10 Castle Oaks Crossing Brampton, Ontario L6P 3A2	Tim Lariviere	Principal	Mr. Lariviere	T: 905-913-2989	• Letter to request meeting prior to Public Open House #1
		Castlebrooke Secondary School	10 Gardenbrooke Trail Brampton, Ontario L6P 3L1	Cathy Semler	Principal	Ms. Semler	T: 905-796-4570	• Letter to request meeting prior to Public Open House #1
		Castlemore Public School	9916 The Gore Road Brampton, ON L6P 0A7	Marcia Moorcroft	Principal	Ms. Moorcroft	T: 905-913-0845 marcia.moorcroft@peelsb.com	• Letter to request meeting prior to Public Open House #1
		Hindu Sabha Temple	9225 The Gore Road Brampton, Ontario L6S 5Y8			Property Owner	T: 905-794-4638	• Letter to request meeting prior to Public Open House #1
		Gurdwara Sahib Dasmesh Darbar	4555 Ebenezer Road Brampton, ON L6P 2R2			Property Owner	T: 905-794-4664	• Letter to request meeting prior to Public Open House #1
		Sant Gyaneshwar Ashram	8887 The Gore Road Brampton, Ontario L6P 2K9			Property Owner	T:905-794-5530	• Letter to request meeting prior to Public Open House #1
		Chinmaya Venduta Heritage Centre	8832 The Gore Road Brampton, Ontario L6P 0B1			Property Owner	T: 905-913-2377	• Letter to request meeting prior to Public Open House #1
		Nanaksar Thath Isher Darbar Sikh Temple	9954 The Gore Road Brampton, Ontario L6Y 4V7			Property Owner	T: 647-308-0962	• Letter to request meeting prior to Public Open House #1
		Ebenezer Community Hall	4494 Ebenezer Road Brampton, Ontario L6P 1R9			Property Owner		
		The Old Ebenezer Pioneer Chapel/ Ebenezer, Toronto Gore Historical Foundation	8999 The Gore Road Brampton, Ontario L6P 2P7			Property Owner	old.ebenezer.chapel@gmail.com	
		Grand Empire Banquet and Convention Centre	100 Nexus Avenue Brampton, Ontario L6P 3R6			Property Owner		
		Embassy Convention Centre	8800 The Gore Road Brampton, Ontario L6P 0B1			Property Owner		
		The Gore Meadows Community Centre & Library	10150 The Gore Road Brampton, Ontario L6P 0A6			Property Owner		
I. PUCC								
		MTS Allstream		Ian Fleming	EA Coordinator	Mr. Fleming	utility.circulations@mtsallstream.com	
		Hydro One Brampton	175 Sandalwood Parkway West Brampton, ON L7A 1E8	Robert Evangelista	Engineering Supervisor – Development	Mr. Evangelista	Ph. 905-840-6300 Ext.5508 Fax. 905-840-1305 revangelista@hydroonebrampton.com	
		Hydro One Brampton		Linda Morson	–EA Corodinator	Ms. Morson	lmorson@hydroonebrampton.com	

		Hydro One Brampton		Henri Gamboa		Mr. Gamboa	Henri.gamboa@hydroonebrampton.com	
		Hydro One Telecom		Ian Mitchell	EA Coordinator	Mr. Mitchell	Ian.mitchell@hydroone.com	
		Hydro One		Dan Beardsall		Mr. Beardsall	Dan.beardsall@hydroone.com	
		Ontario Power Generation	Hydro One – Sustainable Development 9th Floor 700 University Avenue Toronto, ON M5G 1X6	Cara Clairman		Ms. Clairman		
		Enbridge Gas Distribution Inc.		Jamie Comper		Mr. Comper	jamie.comper@enbridge.com	
		Enbridge Gas Distribution Inc.		Diana Beaulne	Mark-Up Administrator	Ms. Beaulne	markups@enbridge.com	
		Enbridge		Emilio Labra		Mr. Labra	Emilio.labra@enbridge.com	
		Enbridge		Andrea Dinner		Ms. Dinner	Andrea.dinner@enbridge.ca	
		Rogers Cable		Edgar Henriquez	EA Coordinator	Mr. Henriquez	Edgar.henriquez@rci.rogers.com	
		Rogers		Michelle Vivar		Ms. Vivar	Michelle.vivar@rci.rogers.com	
		Rogers		Adele Biggs		Ms. Biggs	Adele.biggs@rci.rogers.com	
		Bell Canada Municipal Operations Centre		Diana Velez	C/o Netricom	Ms. Velez	Bell.moc@netricom.com	
		Bell Canada		Michael Dobson		Mr. Dobson	Michael.dobson@bell.ca	
		Bell Canada		Bradley Boulton		Mr. Boulton	Bradley.boulton@bell.ca	
J.	**PUBLIC CONTACTS AND REQUESTS TO BE ADDED TO MAILING LIST (Add as Requested)**							
		Weston Consulting	1660 N. Service Rd. E Suite 114 Oakville, ON L6H 7G3	Alan Young	Senior Associate	Mr. Young	T: 1-800-363-3558 ayoung@westonconsulting.com	
			1 Cliff Swallow Court Brampton, ON L6R 1E4	Lisa Stokes		Ms. Stokes	Lisastokes66@gmail.com	
			20 Banington Crescent Brampton, ON L7A 1G4	Gerald Pyjor		Mr. Pyjor	Storz100mm@yahoo.ca	
				Frances Johnston		Ms. Johnston	jamestonholsteins@gmail.com	
				Leonardo Romero		Mr. Romero	romero@gmail.com	
				George Shepperdley		Mr. Shepperdley	shepp@rogers.com	Committee Member of the Brampton Advisory Committee and Bike Brampton and Brampton Cycling Club
K.	**FRONTING PROPERTY OWNERS**							
		(Separate list provided by Region)						
L.	**BUSINESSES**							
		• Will receive hand delivered post card prior to Public Open House #2						
		• Add as requested						

M.	**PIC #1 ATTENDEES**							
		Poulos & Chung Limited	535 Bur Oak Avenue Markham, ON L6C 2S5	Esteban Campion	Transportation Planner		T: 905-479-7942 ecampion@pouloschung.com	
		Subzi Mandi Cash & Carry	8897 The Gore Road Unit 30 Brampton, ON L6T 3Y7	Gurmit Singh			T: 905-794-6112 F: 905-794-6118	
		Grand Empire Banquet and Convention Centre	100 Nexus Avenue Brampton, ON L6P 2K9	Phyllis	Event Coordinator		T: 905-794-4441 Phyllis@grandempirebanquet.com	
		Asian Cash & Carry	8917 The Gore Road Unit 11 & 12 Brampton, ON L1P 3Y7				T: 905-794-0014	
		Medical Care Store	4550 Ebenezer Road Unit 9 Brampton, ON L6P 2R2	Faisal Minhas	Operations Manager		T: 905-799-9270 info@medicalcarestore.com	
		Starz Computer & Dish	8917 The Gore Road Unit 6 Brampton, ON L6P 2L1				T: 905-913-1013	
		Khalsa Montessori School	4535 Ebenezer Road Unit 2 Brampton, ON L6P 2P7	Harpreet Singh	Director		T: 905-913-0801 info@kmschool.org	
		Infinity Event Group	8800 The Gore Road Brampton, ON L6P 0B1	Stephanie LaViola	Sales Representative	Ms. LaViola	T: 905-794-9588 x 104 Stephanie@infinityeventgroup.ca	
N.	**PIC #2 ATTENDEES**							
			61 Fieldview Drive Brampton, ON L6P 2Y2	Anoop Bah		Anoop Bah	T: 905-488-0618	
			8 Franco Street Brampton, ON L6P 1H2	Darcy Grewal		Darcy Grewal	T: 647-868-1945	
			58 Campwood Crescent Brampton, ON L6P 3S6	Chetan Shah		Chetan Shah	T: 905-915-6844 Ckshah68@gmail.com	
				Hitesh Shah			T: 416-662-6789	
			28 Timberwolf Road Brampton, ON L6P 2B3	Arlyce Abuan		Arlyce Abuan	T: 416-258-5462	
			66 Mission Ridge Trail Brampton, ON L6P 0B5	Sunesh Rajaure		Sunesh Rajaure	T: 647-521-7143 rajauresunesh@gmaill.com	
		Peel District School Board	81 Bloomsbury Avenue Brampton, ON L6P 1S6	Amar Singh		Mr. Singh	Amar.singh@peelsb.com	
		Brampton Cycling Advisory Committee	120 Fallingdale Crescent Brampton, ON L6T 3J6	Pauline Thornham		Ms. Thornham	Pauline.thornham@rogers.com	
		Brampton Cycling Advisory Committee	74 Cavendish Crescent Brampton, ON L6T 1Z4	Steve Laidlaw		Mr. Laidlaw	mofflaw@pathcom.com	
			38 Granite Ridge Crescent Brampton, ON L6R 3H7	Kashmir & Ghrdeep Singh		Mr. & Mrs. Singh		
			8 Whitford Court Brampton, ON L6R 2S2	Amandeep Taank		Amandeep Taank		

			40 Hillson Court Brampton, ON L6P 1C4	Lucy Cipollone		Ms. Cipollone	lucycip@yahoo.ca	
			201 Millway Avenue Vaughan, ON L4K 3W4	Josh Berry		Mr. Berry	jberry@westonconsulting.com	

Letter Notice to Agencies

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Paul Savoie
Impact Assessment Biologist Fish Habitat Management
Department of Fisheries and Oceans Canada, District Office
3027 Harvester Road, Unit 304
Burlington, ON L7R 4K3

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

The Region of Peel has initiated a Municipal Class Environmental Assessment (Class EA) Study for improvements to The Gore Road, from Queen Street to Castlemore Road in the City of Brampton. The purpose of this letter is to inform you of the study and to invite your input. A copy of the notice is attached with details of the upcoming Public Open House (POH).

The study is being conducted in accordance with the approved requirements for a Schedule “C” project as described in the Municipal Engineers Association’s Municipal Class Environmental Assessment (EA) document (October 2000, as amended in 2007 and 2011).

The study will evaluate:

- capacity deficiencies (existing and future),
- identified safety issues,
- approved and proposed land use changes,
- natural heritage and fisheries requirements and other aspects of the environment,
- potential impacts to archaeological or built heritage resources,
- surrounding road network improvements, and
- property requirements.

A key component of the study is consultation with interested stakeholders (public and regulatory agencies). We will keep you informed of study progress including POH # 2 which is tentatively scheduled for early 2015. If you have any questions or comments, or would like to provide information to be considered in the study, please do not hesitate to contact me.

Yours truly,

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Amanda Graham
Environmental Resource Planner and Environmental Assessment Coordinator
Ministry of the Environment
Central Region, Technical Support
5775 Yonge Street, 9th Floor
North York, ON M2M 4J1

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Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800   www.peelregion.ca

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Lisa Myslicki
Environmental Advisor
Infrastructure Ontario
1 Dundas Street West, Suite 2000
Toronto, ON M5G 2L5

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Class Environmental Assessment for The Gore Road
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Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800   www.peelregion.ca

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Steven Strong
District Planner
Ministry of Natural Resources
50 Bloomington Road West
Aurora, ON L4G 3G8

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Yours truly,

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca

Encl.: Notice of Study Commencement and Public Open House # 1

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May 9, 2014

Malcolm Horne
Archaeology Review Officer
Culture Programs Unit
Ministry of Tourism, Culture and Sport
401 Bay Street, Suite 1700
Toronto, ON M7A 0A7

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

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Yours truly,

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
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May 9, 2014

Victor Doyle
Manager, Community Planning and Development
Ministry of Municipal Affairs and Housing
College Park, 2nd Floor
777 Bay Street
Toronto, ON M5G 2E5

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Encl.: Notice of Study Commencement and Public Open House # 1
Cc: Michelle Moretti, Planner, Community Planning & Development, MMAH

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Brent Mikstas
Inspector Mikstas
Ontario Provincial Police
2682 Keele Street
Toronto, ON M3M 3G5

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May 9, 2014

Sharon Lingertat
Peel Region/Durham Region, Environmental Assessment Planning
Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON M3N 1S4

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Victoria McGrath
Humber Watershed Specialist
Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON M3N 1S4

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Peter Dundas
Director
Region of Peel Ambulance and Emergency Services
299 Maingate Drive,
Mississauga, ON L4W 1G6

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Mike Grodzinski
Operation Planning
Peel Regional Police
Corporate Planning and Resources
7750 Hurontario Street
Brampton, ON L6V 3W6

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May 9, 2014

Steve Wollaston
Superintendent
Peel Regional Police
21 Division
10 Peel Centre Drive, Suite C
Brampton, ON L6T 4B9

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Carol Reid
Regional Clerk
Region of Peel Clerks Department
10 Peel Centre Drive, Suite A, 5th Floor
Brampton, ON L6T 4B9

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Brampton Environmental Commission Advisory Panel
14 Steven Harris Drive
Toronto, ON M9C 1V1

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Ranjana Mitra
Executive Director
Community Environmental Alliance of Peel
222 Advance Blvd, Unit 7
Brampton, ON L6T 4Y7

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Peter Murphy
Brampton Historical Society
32 Wellington St. E.
Brampton, ON L6W 1Y4

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Brampton Safe City Association
16 George Street North
Brampton, ON L6X 1R2

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Peter Rutkowski
Allstream Canada
PUCC Brampton/Caledon
50 Worcester Road
Etobicoke, ON M9W 5X2

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Royal Mail/Courier
Zone 2 Scheduling
40 Olympic Drive
Dundas, ON L9H 7P5

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Robert Evangelista
Engineering Supervisor - Development
Hydro One Brampton
175 Sandalwood Parkway West
Brampton, ON L7A 1E8

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Toni Paolasini
Hydro One Networks
Towers-Transmission
483 Bay Street
Toronto, ON M5G 2P5

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- property requirements.

A key component of the study is consultation with interested stakeholders (public and regulatory agencies). We will keep you informed of study progress including POH # 2 which is tentatively scheduled for early 2015. If you have any questions or comments, or would like to provide information to be considered in the study, please do not hesitate to contact me.

Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Region of Peel
Working for you

40 Years TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Cara Clairman
Ontario Power Generation
Hydro One – Sustainable Development
9th Floor
700 University Avenue
Toronto, ON M5G 1X6

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

The Region of Peel has initiated a Municipal Class Environmental Assessment (Class EA) Study for improvements to The Gore Road, from Queen Street to Castlemore Road in the City of Brampton. The purpose of this letter is to inform you of the study and to invite your input. A copy of the notice is attached with details of the upcoming Public Open House (POH).

The study is being conducted in accordance with the approved requirements for a Schedule “C” project as described in the Municipal Engineers Association’s Municipal Class Environmental Assessment (EA) document (October 2000, as amended in 2007 and 2011).

The study will evaluate:

- capacity deficiencies (existing and future),
- identified safety issues,
- approved and proposed land use changes,
- natural heritage and fisheries requirements and other aspects of the environment,
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Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Joe Marozzo
Enbridge Gas Distribution Inc.
Distribution Planning
PO Box 650
Scarborough, ON M1K 5E3

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Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Darryl Dimitroff
Planner
Rogers Cable
3573 Wolfdale Road
Mississauga, ON L5C 3T6

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

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Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800   www.peelregion.ca

Region of Peel
Working for you

40 Years
TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Alan Young
Senior Associate
Weston Consulting
1660 N. Service Rd. E
Suite 114
Oakville, ON L6H 7G3

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

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Yours truly,

Neal Smith

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Toronto Region Conservation Authority

Boerema, Gerrit

Subject: 48973 - The Gore Road - PIC

From: Smith, Neal [mailto:Neal.Smith@peelregion.ca]
Sent: Wednesday, May 21, 2014 2:02 PM
To: 'Sharon Lingertat'
Cc: Schijns, Stephen; Beth Williston
Subject: RE: 48973 - The Gore Road - PIC

Thanks Sharon

All the information will be available on the project webpage and can accessed by this link:
http://peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

The Public Open House displays will be uploaded to the website on May 29, 2014.

Thanks

Neal Smith, C.E.T.
Project Manager, Transportation, Infrastructure Programming & Studies
Public Works
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton Ontario, L6T 4B9

Phone: 905-791-7800 ext 7866
Cell: 905-872-6475
Fax: 905-791-1442
Toll free 1-888-919-7800 ext 7866
Email: neal.smith@peelregion.ca
Web Site www.peelregion.ca

From: Sharon Lingertat [mailto:SLingertat@trca.on.ca]
Sent: May 21, 2014 1:54 PM
To: Smith, Neal
Cc: Schijns, Stephen; Beth Williston
Subject: 48973 - The Gore Road - PIC

Hi Neal,

Please find attached our response to the notice of PIC.

Regards,
Sharon

Toronto and Region
Conservation
for The Living City

May 21, 2014

CFN 48973

BY E-MAIL ONLY (neal.smith@peelregion.ca)

Neal Smith
Project Manager
Region of Peel
10 Peel Centre Drive, Suite B, 4th floor
Brampton, ON L6T 4B9

Dear Mr. Smith:

Re: **Response to Notice of Study Commencement and Public Open House #1**
Municipal Class Environmental Assessment – Schedule C
The Gore Road (Queen Street to Castlemore Road)
Humber River Watershed; City of Brampton; Region of Peel

Toronto and Region Conservation Authority (TRCA) staff received notice of the upcoming Public Open House #1 scheduled for Thursday May 29, 2014. Further to TRCA correspondence and information sent March 24, 2014, staff has expressed interest in this project. While staff is unable to attend the meeting, please forward a digital copy of any handouts or display materials from this meeting for our files.

Should you have any questions, please contact me at extension 5717 or at slingertat@trca.on.ca.

Yours truly,

Slingertat

Sharon Lingertat
Senior Planner, Environmental Assessment Planning
Planning and Development

/da

BY E-MAIL

cc: AECOM: Stephen Schijns, Project Manager (stephen.schijns@aecom.com)
TRCA: Beth Williston, Senior Manager, Environmental Assessment Planning

AECOM

AECOM
3 – 30 Hannover Drive
St. Catharines, ON, Canada L2W 1A3
www.aecom.com

905 682 0212 tel
905 682 4495 fax

Minutes of Meeting

Date of Meeting	March 5, 2014
Start Time	2:30pm
Project Number	60311637
Project Name	The Gore Road Improvements Municipal Class Environmental Assessment
Location	TRCA Offices, Don Room, 5 Shoreham Drive, Toronto, ON M3N 1S4
Regarding	Issues Scoping and Ecological Investigations Methodology
Attendees	**TRCA:** Sharon Lingertat - Senior Planner Dilnesaw Chekol – Water Resources Analyst Maria Parish - Supervisor, Planning Ecology **Region of Peel:** Neal Smith – Project Manager **AECOM:** Stephen Schijns – Project Manager Wendy Ott – Senior Environmental Scientist Daniel McParland – Fluvial Geomorphologist Javeed Khan – Water Resources Engineer Jessica Mollo – Environmental Planner
Distribution	All present Region of Peel: Liz Brock AECOM: Karl Grueneis, Senior Environmental Planner Tom Shorney, Terrestrial Ecologist
Minutes Prepared By	Jessica Mollo

PLEASE NOTE: If this report does not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

Action

1. Introductions

- Introductions were made.

Background

- Construction was completed July 2013 for the widening of The Gore Road from two to four lanes.
- The project boundaries are 250m north of the Castlemore Road/The Gore Road intersection and 250m south of the Queen Street/The Gore Road intersection.
- The project includes two challenging crossings of the West Humber Tributary which results in difficulty to widen the north and south Wylie Bridges as the tributary runs parallel to The Gore Road.
- TRCA's main concerns include filling, extensions and how the tributary will fit in between the two bridges.
- The tributary used to run parallel between Castlemore Road and Fitzpatrick

Drive on the east side of The Gore Road.	
• AECOM doesn't believe that the watercourse near intersection of Queen Street is going to be affected by this project.	
2. Review of February 13, 2014 Kick-Off Meeting Minutes	
• The February 13, 2014 kick off meeting minutes were reviewed.	
• Sharon provided comments to Neal, which were incorporated and distributed at this meeting.	
3. Request for Information	
• For information relating to Species at Risk, recovery strategies, evaluated wetlands and wetland evaluations records, have to contact MNR.	AECOM
• TRCA will check to see about the current hydrologic models, hydraulic model and stormwater management criteria. TRCA will provide what they can.	TRCA
• AECOM has a hydraulic model from the previous project and would like to update it. TRCA will review flows between 2 models (old and 2013). TRCA can provide flows.	TRCA
• Subwatershed Study:	
– PC SWMM – Humber River watershed is currently being updated and will be done within 6 months	
– TRCA will provide guidance on the subwatershed study, once confirmed with upper management	TRCA
• To date, TRCA has sent digital files for terrestrial natural cover, heritage system, floodline mapping and regulation areas.	
• TRCA does not have a copy of the Aquafor Beach Ltd (1997) study or Metro TRCA Legacy (1997): A Strategy for a Healthy Humber report.	
4. Project Issues, Concerns and Expectations	
• TRCA will be looking for LID measures (CVC/TRCA document). This document can be downloaded from the TRCA website.	AECOM
• SP47 area north of Castlemore Road – Neal to confirm how far advanced this is.	Neal Smith
• In previous Peel Region projects, the MNR has asked for wildlife crossing. TRCA supports this if requested by MNR, but TRCA does not request this. Based on this study are, the only terrestrial passages would be at the water crossings.	
• The stormwater management ponds were built to accommodate 6 lanes.	
• During the 2000 EA, fill placement was an issue.	
5. Work Completed To Date	
• Terrestrial and aquatic team went out in December 2013 to complete preliminary investigations.	
• Aquatic information was collected, but it is not as detailed as terrestrial.	

• AECOM has an inventory of ELC communities around the three water crossings.	
• Aquatic and terrestrial team will revisit the crossings in the spring (and potentially the fall) to complete terrestrial habitat and fish characterization.	AECOM
• The 2000 Class EA ESR makes no reference to SAR as the Act came into effect in 2007.	
• Wendy reviewed the Conservation Ontario Species at Risk mapping and existing fish community records provided by TRCA which does not include aquatic Species at Risk. Wendy noted however, a review of recent watershed studies and consultation with MNR would be required to confirm absence/presence of aquatic Species at Risk or their habitat.	
• AECOM/the Region will set up a meeting with Mark Heaton of MNR to discuss this project to gather input regarding Species at Risk. MNR – every second Tuesday, open next Tuesday (March break) – confirm terrestrial and get back to Neal.	AECOM
• A tree survey will be completed (tentatively scheduled for mid-April) by a certified Arborist.	AECOM
6. Ecological Investigations Methodology	
• TRCA would like a complete survey for flora and fauna in multiple seasons completed. They would like an opportunity to comment on our approach and methods, prior to conducting our field assessments.	AECOM
• With respect to terrestrial, confirm conditions in the 2000 Class EA ESR and identify any changes since then.	AECOM
• DFO may be uplisting Redside Dace in May. If this is the case, then DFO will have to be engaged through their self-assessment process.	
• It is TRCA's understanding that MNR has completed aquatic surveys in the area, and have found Redside Dace in streams that were previously classified as warmwater. This has come to light on other projects in the area.	AECOM
• Other potential Species at Risk habitat was identified in the area and include barn swallow and bobolink. Habitat suitability and species will be assessed during the appropriate season field surveys.	AECOM
• AECOM to request any future up listings from MNR.	AECOM
• TRCA mentioned that rare or endangered mussels have been found in some parts of the Humber River.	
• If any Species at Risk are found this will be considered during design.	
• Region concerned with overtopping, one solution would be to raise the bridge structures.	
• There should be an existing SWM report for development. Would like to maintain the existing stormwater management system.	
• If there are any additional flows, identify where the flows are going and how these flows are being treated.	AECOM
• TRCA will check if this area was affected by the July 8, 2013 storm.	TRCA

• With respect to geotechnical investigations, several boreholes were put in for the previous project, however, additional boreholes may be needed.	
• The fluvial geomorphological study will include a 100 year flood assessment and erosion assessment. Reaches upstream and downstream of all three crossings will be examined. A fluvial geomorphological analysis was not included in the 2000 Class EA.	AECOM
• Divert additional flows through pond, additional swales. Look at LID measures such as bioretention swales.	TRCA AECOM
• There are two existing oil/grit separators along the corridor.	
• Realignment of the tributary will be included as an alternative. TRCA will set up site visit with the Region and AECOM to look at this watercourse where discussions about the realignment can take place.	TRCA
• The fish management plan for Humber will be reviewed for improvements/ enhancements. This is available on TRCA's website.	AECOM
• The Watershed Study should also be reviewed as it identifies problem areas and what should/needs to be done. This is available on TRCA's website.	AECOM
• TRCA's Water Crossings Guideline should also be reviewed. This is available on TRCA's website.	
• Neal mentioned the Redside Dace Benefit Catalogue that the Region, the City of Brampton and CVC are compiling through Ontario Streams. It includes: – 28 deficiencies which are to be made better habitat – through Ontario Steams – Compensation in other areas for areas that can't be returned to same or better conditions.	
• Raw benefit areas: – This is not TRCA's first choice. – MNR & Ontario streams don't share where projects are located. – TRCA flagged a number of improvement areas in Humber and Rouge river areas.	
• There could be an opportunity to divert pedestrians through development and back to The Gore Road.	
• TRCA to send guidelines for pedestrian bridge (not finalized yet).	TRCA
7. Regulatory Agency Engagement	
• TRCA to review ecological investigations work plan.	TRCA
• If DFO is uplisting species, there may be an opportunity for them to comment. This will be determined through the self-assessment approach.	
• A meeting with MNR will be set within the next month or two up to discuss the project.	AECOM/Region
• AECOM approach is to deal with all levels of agencies to ensure a transparent process.	

8. Next Step	
• TRCA will provide background reports/RFI to AECOM. TRCA to also check with Hydrogeologists for well surveys.	TRCA
• Within the next few months, once AECOM has the required information, an interim existing conditions (based on information gathered to date) report will be created.	AECOM
• PIC #1 – June, introduce project to public. TRCA will have a chance to review PIC boards at the Technical Agency Meetings. One is planned prior to PIC # 1.	AECOM
• PIC #2 – February 2015	
• Completion Spring 2015	
• TRCA to check calendars and get back to AECOM regarding site visit. TRCA will send two possible dates: one in April and one in May.	TRCA

Infrastructure Ontario

Ontario
Infrastructure Ontario

One Dundas Street West, Suite 2000, Toronto, ON M5G 2L5
1, rue Dundas Ouest, bureau 2000, Toronto, ON M5G 2L5

May 15, 2014

Thank you for circulating Infrastructure Ontario (formerly the Ontario Realty Corporation) on your Notice. Infrastructure Ontario (IO) is the strategic manager of the provincial government's real estate property with a mandate of maintaining and optimizing value of the portfolio, while ensuring real estate decisions reflect public policy objectives of the government.

As you may be aware, *IO is responsible for managing real estate property that is owned by Her Majesty the Queen in Right of Ontario as represented by the Minister of Infrastructure (MOI).* There is a potential that IO manages lands that fall within your study area. As a result, your proposal may impact IO managed properties and/or the activities of tenants present on IO-managed lands. In order to determine if IO property is within your study area, IO requires that the proponent of the project conduct a title search by reviewing parcel register(s) for adjoining lands, to determine the extent of ownership by MOI or it's predecessors (listed below) ownership. Please contact IO if any ownership of provincial government lands are known to occur within your study area and are proposed to be impacted. IO is obligated to complete due diligence for any realty activity on IO managed lands and this should be incorporated into all project timelines. IO managed lands can ***include within the title but is not limited to*** variations of the following: Her Majesty the Queen/King, OLC, ORC, Public Works, Hydro One, PIR, MGS, MBS, MOI, MTO, MNR and MEI*. Please ensure that a copy of your notice is also sent to the ministry/agency on title. As an example, if the study area includes a Provincial Park, then MNR is to also to be circulated notices related to your project.

Potential Negative Impacts to IO Tenants and Lands

General Impacts

Negative environmental impacts associated with the project design and construction, such as the potential for dewatering, dust, noise and vibration impacts, and impacts to natural heritage features/habitat and functions, should be avoided and/or appropriately mitigated in accordance with applicable regulations best practices and Ministry of Natural Resources (MNR) and Ministry of the Environment (MOE) standards. Avoidance and mitigation options that characterize baseline conditions and quantify the potential impacts should be present as part of the EA project file. Details of appropriate mitigation, contingency plans and triggers for implementing contingency plans should also be present.

Impacts to Land holdings

Negative impacts to land holdings, such as the taking of developable parcels of IO managed land or fragmentation of utility or transportation corridors, should be avoided. If the potential for such impacts is present as part of this undertaking, you should contact the undersigned to discuss these issues at the earliest possible stage of your study.

If takings are suggested as part of any alternative these should be appropriately mapped and quantified within EA report documentation. In addition, details of appropriate mitigation and or next steps related to compensation for any required takings should be present. IO requests circulation of the draft EA report prior to finalization if potential impacts to IO-managed lands are present as part of this study.

Heritage Management Process & Class Environmental Assessment (EA) Process

Should the proposed activities impact cultural heritage features on IO managed lands, a request to examine cultural heritage issues which can include the cultural landscape, archaeology and places of sacred and secular value could be required. The IO (formerly Ontario Realty Corporation) Heritage Management Process should be used for identifying and conserving heritage properties in the provincial portfolio (this document can be downloaded from the Heritage section of our website: http://www.ontariorealty.ca/What-We-Do/Heritage.htm). Through this process, IO identifies, communicates and conserves the values of its heritage places. In addition, the Class EA ensures that IO considers the potential effects of proposed undertakings on the environment, including cultural heritage.

Potential Triggers Related to MOI's Class EA

IO is required to follow the MOI Public Work Class Environmental Assessment Process for (PW Class EA). The PW Class EA applies to a wide range of realty and planning activities including leasing or letting, planning approvals, dispostion, granting of easements, demolition and property maintenance/repair. For details on the PW Class EA please visit the Environment and Heritage page of our website found at http://www.infrastructureontario.ca/What-We-Do/Buildings/Realty-Services/Environmental-Management/Class-EAs/

Please note that completion of any EA process does not provide an approval for MOI's Class EA obligations. Class EA processes are developed and in place to assess undertakings associated with different types of projects. For example, assessing the impacts of disposing of land from the public portfolio is significantly different then assessing the best location for a proposed road.

IO is providing this information so that adequate timelines and project budgets should consider MOI's regulatory requirements associated with a proposed realty activity in support of a project. Some due diligences processes and studies can be streamlined. For example, prior to any disposition of land, a Stage I Archaeological Assessment is required. If MOI lands are likely to be impacted by the proposed project, then at the time of studies completion, the incorporation of these lands should be undertaken. In addition to *archaeological and heritage reports, a Phase I Environmental Site Assessment (ESA),* on IO lands should also be undertaken. Deficiencies in any of these requirements could result in substantial project delays and increased project costs.

In summary, the purchase of MOI-owned/IO-managed lands or disposal of rights and responsibilities (e.g. easement) for IO-managed lands triggers the application of the MOI Class EA. If any of these realty activities affecting IO-managed lands are being proposed as part of any alternative, please contact the Sales and Marketing Group through IO's main line (Phone: 416-327-3937, Toll Free: 1-877-863-9672), and contact the undersigned at your earliest convenience to discuss next steps.

Specific Comments

Please remove IO from your circulation list, with respect to this project, if MOI owned lands are not anticipated to be impacted. In addition, in the future, please send only **electronic copies of notices** for any projects impacting IO managed lands to:
Keith.Noronha@infrastructureontario.ca

Thank you for the opportunity to provide initial comments on this undertaking. If you have any questions on the above I can be reached at the contacts below.

Sincerely,

L. Myslicki

Lisa Myslicki
Environmental Advisor, Environmental Management
Infrastructure Ontario
1 Dundas Street West,
Suite 2000, Toronto, Ontario
M5G 2L5
(416) 212-3768
lisa.myslicki@infrastructureontario.ca

* Below are the acronyms for agencies/ministries listed in the above letter
OLC: Ontario Lands Corporation
ORC: Ontario Realty Corporation
PIR: Public Infrastructure and Renewal
MGS: Ministry of Government Services
MBS: Management Board and Secretariat
MOI: Ministry of Infrastructure
MTO: Ministry of Transportation
MNR: Ministry of Natural Resources
MEI: Ministry of Energy and Infrastructure

Ministry of Tourism, Culture and Sport

Ministry of Tourism,
Culture and Sport

Culture Services Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416 314 7147
Fax: 416 212 1802

Ministère du Tourisme,
de la Culture et du Sport

Unité des services culturels
Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416 314 7147
Téléc: 416 212 1802

Ontario

March 8, 2016 (EMAIL ONLY)

Neal Smith, C.E.T.
Project Manager, Infrastructure Programming & Studies
Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 4B9
E: neal.smith@peelregion.ca

RE: MTCS file #: 0001450
Proponent: Region of Peel
Subject: Notice of Public Open House #2
Improvements to the Gore Road from Queen Street to Castlemore Road
Location: City of Brampton, Ontario

Dear Mr. Smith:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the project information including a Notice of Public Open House for your project. MTCS's interest in this EA project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land-based and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Aboriginal communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Aboriginal communities includes a discussion about known or potential cultural heritage resources that are of value to these communities. Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

Archaeological Resources
Open House materials suggest that a Stage 2 archaeological assessment will take place during detailed design. If your project has the potential to impact archaeological resources, information on these resources and potential impacts needs to be taken into consideration in evaluating alternative solutions and alternative methods. As such, any archaeological assessment work that is found to be necessary should be completed during the environmental assessment process, and its results used to select the preferred alternative. The MTCS *Criteria for Evaluating Archaeological Potential* can be used to screen the project and determine if an archaeological assessment is needed. MTCS archaeological sites data are available at *archaeology@ontario.ca*. If your EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an archaeologist licenced under the *OHA*, who is responsible for submitting the report directly to MTCS for review.

Built Heritage and Cultural Heritage Landscapes

Material from Open House #1 notes four known built heritage resources and cultural heritage landscapes in the study area, but it is unclear whether any technical work is being done to identify additional potential cultural heritage resources. The MTCS *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* should be completed to help determine whether your EA project may impact cultural heritage resources. The Clerk for the City of Brampton can provide information on property registered or designated under the *Ontario Heritage Act* if that has not already been determined. Municipal Heritage Planners can also provide information that will assist you in completing the checklist.

If potential or known heritage resources exist, MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* outlines the scope of HIAs. Please send the HIA to MTCS and the City of Brampton for review, and make it available to local organizations or individuals who have expressed interest in heritage.

Environmental Assessment Reporting

All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA project, and provide them to MTCS before issuing a Notice of Completion. If your screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank you for consulting MTCS on this project: please continue to do so through the EA process, and contact me for any questions or clarification.

Sincerely,

Dan Minkin
Heritage Planner
Dan.Minkin@Ontario.ca

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

Ministry of Tourism, Culture and Sport

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Programs and Services Branch
Culture Division
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel.: (416) 212-8442
Email: kaye.boucher@ontario.ca

Ministère du Tourisme, de la Culture et du Sport

Unité des programmes d'archéologie
Direction des programmes et des services
Division de culture
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Ontario

Apr 25, 2016

Erik Phaneuf (P393)
AECOM
235 La Salle Baie-Comeau QC G4Z 2Z4

RE: Review of the Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment The Gore Road Widening Various Lots, Concessions 9 and 10 Geographic Township of the Gore of Toronto, now City of Brampton, Regional Municipality of Peel, County of Peel, Ontario ", Dated Mar 6, 2015, Filed with MTCS Toronto Office on Mar 23, 2015, MTCS Project Information Form Number P393-0033-2014

Dear Mr. Phaneuf:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 Standards and Guidelines for Consultant Archaeologists set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

In reviewing this report, this ministry notes that specific standards have not been adequately addressed or addressed to the ministry's satisfaction.[1] Please file a revised report that resolves the following fieldwork and/or reporting issues:

1. In Figure 6 and the subsequent figure, please explain what is meant by "Stage 1 Assessment Area." How does this differ from "Study Area"? Does this Stage 1 Assessment not cover the "Study Area" outlined in red?
2. It is not clear in the development map and in the "Development Context" section of the report how the cemeteries will be impacted by the proposed development. Please clarify how the cemeteries will be impacted by the development (as per Section 7.5.12 Standard 4).
3. The cemeteries located within the project area should be registered as archaeological sites and given Borden numbers because they contain human remains. Please clarify if these cemeteries have been registered as archaeological sites and if so, provide their Borden numbers.

4. The report recommendations should treat the cemeteries as archaeological sites. If any areas within the cemeteries will be impacted by the proposed development, a strategy and recommendations for assessing them must be provided. Recommendations must also be provided for any lands abutting the cemeteries that will be impacted. The strategies should aim to determine the limits of the three cemeteries located within the project area and mitigate any proposed impacts to them.

   Cemetery limits can be determined through mechanical topsoil stripping (see the Standards and Guidelines FAQ for Stage 3 fieldwork). This must be preceded by test-pit survey to locate any archaeological resources present near the surface (Section 2.1.7, S2).Please consult the Bereavement Authority of Ontario (Michael D'Mello michael.dmello@thebao.ca) and MTCS for lands within cemetery limits. Also consult the Registrar of Cemeteries (Nancy Watkins nancy.watkins@ontario.ca) and MTCS for lands outside of cemetery limits that have the potential to find human remains. These consultations are required to develop an appropriate strategy and recommendations for the cemeteries included in the project area (as per Section 7.7.4 Standard 2)

5. The project area contains three cemeteries, known archaeological sites, historic structures and previously assessed lands. The report is missing information about these features that is necessary for developing the Stage 2 fieldwork strategy. Please ensure the following information is included in the report:
   - **Cemeteries:**
     - For the cemeteries that were previously assessed, please provide the results of both the archaeological and GPR assessments. For the GPR investigations – please clarify the coverage of the assessment. Did the GPR assessments of the cemeteries only take place within the cemetery limits or did they investigate whether or not graves are located outside of the cemetery's current boundaries? If the areas abutting the cemeteries have not been previously surveyed, is it possible that unmarked graves could be found in these areas? (see Section 7.5.8 Standards 6 and 7)

     - The Harrison-Hewgill Cemetery has been previously assessed but the assessment was not cited or referenced in this report. The report title is "The 2005 Stage 3 Archaeological Test Excavations of the Harrison-Hewgill Cemetery, 9749 The Gore Road, C10E9.5 – Draft Plan 21T-03013B, Bram East Secondary Plan Area, City of Brampton, Ontario." Please email archaeology@ontario.ca to request this report from MTCS. Include the results and recommendations of the assessment within this report.

     - The report does not give any historical background on the three cemeteries within the project area. Please provide relevant background research for each cemetery.

     - The cemetery locations are marked on Figure 6 and the figure subsequent to Figure 6. However, their identities are not clear. Please clarify the names of the cemeteries on the maps (as per Section 7.5.12 Standard 4c).

     - There is one cemetery marked on Figure 6 and the figure subsequent to Figure 6 for which no photos have been provided. Please provide photos of this cemetery (Section 7.7.5 Standard 1).

   - **Historic Structures and Cemeteries:**

  - The report does not give any description or background information on the historic structures located within the project area. Please include the relevant historical background of these structures in the report.

  - The report makes mention of an English Church in the village of Castlemore (page 14) and the possibility of a cemetery being associated with this Church. Where was this Church located? Please show the location of the church on a map. Where is the cemetery presumed to be located in relation to it? Will there be a specific assessment strategy for this area? (Section 7.5.8 Standards 6 and 7)

- **Known Sites:**
  - The report gives a list of sites registered within a 1km radius of the project area. However, it does not explain which sites are within the project area and which are outside of the project area. Please clarify in the report which sites are within the project area (as per Section 1.1 Standard 1, Section 7.5.8 Standards 1 and 4).

  - Is it possible that any of the previously discovered sites will extend into areas recommended for Stage 2 in this report? Could this affect the fieldwork strategy for areas that abut known sites?

- **Previous Assessments:**
  - The report gives a list of previous assessments carried out within 50m of the project area. However, it does not explain which assessments are within the project area and which are outside of the project area. Please clarify in the report which assessments are within the project area (as per Section 7.5.8 Standards 4).

  - The report did not include summaries of all findings and recommendations from the previous assessments, including those which document archaeological sites within the project area. The report states that requests were sent to various consulting firms and only four reports were received. Please summarize the recommendations and findings of these four reports.

  - Table 5 suggests that MTCS was asked to provide information regarding relevant reports – was a request made to MTCS for the full reports and were these received? If not, please submit a request for all relevant reports to archaeology@ontario.ca and summarize the findings and recommendations of those reports (as per Section 7.5.8 Standard 5). Also include how these reports were used to inform the Stage 2 recommendations of this report.

A revised report must be filed by the ministry on or before Jul 25, 2016. Once a revised report is received, it will be reviewed and a response provided. Please note that licensees who fail to file reports by the specified report filing deadline will be in violation of the terms and conditions of their licence.

If the concerns identified are not fully addressed by the date noted above the report may be deemed incomplete or non-compliant. Incomplete or non-compliant reports may impact a licensee's record of compliance.

Please note that a licensee's record of compliance will be taken into account by the ministry at the time of any licensing decisions.

Should you require any further information regarding this matter, please feel free to contact me.

For further information and guidance, please see the Project Information Forms and the Report Review Process Bulletin, the Standards and Guidelines, and the Terms and Conditions for Archaeological Licences by visiting the ministry's website www.ontario.ca/archaeology.

Sincerely,

Kaye Boucher
Archaeology Review Officer

cc. Archaeology Licensing Officer

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[1] In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) from the incompleteness, non-compliance or inaccuracies of this Report; (b) from reliance on this Report; or (c) from the issuance of this letter. Further measures are required as this Report is found to be incomplete at this time.

Ministry of Tourism, Culture and Sport

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Ministère du Tourisme, de la Culture et du Sport

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Ontario

Aug 11, 2016

Erik Phaneuf (P393)
AECOM
235 La Salle Baie-Comeau QC G4Z 2Z4

RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment The Gore Road Widening Various Lots, Concessions 9 and 10 Geographic Township of the Gore of Toronto, now City of Brampton, Regional Municipality of Peel, County of Peel, Ontario ", Dated Aug 8, 2016, Filed with MTCS Toronto Office on Aug 9, 2016, MTCS Project Information Form Number P393-0033-2014, MTCS File Number 0005417

Dear Mr. Phaneuf:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18.[1] This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 Standards and Guidelines for Consultant Archaeologists set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment of the study area as depicted in Figures 7 and 8 of the above titled report and recommends the following:

Due to the high potential for the presence of archaeological resources a Stage 2 archaeological assessment is recommended for all areas not previously assessed that retain archaeological integrity. As the subject property cannot be ploughed the Stage 2 assessment should consist of the standard test pit survey method at an interval of 5 m.

As a precautionary measure, it is recommended that after Stage 2 archaeological assessments are completed, should any ground disturbing activities be required within 10 m of the Ebenezer Primitive Methodist Cemetery and the St. John's Castlemore Cemetery, the following fieldwork must be conducted to determine if any grave shafts are present:
Stage 3 mechanical topsoil removal must be conducted for all lands subject to ground disturbance that fall within a 10 m buffer area of the known cemetery limits to determine the nature/limits of the two identified historic cemeteries within the study area limits. This includes the land between The Gore Road right of way and the marked cemetery limits (Figure 8);

Mechanical topsoil removal must be completed using an excavator with a straight-edged ditching bucket and only under the supervision of a licensed archaeologist. It should be noted that the 10m buffer area subject to mechanical topsoil removal includes areas where modern infrastructure currently exists in proximity to the cemetery limits (i.e. existing parking lots, sidewalks, etc).
Should deeply buried sites be discovered, a Stage 2 assessment will be conducted according to the standards appropriate for survey in deeply buried conditions as per Section 2.1.7 in the Ontario MTCS Standards and Guidelines for Consultant Archaeologists (Ontario Government 2011). If human remains are encountered during
construction, work should cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer Services.
It should be noted that there are several alignment options as part of the proposed road widening in order to avoid lands within the cemetery limits. As such, the current design of this project will not affect any lands within either cemetery's limits; however, should any future changes to detail design include lands within cemetery limits,
additional archaeological work must be conducted in consultation with the Bereavement Authority of Ontario, the MTCS, and the Registrar of Cemeteries.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

John Dunlop
Archaeology Review Officer

cc. Archaeology Licensing Officer
Neal Smith,Region of Peel
To be determined To be determined,Ministry of Environment

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[1] In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

Ministry of Environment and Climate Change

AECOM

Ministry of the Environment

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Ontario

June 20, 2014

File No.: EA01-06-05

Neal Smith, C.E.T.
Project Manager
Region of Reel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

RE: The Gore Road Queen Street to Castlemore Road
The Region of Peel
Class Environmental Assessment
Response to Notice of Commencement

Dear Mr. Smith,

This letter is our response to the Notice of Study Commencement for the above noted project. This response acknowledges that the Region of Peel has indicated that its study is following the approved environmental planning process for a Class Environmental Assessment, Schedule C project under the Municipal Engineers Association Municipal Class Environmental Assessment (Class EA).
Based on the information submitted, we have identified the following areas of interest with respect to the proposed undertaking:

- Ecosystem Protection and Restoration
- Surface Water
- Groundwater
- Air Quality, Dust and Noise
- Servicing and Facilities
- Contaminated Soils
- Mitigation and Monitoring
- Planning and Policy
- Class EA Process
- Aboriginal Consultation

We are providing the following general comments to assist your team in effectively addressing these areas of interest:

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The ESR should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. Our records confirm that the following sensitive environmental features are located within or adjacent to the study area:

  - Watercourses
  - Woodlots

  We recommend consulting with the Ministry of Natural Resources (MNR), Fisheries and Oceans

Canada (DFO) and your local conservation authority to determine if special measures or additional study will be necessary to preserve and protect these sensitive features.

Surface Water

- The ESR must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's *Stormwater Management Planning and Design Manual* (2003) should be referenced in the ESR and utilized when designing stormwater control methods. We recommend that a Stormwater Management Plan should be prepared as part of the Class EA process that includes:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the ESR.

- If the potential construction or decommissioning of water wells is identified as an issue, the ESR should refer to Ontario Regulation 903, Wells, under the *Ontario Water Resources Act*.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the ESR. In particular, a Permit to Take Water (PTTW) under the *Ontario Water Resources Act* will be required for any water takings that exceed 50,000 litres per day.

Air Quality, Dust and Noise

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The ESR should consider the potential impacts of increased noise levels during the operation of the undertaking due to potentially higher traffic volumes resulting from this project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Servicing and Facilities

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with the Environmental Approvals Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's "D-Series" guidelines – *Land Use Compatibility* to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Contaminated Soils

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act (EPA)* and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. We recommend contacting the ministry's Halton Peel District Office in Burlington for further consultation if contaminated sites are present.

- The location of any underground storage tanks should be investigated in the ESR. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- Any current or historical waste disposal sites should be identified in the ESR. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the *Environmental Protection Act* may be required for land uses on former disposal sites.

- The ESR should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

Mitigation and Monitoring

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- All waste generated during construction must be disposed of in accordance with ministry requirements.

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the ESR and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly. The proponent's construction and post-construction monitoring plans should be documented in the ESR.

Planning and Policy

- Parts of the study area are subject to the *Growth Plan for the Greater Golden Horseshoe.* The ESR should demonstrate how the proposed study adheres to the relevant policies in these plans.

- The Provincial Policy Statement contains policies that protect Ontario's natural heritage and water resources, including designated vulnerable areas mapped in source water protection assessment reports under the *Clean Water Act*. Applicable policies should be referenced in the ESR, and the proponent should demonstrate how this proposed project is consistent with these policies. Assessment reports can be found on the Conservation Ontario website at: http://www.conservation-ontario.on.ca/source_protection/otherswpregionsindex.htm.

Class EA Process

- The ESR should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making. The ESR must also demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all public consultation efforts undertaken during the planning process. Additionally, the ESR should identify all concerns that were raised and how they have been addressed throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The ESR should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the Project File.

- Please include in the ESR a list of all subsequent permits or other approvals that may be required for the implementation of the preferred alternative, including Permits to Take Water, Environmental Compliance Approvals, approval under the *Canadian Environmental Assessment Act* (CEAA), and conservation authority permits.

- Please note that ministry guidelines and other information related to the issues noted above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy under the publications link. We encourage you to review all the available guides and to reference any relevant information in the ESR.

Aboriginal Consultation

- Your proposed project may have the potential to affect Aboriginal communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's Constitution Act 1982. The Crown has a duty to consult First Nation and Métis communities when it knows about established or credibly asserted Aboriginal or treaty rights, and contemplates decisions or actions that may adversely affect them.

- Although the Crown remains responsible for ensuring the adequacy of consultation with potentially affected Aboriginal communities, it may delegate procedural aspects of the consultation process to project proponents.

- The environmental assessment process requires proponents to consult with interested persons and government agencies, including those potentially affected by the proposed project. This includes a responsibility to conduct adequate consultation with First Nation and Métis communities.

- The ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process.

- Where the Crown's duty to consult is triggered in relation to your proposed project, the Ontario Ministry of the Environment is delegating the procedural aspects of rights-based consultation to you through this letter.

- Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the attached "Aboriginal Consultation Information" document. Please complete the checklist contained there, and keep related notes as part of your consultation record. Doing so will help you assess your project's potential adverse effects on Aboriginal or treaty rights.

- You must contact the Director, Environmental Approvals Branch if you have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order request has been submitted. The ministry will then assess the extent of any Crown duty to consult in the circumstances, and will consider whether additional steps should be taken and what role you will be asked to play in them.

Thank you for the opportunity to comment on this project. A draft copy of the ESR should be sent to this office prior to the filing of the final draft, allowing approximately 30 days review time for the ministry's reviewers to provide comments. Please also forward our office the Notice of Completion and ESR when completed. Should your team have any questions regarding the above, please contact me at 416-326-5745.

Yours sincerely,

Amanda Graham

Environmental Resource Planner and EA Coordinator
Air, Pesticides and Environmental Planning

c. T. Dufresne, Manager, Halton Peel District Office, MOE
Central Region EA File
A & P File

ABORIGINAL CONSULTATION INFORMATION

Consultation with Interested Persons under the Ontario Environmental Assessment Act

Proponents subject to the Ontario *Environmental Assessment Act* are required to consult with interested persons, which may include First Nations and Métis communities. In some cases, special efforts may be required to ensure that Aboriginal communities are made aware of the project and are afforded opportunities to provide comments. Direction about how to consult with interested persons/communities is provided in the Code of Practice: Consultation in Ontario's Environmental Assessment Process available on the Ministry's website:

http://www.ontario.ca/environment-and-energy/consultation-ontarios-environmental-assessment-process

As an early part of the consultation process, proponents are required to contact the Ontario Ministry of Aboriginal Affairs' Consultation Unit and visit Aboriginal Affairs and Northern Development Canada's Aboriginal and Treaty Rights Information System (ATRIS) to help identify which First Nation and Métis communities may be interested in or potentially impacted by their proposed projects.

ATRIS can be accessed through the Aboriginal Affairs and Northern Development Canada website:

http://sidait-atris.aadnc-aandc.gc.ca/atris_online/

For more information in regard Aboriginal consultation as part of the Environmental Assessment process, refer to the Ministry's website:

www.ontario.ca/government/environment-assessments-consulting-aboriginal-communities

You are advised to provide notification directly to all of the First Nation and Métis communities who may be interested in the project. You should contact First Nation communities through their Chief and Band Council, and Metis communities through their elected leadership.

Rights-based consultation with First Nation and Métis Communities

Proponents should note that, in addition to requiring interest-based consultation as described above, certain projects may have the potential to adversely affect the ability of First Nation or Métis communities to exercise their established or credibly asserted Aboriginal or treaty rights. In such cases, Ontario may have a duty to consult those Aboriginal communities.

Activities which may restrict or reduce access to unoccupied Crown lands, or which could result in a potential adverse impact to land or water resources in which harvesting rights are exercised, may have the potential to impact Aboriginal or treaty rights. For assistance in determining whether your proposed project could affect these rights, please refer to the attached "Preliminary Assessment Checklist: First Nation and Métis Community Interest."

If there is likely to be an adverse impact to Aboriginal or treaty rights, accommodation may be required to avoid or minimize the adverse impacts. Accommodation is an outcome of consultation and includes any mechanism used to avoid or minimize adverse impacts to Aboriginal or treaty rights and traditional uses. Solutions could include mitigation such as adjustments in the timing or geographic location of the proposed activity. Accommodation may in certain circumstances involve the provision of financial compensation, but does not necessarily require it.

For more information about the duty to consult, please see the Ministry's website at:

www.ontario.ca/government/duty-consult-aboriginal-peoples-ontario

The proponent must contact the Director, Environmental Approvals Branch if a project may adversely affect an Aboriginal or treaty right, consultation has reached an impasse, or if a Part II Order or an elevation request is anticipated; the Ministry will then determine whether the Crown has a duty to consult.

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBgen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 12A Flr 2 St Clair Ave W Toronto ON M4V1L5

Delegation of Procedural Aspects of Consultation

Proponents have an important and direct role in the consultation process, including a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the environmental assessment process. This is laid out in existing environmental assessment codes of practice and guides that can be accessed from the Ministry's environmental assessment website at

www.ontario.ca/environmentalassessments

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Where the Crown's duty to consult is triggered, various additional procedural steps may also be asked of proponents as part of their delegated duty to consult responsibilities. In some situations, the Crown may also become involved in consultation activities.

Ontario will have an oversight role as the consultation process unfolds but will be relying on the steps undertaken and information you obtain to ensure adequate consultation has taken place. To ensure that First Nation and Métis communities have the ability to assess a project's potential to adversely affect their Aboriginal or treaty rights, Ontario requires proponents to undertake certain procedural aspects of consultation.

The proponent's responsibilities for procedural aspects of consultation include:

- Providing notice to the elected leadership of the First Nation and/or Métis communities (e.g., First Nation Chief) as early as possible regarding the project;
- Providing First Nation and/or Métis communities with information about the proposed project including anticipated impacts, information on timelines and your environmental assessment process;

- Following up with First Nation and/or Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project. <u>If you are unable to make the appropriate contacts (e.g. are unable to contact the Chief) please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office for further direction.</u>
- Providing First Nation and/or Métis communities with opportunities to meet with appropriate proponent representatives to discuss the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or Treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns provided by First Nation and/or Métis communities and providing responses;
- Where appropriate, discussing potential mitigation strategies with First Nation and/or Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation, which may include providing support to help build communities' capacity to participate in consultation about the proposed project.
- Maintaining a Consultation Record to show evidence that you, the proponent, completed all the steps itemized above or at a minimum made meaningful attempts to do so.
- Upon request, providing copies of the Consultation Record to the Ministry. The Consultation Record should:
  - summarize the nature of any comments and questions received from First Nation and/or Métis communities
  - describe your response to those comments and how their concerns were considered
  - include a communications log indicating the dates and times of all communications; and
  - document activities in relation to consultation.

Successful consultation depends, in part, on early engagement by proponents with First Nation and Métis communities. Information shared with communities must be clear, accurate and complete, and in plain language where possible. The consultation process must maintain sufficient flexibility to respond to new information, and we trust you will make all reasonable efforts to build positive relationships with all First Nation and Métis communities contacted.
If you need more specific guidance on Aboriginal consultation steps in relation to your proposed project, or if you feel consultation has reached an impasse, please contact the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office.

Preliminary Assessment Checklist: First Nation and Métis Community Interests and Rights

In addition to other interests, some main concerns of First Nation and Métis communities may pertain to established or asserted rights to hunt, gather, trap, and fish – these activities generally occur on Crown land or water bodies. As such, projects related to Crown land or water bodies, or changes to how lands and water are accessed, may be of concern to Aboriginal communities.

Please answer the following questions and keep related notes as part of your consultation record. "Yes" responses will indicate a potential adverse impact on Aboriginal or treaty rights.

Where you have identified that your project may trigger rights-based consultation through the following questions, you should arrange for a meeting between you and the Environmental Assessment and Planning Coordinator at the Ministry's appropriate regional office to provide an early opportunity to confirm whether Ontario’s duty to consult is triggered and to discuss roles and responsibilities in that event.

	YES	NO
1. Are you aware of concerns from First Nation and Métis communities about your project or a similar project in the area? The types of concerns can range from interested inquiries to environmental complaints, and even to land use concerns. You should consider whether the interest represents on-going, acute and/or widespread concern.		
2. Is your project occurring on Crown land, or is it close to a water body? Might it change access to either?		
3. Is the project located in an open or forested area where hunting or trapping could take place?		
4. Does the project involve the clearing of forested land?		
5. Is the project located away from developed, urban areas?		
6. Is your project close to, or adjacent to, an existing reserve? Projects in areas near reserves may be of interest to the First Nation and Métis communities living there.		
7. Will the project affect First Nations and/or Métis ability to access areas of significance to them?		
8. Is the area subject to a land claim? Information about land claims filed in Ontario is available from the Ministry of Aboriginal Affairs; information about land claims filed with the federal government is available from Aboriginal Affairs and Northern Development Canada.		
9. Does the project have the potential to impact any archaeological sites?		

Agency Workshop Outline

Working Meeting Outline

Location: Region of Peel Conference Centre,
10 Peel Centre Drive, Suite B
Time: 9:30am to 1:30pm

- 26 invitees - representatives include City of Brampton, TRCA, Region of Peel as well as consultants AECOM, WSP and Parsons Brinkeroff.

1. GENERAL OVERVIEW OF THE WORKING MEETING – 9:00-9:30 AM

- Introductions
- Overview of The Gore Road Municipal Class EA
- The purpose/goal of the workshop is to articulate the ultimate road design direction or vision that people have for The Gore Road corridor extending north from Queen Street to approximately 250 metres north of Castlemore Road. Discussion will focus on specific corridor areas or zones (see below) and municipal engineering road design including “Complete Streets”.
- Description of 5 Break-Out Groups and What is Expected
  - Table 1: Commercial Zone- identify/consider constraints and opportunities and high level design concepts
  - Table 2: Residential Zone- identify/consider constraints and opportunities and high level design concepts
  - Table 3: Eco-Learning Zone- identify/consider constraints and opportunities and high level design concepts
  - Table 4: Institutional Zone - identify/consider constraints and opportunities and high level design concepts
  - Table 5: Plans/Profiles, Alternative Cross Sections and Road Design Standards and Policy - develop corridor specific design criteria considering current standards and best practices
- Each break-out table will have a tool box that includes scalable aerial plan of respective corridor zone, topic primers, acetate overlay, pens/erasable markers/post it notes as well as road design criteria/relevant policies and alternative road cross sections.

2. 5 BREAK-OUT GROUPS – 9:30-11:30 AM

- There will be approximately 4-6 people per group with 1 “floater” overseeing all of the tables.
  - Table 1: Commercial Zone
  - Table 2: Residential Zone
  - Table 3: Eco-Learning Zone
  - Table 4: Institutional Zone
  - Table 5: Plans/Profiles, Alternative Cross Sections and Road Design Standards and Policy - develop corridor specific design criteria considering current standards, policies and best practices

2.1 Issues and Opportunities – 9:30-11:30 AM

- Each table will brainstorm issues and opportunities within their respective zones or focus area – 9:30 - 10:30AM

- Tables will present their issues and opportunities – 10:30 - 11:30 AM **approximately 10 minutes** (each group)

Break/Light Lunch – 11:30 AM – 12:00 PM

2.2 Design Alternatives – 12:00 – 12:45 PM

- Each table will now switch to the following:
    - Table 1: Commercial Zone → Table 2: Residential Zone
    - Table 2: Residential Zone → Table 3: Eco-Learning Zone
    - Table 3: Eco-Learning Zone → Table 4: Institutional Zone
    - Table 4: Institutional Zone → Table 5: Plan and Profiles
    - Table 5: Plan and Profiles → Table 1: Commercial Zone
- Once situated, each table will brainstorm/develop design concept alternatives for their respective zones or focus areas. Alternatives may include staying within or going outside of current ROW.

3. General Discussion/Wrap Up - 12:45 -1:30 PM

- Tables will present their alternatives – **8 minutes** (each group)

Agency Workshop Display Boards

AECOM

Municipal Class Environmental Assessment
The Gore Road
Queen Street East to Castlemore Road

Corridor Overview and Study Purpose

Stephen Schijns, P.Eng.
AECOM
June 2, 2015

Planning for the Road Ahead

Region of Peel
Working for you

1 Study Area


Peel
York
Toronto
Gore
Mayfield
Countryside
Clarkway
50
Nashville
27
Major Mackenzie
Islington
Kortright Centre for Conservation
Rutherford
Airport
Goreway
McVean
Torbram
Bramalea
Castlemore
Cottrelle
Ebenezer
Langstaff
KLEINBURG
WOODBRIDGE
Claireville Conservation Area
427
Queen / 7
407
Steeles
HUMBER SUMMIT
CLAIRVILLE
Dixie

427 Connections Today

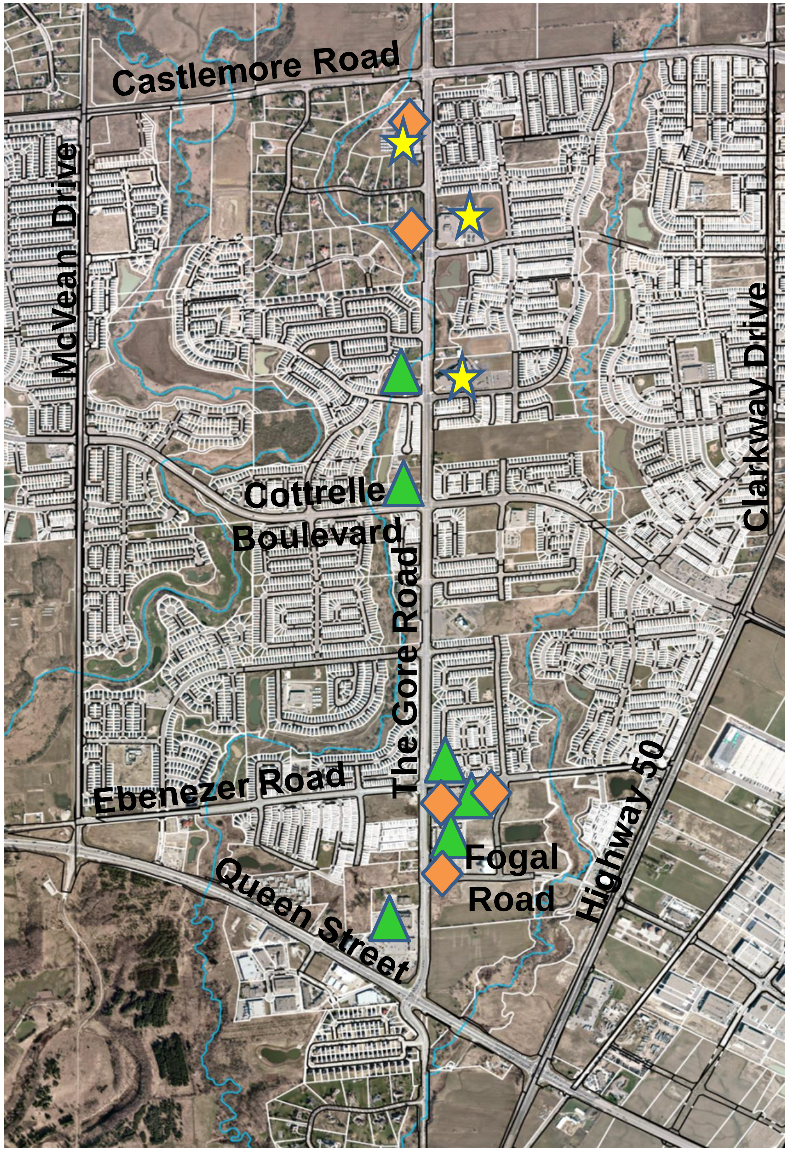
3

427 Connections with 427 Extension

4

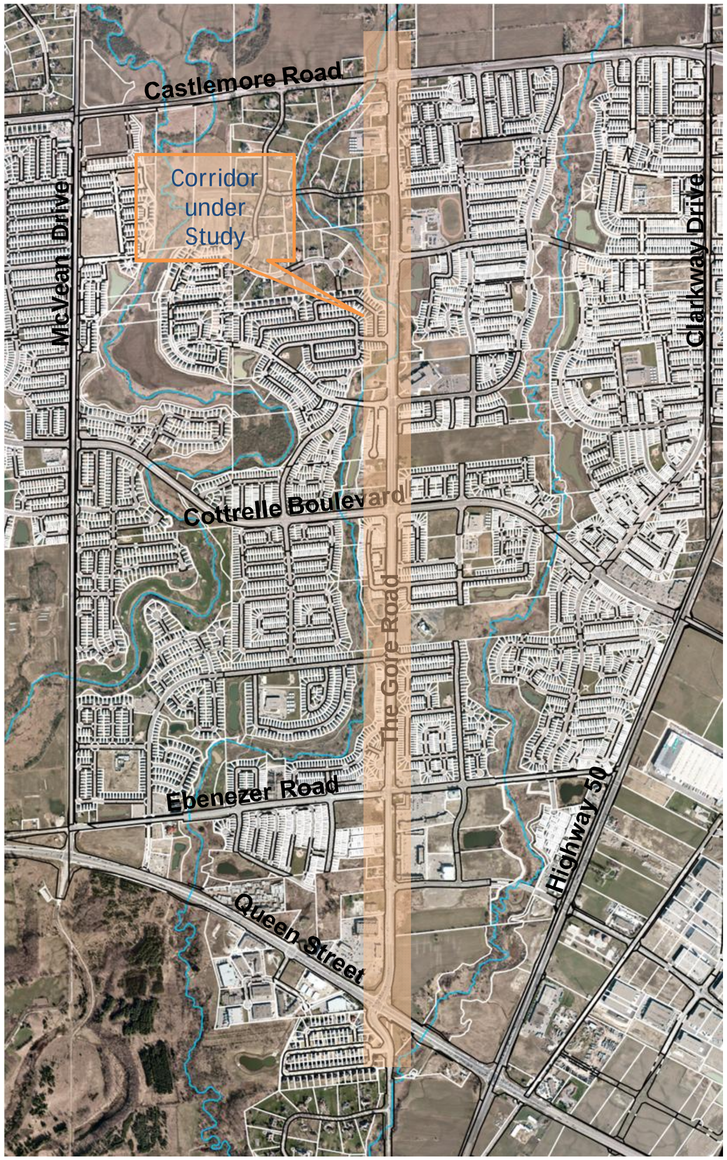
Study Area Characteristics

- 4 km long
- 4 laning completed 2013
- 14,000 – 19,000 AADT
- Area ~80% developed
  - Growth South of Ebenezer
  - Future development north of Castlemore (SPA 47)
- Origins and Destinations
  - Residential
  - Schools ★
  - Commercial ▲
  - Places of Worship ◆
  - Recreation

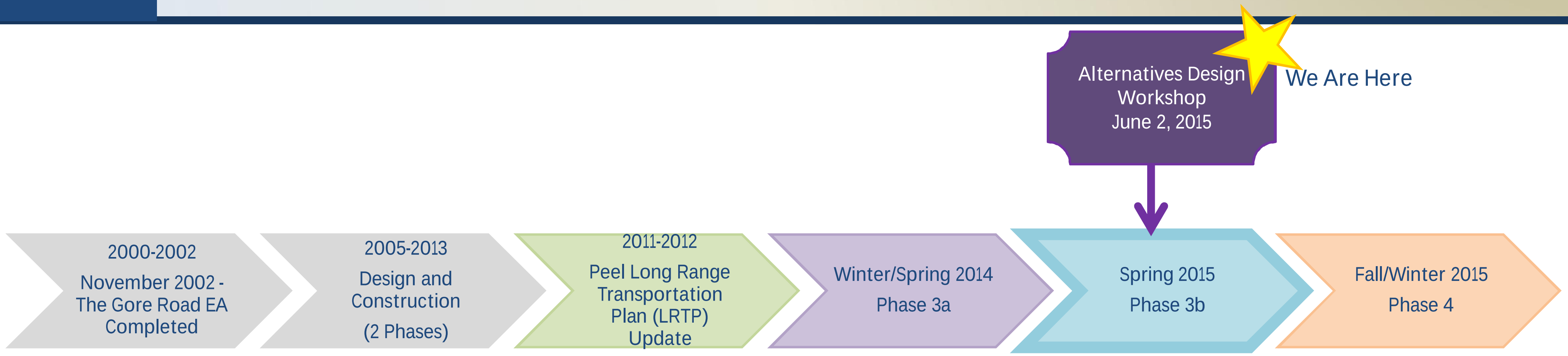


Why This Study? Why Now?

- Regional population growth
- Long Range Transportation Plan Update identified need for widening in 2020s
- SPA 47
- Length of EA process
- Widening is in Regional capital budget for 2020-21



6 Study Schedule and Planning Process



Alternatives Design Workshop
June 2, 2015

We Are Here

2000-2002
November 2002 - The Gore Road EA Completed

Recommendations included:

- The Gore Road widening from Queen Street East to Castlemore Road (2 to 4 lanes in certain sections)
- Realigning the centreline south of Fitzpatrick Drive to mitigate impacts to cemeteries and watercourses

2005-2013
Design and Construction
(2 Phases)

This phase involved:

- Detailed design and approvals
- Acquiring 45m of right-of-way
- Construction in phases

2011-2012
Peel Long Range Transportation Plan (LRTP) Update

This phase involved:

- Identifying The Gore Road improvements (e.g., future widening, transit enhancements and active transportation)
- High level evaluation of alternative solutions
- Addressed Phases 1 and 2 of the Class Environmental Assessment Process

Winter/Spring 2014
Phase 3a

This phase involves:

- Confirm Phases 1 and 2 of the LRTP
- Problem and opportunity statement
- Document existing and future conditions (e.g., traffic, natural, socio-economic and cultural environments)
- Field investigations (e.g., natural environment)
- Preliminary design concepts

Spring 2015
Phase 3b

This phase involves:

- Review and consider input received following Public Open House # 1 and from Design Workshop
- Confirm and evaluate alternative design concepts
- Preliminary recommended design concept
- Project description – confirm Class EA project planning schedule
- Mitigation measures
- Next steps

Fall/Winter 2015
Phase 4

This phase involves:

- Review and consider input received during and following Public Open House # 2
- File Environmental Study Report
- Public opportunity to request additional studies and review by the Minister of the Environment and Climate Change

Region of Peel
Working for you

Planning for the Road Ahead

What is The Gore Road Supposed to Be?

- a Peel Regional Road
  - Purpose is to “provide a high transportation capacity for inter-municipal service”
    - Control access and limit intersections so as to optimize traffic-carrying capacity
    - Residential development protected from vehicular noise
- a Peel Suburban Connector
  - Often the link between strip commercial retail development hubs and suburban housing
    - Auto-oriented development, with street fronting retail malls behind surface parking areas, reverse frontage residential development and some mid-density residential units
    - Pedestrian traffic generally moderate, with isolated examples of high pedestrian activity
    - Bicycle traffic low with limited integrated facilities
    - Transit services the area
  - Automobile traffic intended to be free-flowing with limited access between major intersections
  - Typical cross section : 45m ROW with 6 lanes, 3.0m multi-use path both sides, green zones
- a Brampton Major Arterial and Primary Transit Corridor
  - Designed to accommodate medium to high volumes of medium distance intra-regional traffic at medium speeds coupled with provision of transit services through transit priority measures or lanes (and) with high degree of access control to minimize conflicts with mainstream traffic flow

Alternatives

- Do Nothing
    - ➢ Leave The Gore Road as it exists
- Active Transportation
    - ➢ Leave vehicular capacity and operations as is, but improve infrastructure (including connections) for walking and cycling in the corridor
    - ➢ Opportunity for complementary walk/bike to school program
    - ➢ Healthy communities – reduce obesity rates and increase overall health
- Improve Transit Accommodation
    - Bus bays / 5-7 minute headways
    - Gore Meadows Community Centre and Library commuter parking lot
- Intersection Improvements
    - ➢ Provide vehicular capacity increases at major intersections (e.g. double left turn lanes)

9 Alternatives Cont’d

- Directional Widening
  - ➢ Add a fifth (reversible or permanent) lane to increase vehicular capacity in the southbound direction (permanently) or in the peak direction (reversible)
- Partial Six-Laning
  - ➢ Widen to six through lanes between Cottrelle Boulevard and Queen Street
- Full Six-Laning
  - ➢ Widen to six through lanes between Castlemore Road and Queen Street
  - ➢ $31 M allocated for widening in Ten Year Capital Budget

Agency Workshop Summary Memorandum

AECOM
3 – 30 Hannover Drive 905 682 0212 tel
St. Catharines, ON, Canada L2W 1A3 905 682 4495 fax
www.aecom.com

Minutes of Meeting

Date of Meeting June 2, 2015 Start Time 9:00am Project Number 60311919

Project Name The Gore Road Municipal Class EA

Location Peel Region Conference Centre, 10 Peel Centre Drive, Brampton

Regarding Alternatives Design Working Meeting

Attendees	Region of Peel:	Damian Albanese (DA), Transportation Steve Ganesh (SG), Transportation Neal Smith (NS), Transportation Liz Brock (LB), Transportation Natalie Lapos (NL), Public Health Sandra Almeida (SA), Public Health Althaf Farouque (AF), Planning Lindsay Edwards (LE), Transportation William Toy (WT), Traffic Joe Avsec (JA), Traffic Bob Nieuwenhuysen, Sabbir Saiyed (SS), Sustainable Transportation Wayne Chan (WC), Sustainable Transportation Natalie Kou (NK), Sustainable Transportation Arthur Lo (AL), Sustainable Transportation Lorenzo Mele (LM), Public Health Ryan Gulyas (RG), Real Estate John Nemeth (JN), Transportation Solmaz Zia (SZ), Roads, Design and Construction Eric Chan (EC), Transportation
	City of Brampton:	Pam Cooper (PC), Planning and Development Andria Oliveria (AO) Brampton Transit
	TRCA:	Sharon Lingertat (SL), Environmental Assessment Planning
	Parsons Brinckeroff:	Raj Mohabeer (RM)
	AECOM:	Stephen Schijns (SS2) Karl Grueneis (KG) Armin Naderi (AN) Hossein Zarei (HZ) Mike Hubicki (MH) Jessica Mollo (JM) Owen McGaughey (OM) Javeed Khan (JK)

Distribution All Attendees, Compton Bobb, Sharanjeet Kaur, Margie Chung, Tahar Singh,

	Gary Kocialek, Chris King, Mark Ho Sue, Mark Crawford
Minutes Prepared By	Jessica Mollo

PLEASE NOTE: If this report does not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

	Action
1. Introduction and Purpose • Introductions were made. • SG and NS gave a quick overview of the purpose of the working meeting and the project. The purpose of the working meeting is to agree to a set of design principles that meet the needs of The Gore Road today and tomorrow. Through the EA process the study team received feedback questioning if a 6 lane cross section was suitable for The Gore Road community urban fabric.	
2. Corridor Overview and Study • The project study area comprises the Gore Road corridor from Queen Street to Castlemore Road to the north. Study area also extends approximately 245 metres south of Queen Street and 245 metres north of Castlemore Road. • Reconstruction of The Gore Road from two to four lanes was recently completed in July 2013. • Regional traffic is using The Gore Road to reach Highway 427 via Fogal Road and Queen Street. Future connections to Highway 427, from the study area, will be via Castlemore Road and Cottrelle Boulevard, once Highway 427 is extended; the Fogal – Zenway interchange will be removed. • Once the area of SP47 is developed, then another link to Highway 427 will be from Mayfield Road. • Highway 427 extension provides an opportunity to reset The Gore Road and bleed off regional traffic. • The Class EA is building on the Region's Long Range Transportation Plan (LRTP), which covers Phases 1 and 2 of the Class EA process and identified the need for widening The Gore Road from four to six lanes in the following stages: – 2020: Queen Street to Cottrelle Boulevard; and – 2021: Cottrelle Boulevard to Castlemore Road. • This project will confirm the findings for population, growth and traffic demand as outlined in the LRTP and the Class EA process will be completed to ensure a smooth transition to design and construction. • This project will also take the opportunity to look at what The Gore Road needs to look like and accommodate in the year 2031 and will consider all modes of transportation as well as constraints such as water crossings including watercourse that runs parallel to part of The Gore Road corridor. • Class EA is currently in Phase 3 (Develop and Evaluate Alternative Design Concepts), with the second Public Information Centre tentatively planned for September/October 2015.	

- SS2 gave an overview of what The Gore Road is supposed to be:
    - Peel Regional Road;
    - Peel Suburban Connector; and
    - A Brampton Transit Oriented Arterial Primary Corridor.
- The Gore Road alternatives will consider the following:
    - Do Nothing;
    - Improve Transit Accommodation;
    - Intersection Improvements;
    - Directional Widening;
    - Partial Six-Laning; and
    - Partial Four-Laning.

3. Road Characterization and the Study Corridor (Raj Mohabeer)

- The road characterization study identified 6 different road characters, 2 of which apply to The Gore Road; Suburban Connector and Industrial Connector.
- The suburban connector was identified in the study as a 45 m right-of-way with multi-use paths or 45 m right-of-way with on-street bike lanes (as an interim solution).
- Objective of today's meeting is to balance land use and transportation needs and use the opportunity to build a "Great Street".
- Need for speed impacts quality of life (high collision rates-less active transportation use).
- Lower speed limits increase collision survival rate and provides good road capacity.

4. Peel Health Perspective (Lorenzo Mele)

- Travel Demand Management (TDM) Perspective:
    - Why? (Trip Purpose) – Accommodate residents
    - When? (Trip Start and End Time)
    - Where the trip is made? (Trip Origin and Destination)
    - How-mode? (Mode of Travel)
- Sustainable land use complements TDM.
- Manage roadway demand by shaving traffic from AM and PM peaks and shifting to other modes.
- There is a lack of connectivity between neighbourhoods along The Gore Road.
- The Gore Road is designated as a north-south regional arterial, but is currently functioning as a neighbourhood or community connector.
- Address policy distortions (health policies and road widening policies often don't align) through Region of Peel Health Background Study and Pedestrian and

Bicycle Design Guidelines.

- 2031 Vision for the Corridor – Agency Stakeholder Perspective

Brampton Land Use Planning: (Pam Cooper)

- Lands along the corridor have been generally developed without an overall clear vision (lots of re-designation of industrial lands to residential).
- The Gore Meadows Community Centre is heavily used by the South Asian community.
- Lands located at the northeast intersection of The Gore Road and Queen Street are designated as a Major Transit Node and office centre. There are specific urban and landscape design policies for this area. This property currently has a lot of applications to designate it as residential (will be considered as part of Municipal Comprehensive Review). The City will have an opinion in the fall as to whether to convert the designated office space to residential.
- The Gore Meadows Community Centre is within the Toronto Gore Rural Estate.
- The Highway 427 Industrial Policy Area is currently under appeal.

Brampton Transit (Brampton Transit)

- The Gore Road is served by Route 50 which travels from Humber College to the Community Centre.
- The City is hoping to have more frequent service from Humber College to Castlemore Road.
- Bus bays are preferred at major intersections.
- Queue jump lanes may be considered at The Gore Road and Queen Street.
- Need to protect for bus shelters and benches at major and minor intersections.

Peel Region LRTP (Eric Chan)

- The LRTP was completed and recommended a multi-modal approach with 6 lanes for The Gore Road.
- There are no parallel alternative north to south arterial corridors for approximately 3-4 km east and west of The Gore Road and the numbers in the LRTP shows a big increase in growth for 2031/2041 north of Castlemore Road.
- Possible to have a hospitable 6-lane road.

Peel Region Land Use Planning & Servicing (Althaf Farouque)

- Most of the corridor is developed as per the Bram East planning area.
- Infill/intensification type of applications coming in.
- Long term water and wastewater is in plan.
- Brampton going through Municipal Comprehensive Review for townhouses. The City will have an opinion in the fall as to whether to convert the office space to residential.

Peel Traffic (Joe Avsec)

- Increase in future traffic in response to land uses.
- Castlemore Public School crossing pavement treatment, existing flashing 40km/h sign, restricting parking.
- Need appropriate design speed for the area wasdesigned for 80 kms, however, no 80 km posted speed on The Gore Road (as per current practice).

- Current posted speed limits are:
  - Castlemore Road to Cottrelle Boulevard is 60 km/h;
  - Cottrelle Boulevard to Ebenezer Road is 70 km/h; and
  - Ebenezer Road to Queen Street East is 60 km/h.
- There are 11 traffic signals between Castlemore Road and Queen Street.
- The Gore Road southbound AM peak gets approximately 700 vehicles turning left onto Queen Street. Have to look at offloading traffic before reaching Queen Street.
- Need 3.0 m lane (no median) or 3.25 m curb lane (accommodate buses) to meet capacity without hindering community.
- The Gore Road needs to function as more of a collector that brings people to arterial roads.

Peel Region Active Transportation (Arthur Lo)

- The Gore Road should be designed for all ages and abilities with a focus on neighbourhood trips (opportunity to shift modal share).
- Region standard for active transportation is a multi-use trail, however, problem with mix of users traveling in different directions.
- See a need for separate cycling facilities and/or safety enhancing treatments.

Peel Region Stormwater Management (John Nemeth)

- Road EAs have typically deferred SWM to detailed design (results in permitting issues).
- Little interaction between City and Region SWM systems.
- EAs should develop ToR for storm drainage management.
- LID/Green Infrastructure principles generally go well with active transportation and streetscaping.
- Climate change strategy-treat at source.
- “Treatment Train Approach” – source controls → conveyance controls →end of pipe.

Peel Region Real Estate (Ryan Gulyas)

- Some households have large extended families living in 1 household.
- Still consider 6 lanes.

Peel Transportation (Damian Albanese)

- The Gore Road is not the same as Highway 50.
- What can be done so that The Gore Road functions as a multi-modal corridor (combination of 4 lanes, multi-use trails, improved intersections?).
- Region should encourage pedestrians and cyclists to use The Gore Road.
- The Future Highway 427 and increased transit will change how the road is used.
- Opportunity for team approach to deliver to community.
- Difficult to rationalize “gold-plating” this corridor without setting a precedent for other Regional roads.

5. TRCA (Sharon Lingertat)

- Road improvements including bridge extensions / replacements and pedestrian bridges should be mindful to impacts to floodplain and wildlife.

6. Introduction to Design Exercise

- The study area has been divided into 4 zones: 1) Commercial Zone; 2) Residential Zone; 3) Eco-Learning Zone; and 4) Institutional Zone. See attached Figures 1 to 4.
- Each table was assigned a zone to “design”. A list of questions were provided for consideration and to guide discussion.
- Following the completion of zone design, each table presented their design.

7. Design Charette Outputs

Table 1 - Commercial Zone

- Reducing lane widths.
- Speed management as road is designed for higher speeds.
- Realistic speed limit between 50 km/h and 60 km/h.
- No need for on street parking-problem around school, don’t want to create for school zones (no stopping).
- Unsignalized crossings where pedestrians have right-of-way without need for pedestrian signals.
- Controlled at signalized crossings
- Greenspace yes, permeable.
- Pedestrians/cyclists separated-yes.
- Pedestrians/cyclists-nice to be separated from bus stops.
- Yes crossrides-pilot successful.
- Bend-In pedestrian crossings at intersections are preferred.
- Signal phasing-want to provide for crossrides.
- Queue jump lanes to be considered with right turn lanes.
- Opportunities for better integration with future development.

Table 2 - Eco-Learning Zone

- Intersections near schools-roundabouts if feasible.
- Cycle facilities-trail around creek to road, consider overpass for kids to get to school (stay off The Gore Road).
- At transit stops – multiple bike racks (promote AT and transit).
- Lane reductions-slow traffic.
- Drop off indentation at Castlemore Public School-if feasible.
- Trail around stormwater management pond-destination (park setting with benches).

Table 3 - Residential Zone

- Opportunity to celebrate culture of the area (past and present)-landscaping.
- Create seating areas-not a lot of refuge areas.
- Design vs. desire speed – 50 km/h – 60 km/h.
- Reduce lane width.
- Transit-far side stops.
- Shelters at every stop.
- Winter treatment/maintenance-increase level of service for snow clearing.
- Stormwater - planting centre medians at key locations and enhance road character with plantings.
- Trail network-pedestrian refuge.
- Separate cyclists and pedestrians.
- 1.5 m sidewalk.

Table 4 - Eco-Learning Zone

- Integration with City authorities to get traffic off The Gore Road (especially near Queen Street).
- Multi-use path.
- Lots of connectivity to missing-trails.
- Wildlife underpasses - raise grade of existing bridges.
- Create linkages between schools, SWM pond.
- 50 km/h – 60 km/h speed.
- Lane reductions.
- Potential to add future GO station (near community centre).
- Multi language signs.

Table 5 - Institutional Zone

- 4 lanes.
- Separate facilities for bicycles if possible.
- Multi-use trail both sides – bi-directional and set back from road, if feasible.
- Design speed – should be posted and designed for 60 km/h.
- Flashing signals at school 40 km/h.
- Traffic calming.
- Lane widths reduced to 3.25 m.
- Curb lane 3.5 m.
- Left turn lanes 3.0 m.
- Castlemore Public School – provide better access to residences.

- Additional walking and cycling connections through neighbourhoods.
- Double left turn lane on Castlemore Road.
- Queue jumps good if have channelized lane.
- Reduction of posted speed limit at Castlemore Road/The Gore Road.
- Include crossride facility near school.
- Reversible lanes not applicable.

Table 6 - Commercial Zone

- Separated facility in boulevard.
- Multiuse path on both sides.
- Need for crossrides at intersections with signage indicated different intersection.
- Bending In for sight lines.
- Mid walk crossings at commercial area.
- Opportunities for open/green space near Queen Street and The Gore Road.
- Reduction of speed limit at Castlemore Road and The Gore Road.
- Narrow lane widths (north end).
- Move crossing/consolidate with other crossings to more centralized locations.

Other Items to Consider

- Be mindful of floodplain and water courses and wildlife passages.
- Opportunity to replace bridges.
- Cemeteries.
- How to create a hospitable 6 lanes within 45 m right-of-way?
- Urban design = intensify densities, urban massing?
- Increase U-turns.
- Make entire corridor 40 km/h.
- Asymmetrical lanes; 2 southbound, 3 northbound.
- Separate cycle path in boulevard?

8. Wrap Up

- AECOM will take all of the ideas presented today and discuss with the Region the best approach to completing this project, whether it be completing it as planned (Schedule C Class EA) or downgrading the project to a Road Corridor Study (Schedule A+).

Mike Hubicki notes:

- Low density corridor so transit stops will be less inconvenient.

- John Nemeth – published “manual” for LID on regional roads. All minor systems are captured in 45 m right-of-way.
- Queen Street and The Gore Road – technical volumes is at capacity for 2 southbound lanes. But it can be ok for PM peak so 3 northbound lanes could work. Use ITS system to better manage Am/PM turn movements.
- Transit lane width – 3.35 m with 0.3 m gutter.
- Reduce travel lanes to 3.0 m.
- Overall right-of-way speed limit is 50 km/h.
- Need to offload vehicles from The Gore Road.
- We have a 6 lane design in a 45m right-of-way. It does not help achieve “liveable street” – no desire.
- Can the City of Brampton improve Fogal Road and Cotrelle Boulevard with dual lefts for 5-10 years until the Highway 427 extension is complete?
- SL noted that extensions to the bridges may be tricky.
- Bob noted that the Wylies Bridges were rehabbed during the 4 lane widening. The creek is warmwater and there are 3 crossings at the stormwater management pond and community centre.
- No on-road cycling facilities. Need to provide paths for kids and walkers.
- Transit wants bus bays at Ebenezer, Cottrelle and Castlemore after the intersection for bay location. Are queue jump lanes feasible?
- 3 lane northbound not preferred for “livable streets”.
- Why improve this 4km for local residents?
- Could Brampton/Peel cooperation result in a system of connected 30/35 multi-use paths and trails?
  - Do not combine concrete sidewalks and asphalt multi-use path within the same boulevard=permeability and constructability.
  - LIDs/active/operational?
- The West Humber River Tributary is passing under 2 bridges that need to be replaced within 10-15 years.
- Ideal new bridges have higher clearance to allow pedestrian and wildlife to pass under.
- Property issues at crossride 7-8 properties unless impact to buffer block or larger retaining wall.
- Can medians be removed for bridges?
- Figure 3:
  - Region and City Partnership:
    - City Trails
    - Region – 3 new accessible bridges: 2 at Eco-Learning Zone and 1 at Community Centre.

Hossein Zarei notes:

- Potential for providing mid-block pedestrian crossing at Royston (north of Fogal).

- Potential to use bulb-outs (curb extension) on side streets, and in particular across those close to the schools
- Multi-use trails on both sides would be desirable
- Stated preference to separate cyclists from motorists
- Multi-use trail should go behind bus stop shelters
- Having cross-rides across side street would be preferable
- Bending-in is preferred over bending-out design of cyclist / pedestrian facilities
- Narrow down travel lanes
- Opportunities for landscaping at Ebenezer

B.2 FIRST NATIONS CORRESPONDENCE

AECOM

Request for Aboriginal Consultation Materials

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 13, 2014

SENT VIA EMAIL (Maa.ea.review@ontario.ca)

Ministry of Aboriginal Affairs – Consultation Unit
160 Bloor Street East, 4th Floor
Toronto, ON M7A 2E6

Re: Notice of Study Commencement and Public Open House # 1 and Request for Information Class Environmental Assessment for The Gore Road Queen Street to Castlemore Road, City of Brampton

The Region of Peel has initiated a Municipal Class Environmental Assessment (Class EA) Study for improvements to The Gore Road, from Queen Street to Castlemore Road in the City of Brampton. A copy of the notice is attached with details of the upcoming Public Open House (POH).

The study is being conducted in accordance with the approved requirements for a Schedule "C" project as described in the Municipal Engineers Association's Municipal Class Environmental Assessment (EA) document (October 2000, as amended in 2007 and 2011).

The study will evaluate:

- capacity deficiencies (existing and future),
- identified safety issues,
- approved and proposed land use changes,
- natural heritage and fisheries requirements and other aspects of the environment,
- potential impacts to archaeological or built heritage resources,
- surrounding road network improvements, and
- property requirements.

A key component of the study is consultation with interested stakeholders (public and regulatory agencies).

Request for Information

Based on previous studies within the City of Brampton, the Notice of Study Commencement and POH # 1 was sent to the following First Nations and Metis communities:

- Alderville First Nation
- Beausoliel First Nation
- Chippewas of Georgina Island
- Chippewas of Mnjikinig
- Credit River Metis Council
- Haudenosaunee Confederacy Development Institute
- Curve Lake First Nation
- Haundenosaunee Confederacy Chiefs Council
- Hiawatha First Nation
- Mississaugas of the New Credit First Nation
- Mississaugas of Scugog Island First Nation
- Six Nations of the Grand River Territory
- The Chiefs of Ontario
- The Metis Nation of Ontario

At this time, it would be appreciated if you could confirm if the appropriate First Nations and Metis communities have been contacted or if any have been missed. With respect to approvals, they will be addressed during detailed design and will include Toronto and Region Conservation Authority, MOE, etc.

If you have any questions or comments, or would like to provide information to be considered in the study, please do not hesitate to contact me.

Yours truly,

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Mollo, Jessica

From: Postmaster@inac.gc.ca on behalf of CAU-UCA <CAU-UCA@aadnc-aandc.gc.ca>
Sent: Monday, May 12, 2014 2:27 PM
To: Mollo, Jessica
Subject: Re: Request for Aboriginal consultation information

***French version below ***

Thank you for emailing the Consultation and Accommodation Unit (CAU) of Aboriginal Affairs and Northern Development Canada.

Revisions to the Updated Guidelines (March 2011) If your email is in response to the on-line survey to inform the revisions to the Updated Guidelines (March 2011), we wish to thank you for your participation. Your contribution to the work of the federal government on this important issue is valuable and will be reviewed carefully.

Consultation Information Service
If your email is related to an information request, please note that, as of October 2013, the Consultation Information Service (CIS) is shifting its focus to the addition and management of content in the Aboriginal Treaty Rights Information System (ATRIS) and has limited capacity to provide responses.

ATRIS is now available to you and can provide relevant information regarding the location of Aboriginal groups as well as related information on established rights (through treaties and other agreements) and asserted rights (through claim processes and legal proceedings). We encourage you, therefore, to use ATRIS to carry out your research.

If you are using ATRIS from outside of the federal government, you can go directly to the following site and begin your research at: http://sidait-atris.aadnc-aandc.gc.ca/atris_online/

If you are a federal employee, you can obtain access to this system by sending a request for an account to the following address: ATRIS-SIDAIT@aadnc-aandc.gc.ca. Once your account has been created, you can carry out your research directly within ATRIS. If, after doing so, you have specific questions, you can send those queries to this CAU account and the CIS will endeavour to respond in a timely manner.

Thank you for your cooperation and understanding.

****

Merci d'avoir envoyé un courriel à l'Unité de la consultation et de l'accommodement (UCA) d'Affaires autochtones et Développement du Nord Canada.

Révisions des Lignes directrices actualisées (mars 2011) Si votre courriel est une réponse au sondage en ligne visant à guider les révisions des Lignes directrices actualisées (mars 2011), nous voulons vous remercier de votre participation. Votre contribution au travail du gouvernement fédéral sur cette importante question est précieuse, et nous l'examinerons attentivement.

Service d'information sur la consultation Si votre courriel est une demande d'information, veuillez prendre note que, depuis octobre 2013, le Service d'information sur la consultation (SIC) se concentre sur l'ajout de renseignements dans le Système d'information sur les droits ancestraux et issus des traités (SIDAIT) et sur la gestion du contenu de ce système. Ses ressources pour répondre aux demandes d'information sont par conséquent limitées.

Vous avez maintenant accès au SIDAIT, lequel offre des renseignements utiles sur l'emplacement des groupes autochtones ainsi que sur leurs droits établis (découlant de traités et d'autres ententes) et revendiqués (dans le cadre de processus de revendication et de procédures judiciaires). Nous vous encourageons donc à effectuer vos recherches à l'aide de ce système.

Si vous travaillez à l'extérieur du gouvernement fédéral, vous pouvez faire vos recherches directement à partir du site suivant : http://sidait-atris.aadnc-aandc.gc.ca/atris_online/.

Si vous êtes un fonctionnaire fédéral, veuillez envoyer une demande d'ouverture de compte à l'adresse suivante : ATRIS-SIDAIT@aadnc-aandc.gc.ca. Lorsque votre compte aura été créé, vous pourrez effectuer des recherches directement dans le SIDAIT. Par la suite, si vous avez des questions, vous pourrez les envoyer à l'adresse de l'UCA, et le personnel du SIC s'efforcera d'y répondre le plus rapidement possible.

Merci de votre collaboration et de votre compréhension.

Notice of Study Commencement and POH #1 Letter

AECOM

Region of Peel
Working for you

TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

James Marsden
Alderville First Nation
P.O. Box 46/11696 2nd Line
Alderville, Ontario K0K 2X0

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

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Yours truly,

Neal Smith, C.E.T.
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May 9, 2014

Roland Monague
Beausoliel First Nation
11 Ogemaa Miikaan
Christian Island, Ontario L9M 0A9

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May 9, 2014

Donna Big Canoe
Chippewas of Georgina Island
R.R. #2, Box N-13
Sutton West, ON L0E 1R0

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May 9, 2014

Sharon Stinson Henry
Chippewas of Mnjikinig
5884 Rama Road, Suite 200
Rama, ON L3V 6H6

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May 9, 2014

Steven Sarrazin
Credit River Metis Council
160 Main Street, Suite 561
Brampton, ON L6W 4R1

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May 9, 2014

Phyllis Williams
Curve Lake First Nation
Curve Lake Post Office
Curve Lake, ON K0L 1R0

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May 9, 2014

Hazel Hill
Haudenosaunee Confederacy Development Institute
16 Sunrise Court, Suite 407
Ohsweken, ON N0A 1M0

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May 9, 2014

Allen MacNaughton
Haundenosaunee Confederacy Chiefs Council
2634- 6th Line Road
RR #2
Ohsweken, ON N0A 1N0

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Region of Peel
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40 Years
TOUCHING LIVES
FOR 40 YEARS

May 9, 2014

Sandra Moore
Hiawatha First Nation
123 Paudash Street
Keene, ON K0L 2G0

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May 9, 2014

Bryan LaForme
Mississaugas of the New Credit First Nation
2789 Mississauga Road
RR #6
Hagersville, ON N0A 1H0

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May 9, 2014

Tracy Gauthier
Mississaugas of Scugog Island First Nation
22521 Island Road
Port Perry, ON L9L 1B6

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May 9, 2014

William Montour
Six Nations of the Grand River Territory
1695 Chiefswood Road
Ohsweken, ON N0A 1M0

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Working for you

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May 9, 2014

Kathleen Padulo
The Chiefs of Ontario
111 Peter Street, Suite 804
Toronto, ON M5V 2H1

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May 9, 2014

Mark Bowler
The Metis Nation of Ontario
500 Old St. Patrick Street, Unit 3
Ottawa, ON K1N 9G4

Re: Notice of Study Commencement and Public Open House # 1
Class Environmental Assessment for The Gore Road
Queen Street to Castlemore Road, City of Brampton

The Region of Peel has initiated a Municipal Class Environmental Assessment (Class EA) Study for improvements to The Gore Road, from Queen Street to Castlemore Road in the City of Brampton. The purpose of this letter is to inform you of the study and to invite your input. A copy of the notice is attached with details of the upcoming Public Open House (POH).

The study is being conducted in accordance with the approved requirements for a Schedule “C” project as described in the Municipal Engineers Association’s Municipal Class Environmental Assessment (EA) document (October 2000, as amended in 2007 and 2011).

The study will evaluate:

- capacity deficiencies (existing and future),
- identified safety issues,
- approved and proposed land use changes,
- natural heritage and fisheries requirements and other aspects of the environment,
- potential impacts to archaeological and built heritage resources,
- surrounding road network improvements, and
- property requirements.

A key component of the study will be consultation with potentially interested stakeholders including First Nations. We will keep you informed of study progress including POH # 2 which is tentatively scheduled for early Winter 2015. Through the environmental assessment process we are notifying you as part of the Region’s statutory obligation under the Environmental Assessment Act. If you have any questions or comments, or would like to provide information to be considered in the study, please do not hesitate to contact me.

Yours truly,

Neal Smith, C.E.T.
Project Manager | Infrastructure Programming & Studies
Transportation Division
Phone: 905.791.7800 ext. 7866
Fax: 905.791.1442
Email: neal.smith@peelregion.ca
Encl.: Notice of Study Commencement and Public Open House # 1

Alderville First Nation Response

ALDERVILLE FIRST NATION
11696 Second Line
P.O. Box 46
Roseneath, Ontario K0K 2X0
Phone: (905) 352-2011
Fax: (905) 352-3242

Chief: **James R. Marsden**
Councillor: **Julie Bothwell**
Councillor: **Jody Holmes**
Councillor: **Dave Mowat**
Councillor: **Angela Smoke**

May 28, 2014

The Region of Peel
Public Works
10 Peel Centre Dr., Suite B
Brampton, ON L6T 4B9

Att: Neal Smith, Project Manager

Re: Notice of Study Commencement and Public Open House #1
Class Environmental Assessment for the Gore Road
Queen Street to Castlemore Road, City of Brampton

Dear Neal Smith,

Thank you for your consultation request to Alderville First Nation regarding the above noted project which is being proposed within our Traditional and Treaty Territory. We appreciate the fact that the Region of Peel recognizes the importance of First Nations Consultation and that your office is conforming to the requirements within the Duty to Consult Process.

As per the Alderville First Nation Consultation Protocol, your proposed project is deemed a level 3, having minimal potential to impact our First Nations' rights, therefore, please keep Alderville apprised of any archaeological findings, burial sites or any environmental impacts, should any occur. I can be contacted at the mailing address above or electronically via email, at the email address below.

In good faith and respect,

Dave Simpson
Lands and Resources
Communications Officer
Alderville First Nation

dsimpson@aldervillefirstnation.ca

Tele: (905) 352-2662
Fax: (905) 352-3242

New Credit First Nations Response

Subject: MNCFN Response to Open House for the Municipal Class EA Study for Improvements to The Gore Road from Queen Street to Castlemore Road
Attachments: LOLC Peel Region EA for Improvements to Gore Rd.docx

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From: Fawn Sault [mailto:Fawn.Sault@newcreditfirstnation.com]
Sent: March 10, 2016 3:18 PM
To: Smith, Neal
Cc: Mark LaForme; Megan DeVries
Subject: MNCFN Response to Open House for the Municipal Class EA Study for Improvements to The Gore Road from Queen Street to Castlemore Road

Dear Mr. Smith,

Thank you for the notification sent to The Mississaugas of the New Credit First Nation (MNCFN) regarding the Open House for the Municipal Class EA Study for Improvements to The Gore Road from Queen Street to Castlemore Road. We have reviewed the document you have provided and determined that, at this time, MNCFN has a **low level** of concern about the project. ***Please see the attached letter for more information***.

Respectfully, we ask that you immediately notify MNCFN if there are any changes to the project as they may impact MNCFN's interests. Additionally, MNCFN requests a copy of all associated environmental and/or archaeological reports. These can be electronic copies, if you prefer. Furthermore, MNCFN employs Field Liaison Representatives who **must** be on location whenever any fieldwork for environmental and/or archaeological assessments is undertaken. If additional work is scheduled, please notify us as soon as possible so that we may work together to discuss and arrange for MNCFN's participation.

Sincerely,

Fawn D. Sault
Consultation Manager
Department of Consultation and Accommodation
Mississauga of the New Credit First Nation
Office 905-768-4260
Fax 905-768-9751
Cell 289-527-6580

August 23, 2016

Neal Smith, C.E.T.
Project Manager, Infrastructure Programming & Studies
10 Peel Centre, Dr., Suite B,
Brampton, ON L6T 4B9
Neal.smith@peelregion.ca

Dear Mr. Smith,

We are the Mississaugas of the New Credit First Nation (MNCFN), the descendants of the Mississaugas of the River Credit. Our traditional territory extends from the Rouge River Valley in the east, across to the headwaters of the Thames River, down to Long Point on Lake Erie, and back along the shores of Lake Erie, the Niagara River, and Lake Ontario to the Rouge River Valley. It encompasses present-day London, Hamilton, and Toronto, as well as our communal lands. Our traditional territory has defined and sustained us as a First Nation for countless generations, and must continue to do so for all our generations to come.

Thank you for your notification on *the Open House for the Municipal Class Environmental Assessment Study for Improvements to The Gore Road from Queen Street to Castlemore Road* dated *February 9, 2016*. The Mississaugas of the New Credit First Nation (MNCFN) has various treaty rights across its traditional territory, including the area contemplated by your project. For further information, please see our website, http://www.newcreditfirstnation.com/. MNCFN continues to exercise treaty rights which include, but are not limited to, rights to harvest, fish, trap and gather species of plants, animals and insects for any purpose including food, social, ceremonial, trade and exchange purposes. The MNCFN also has the right to use the water and resources from the rivers, creeks and lands across the MCNFN traditional territory.

At this time, MNCFN *does not* have a high level of concern regarding the proposed project and therefore, by way of this letter, approves the continuation of this project. However, MNCFN requests that you continue to notify us about the status of the project. **In addition, we respectfully ask you to immediately notify us if there are any changes to the project as they**

may impact MNCFN's interests and that you please provide us with a copy of all associated environmental and archaeology reports. This includes, but is not limited to changes related to the scope of work and expected archaeological and environmental impacts.

Additionally, MNCFN employs Field Liaison Representatives ("FLRs") to act as official representatives of the community and who are answerable to MNCFN Chief and Council through the Department of Consultation and Accommodation. The FLRs' mandate is to ensure that MNCFN's perspectives and priorities are considered in the field and to enable MNCFN to provide timely, relevant, and meaningful comment on the Project. Therefore, **it is MNCFN policy that FLRs are on location whenever any fieldwork for environmental and/or archaeological assessments are undertaken.** It is expected that the proponent will cover the costs of this FLR participation in the fieldwork. Please also provide the contact information of the person, or consultant, in charge of organizing this work so they may facilitate the participation of the MNCFN FLRs.

Nothing in this letter shall be construed as to affect the Aboriginal or Treaty rights and hence shall not limit any consultation and accommodation owed to MNCFN by the Crown or any proponent, as recognized by section 35 of the Constitution Act, 1982, of any other First Nation.

MNCFN reserves the right in relation to any development project or decision, to decide whether it supports a project and to: comment to regulators, participate in regulatory processes and hearings, seek intervener funding or status, or to challenge and seek remedies through the courts.

MNCFN expects all proponents to act according to the following best practices:

- Engage early in the planning process, before decisions are made
- Provide information in meaningful and understandable formats.
- Convey willingness to transparently describe the project and consider any MNCFN concerns.
- Recognize the significance of cultural activities and traditional practices of the MNCFN
- Demonstrate a respect for MNCFN knowledge and uses of land and resources.
- Understand the importance of youth and elders in First Nation communities.
- Act with honour, openness, transparency and respect.
- Be prepared to listen and allow time for meaningful discussion.

Sincerely,

Fawn D. Sault
Consultation Manager
MNCFN Department of Consultation and Accommodation

cc – Mark LaForme; Director, Department of Consultation and Accommodation

Chippewas of Rama Response

Chippewas of RAMA
First Nation

A Proud Progressive First Nation Community

5884 Rama Road, Suite 200
Rama, Ontario L3V 6H6
T 705.325.3611 F 705.325.0879

OFFICE OF THE CHIEF

May 27, 2014

Region of Peel
10 Peel Centre Drive, Suite B
Brampton, ON L6T 4B9

Attention: Neal Smith, C.E.T., Project Manager

Re: Notice of Study Commencement and Public Open House #1
Class Environmental Assessment for the Gore Road
Queen Street to Castlemore Road, City of Brampton

Dear Mr. Smith:

As a member of the Williams Treaties First Nations, Rama First Nation acknowledges receipt of your letter of May 9, 2014, which was received on May 14, 2014.

A copy of your letter has been forwarded to Karry Sandy-McKenzie, Barrister & Solicitor, Coordinator for Williams Treaties First Nations for further review and response directly to you. Please direct all future correspondence and inquires, with a copy to Rama First Nation, to Ms. Sandy-McKenzie at 8 Creswick Court, Barrie, ON L4M 2J7 or her email address at k.a.sandy-mckenzie@rogers.com. Her telephone number is (705) 792-5087.

We appreciate your taking the time to share this important information with us.

Sincerely,

S Stinson Henry

Chief Sharon Stinson Henry

c: Council, Rama First Nation
Jeff Hewitt, General Counsel
Karry Sandy-McKenzie, Coordinator for Williams Treaties First Nations
Chief Roland Monague, Portfolio Chief for Williams Treaties First Nations

Notice of POH #2 Letter

Region of Peel
Working for you

February 9, 2016

Dear

Re: Notice of Public Open House No. 2
Municipal Class Environmental Assessment Study for Improvements to The Gore Road from Queen Street to Castlemore Road

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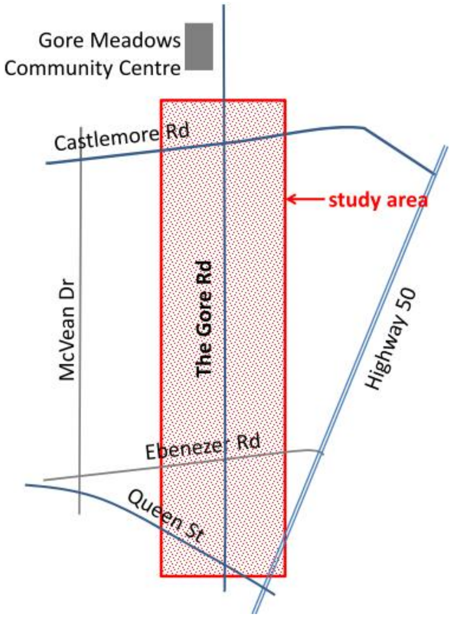
This is the second Public Open House (POH) for the proposed improvements to The Gore Road.

Please join us and provide your comments at the ***second*** and ***final*** POH where the **preliminary recommended alternative design** and **proposed impacts** will be presented. The POH will be held on:

Date: Tuesday, February 23, 2016
Location: Gore Meadows Community Centre & Library
(across from the snack bar)
Time: 6:30 p.m. to 8:30 p.m.



If you cannot attend the POH and wish to provide comments, please visit our website and use our interactive comment box or, send comments using the attached comment sheet by letter, fax or e-mail. The information boards will be posted on the Region's website following the Open House at:

peelregion.ca/pw/transportation/environ-assess/ea-the-gore-road.htm

Sincerely,

Neal Smith, C.E.T.
Project Manager, Infrastructure Programming & Studies
Phone No.: 905-791-7800 ext. 7866
Fax No.: 905-791-1442
Email: neal.smith@peelregion.ca

The Region of Peel is committed to ensure that all Regional services, programs and facilities are inclusive and accessible for persons with disabilities. Please contact the project manager if you need any disability accommodations to participate in the public meeting.

Public Works
10 Peel Centre Dr., Suite B, Brampton, ON L6T 4B9
Tel: 905-791-7800 www.peelregion.ca

Notice of Study Completion Letter

Region of Peel
Working for you

Public Notice

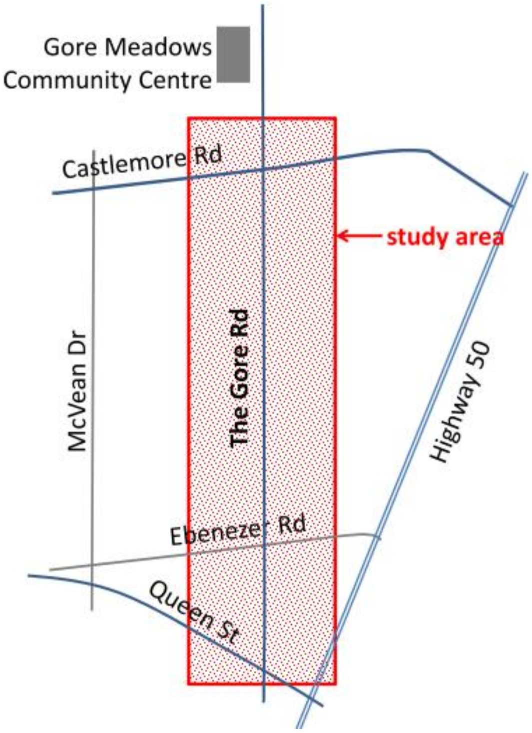
SENT VIA MAIL
November 10, 2016

<<Name>>
<<Address>>
<<Address>>
<<Address>>

RE: THE GORE ROAD - Municipal Class Environmental Assessment Schedule C from Queen Street to Castlemore Road
Notice of Study Completion

Dear <<Name>>,

The study has been completed and the Environmental Study Report that details the planning, consultation and the decision making process for the recommended design is available for review.



Study Highlights

The proposed improvement for The Gore Road include:

- Maintain the existing 4 lanes;
- Modify intersections for transit, active transportation and turning;
- Addition of bus stops/bus bays including a new bus shelter (in large island) at a redesigned Queen Street/The Gore Road intersection
- Narrow lane widths;
- Improve safety with signalized bike/pedestrian crossing (location(s) - to be confirmed during detailed design);
- Signal timing improvements at The Gore Road and Queen Street intersection;
- Provide the opportunity for a healthy lifestyle through connections to multi-use trails;
- Sidewalks and raised cycle tracks on both sides of The Gore Road
- On east side of road at the 2 Wylie Bridges, multi-use trail around Wylies Creek
- Cross ride treatments at intersections;
- Pedestrian/cyclist crossings at school locations;
- Low Impact Design (LID) to manage stormwater at various locations throughout The Gore Road corridor; and
- Streetscaping (to be confirmed during design).

Please visit the project website for additional information: http://www.peelregion.ca/pw/transportation/ environ-assess/ea-the-gore-road

See Reverse Side

Region of Peel
Working for you

Public Notice

Environmental Study Report Review Period

The study documents will be available for review for 30 calendar days at the following location starting on November 17, 2016 and ending on December 16, 2016.

Clerk, Region of Peel 10 Peel Centre Drive 5th Floor, Suite A Brampton, ON L6T 4B9 Phone: 905-791-7800 *Hours:* Mon-Fri: 8:30 am – 4:30 pm	Clerk, City of Brampton 2 Wellington Street West Brampton, ON L6Y 4R2 Phone: 905-874-2000 *Hours:* Mon-Fri: 8:30 am – 4:30 pm	Brampton Public Library Gore Meadows Branch (Community Centre) 10150 The Gore Road Brampton, ON L6P 0A6 Phone: 905-793-4636 *Hours:* Mon-Thurs: 10:00 am – 9:00 pm Fri: 10:00 am – 6:00 pm Sat: 10:00 am – 5:00 pm Sun: 1:00 pm – 5:00 pm

Written comments should be provided to Sally Rook, Manager, Infrastructure Programming & Studies, within the 30 day calendar review period. If you have conerns that cannot be addressed, you may request that the Minister of the Environment and Climate Change make an Order for the project to comply with Part II of the *Environmental Assessment Act*, which addresses individual environmental assessments. The Minister must receive the request at the address below by 4:30pm on December 16, 2016.

Minister, Ministry of the Environment and Climate Change
77 Wellesley St. West, 11th Floor
Toronto, ON M7A 2T5

A copy of the Part II Order request must also be sent to the Manager at the following address:

Sally Rook, C.Tech, PMP
Manager, Infrastructure Programming & Studies
Transportation Division
Region of Peel
10 Peel Centre Dr., 4th Floor, Suite B
Brampton, ON L6T 4B9
Tel: 905-791-7800 ext. 7842

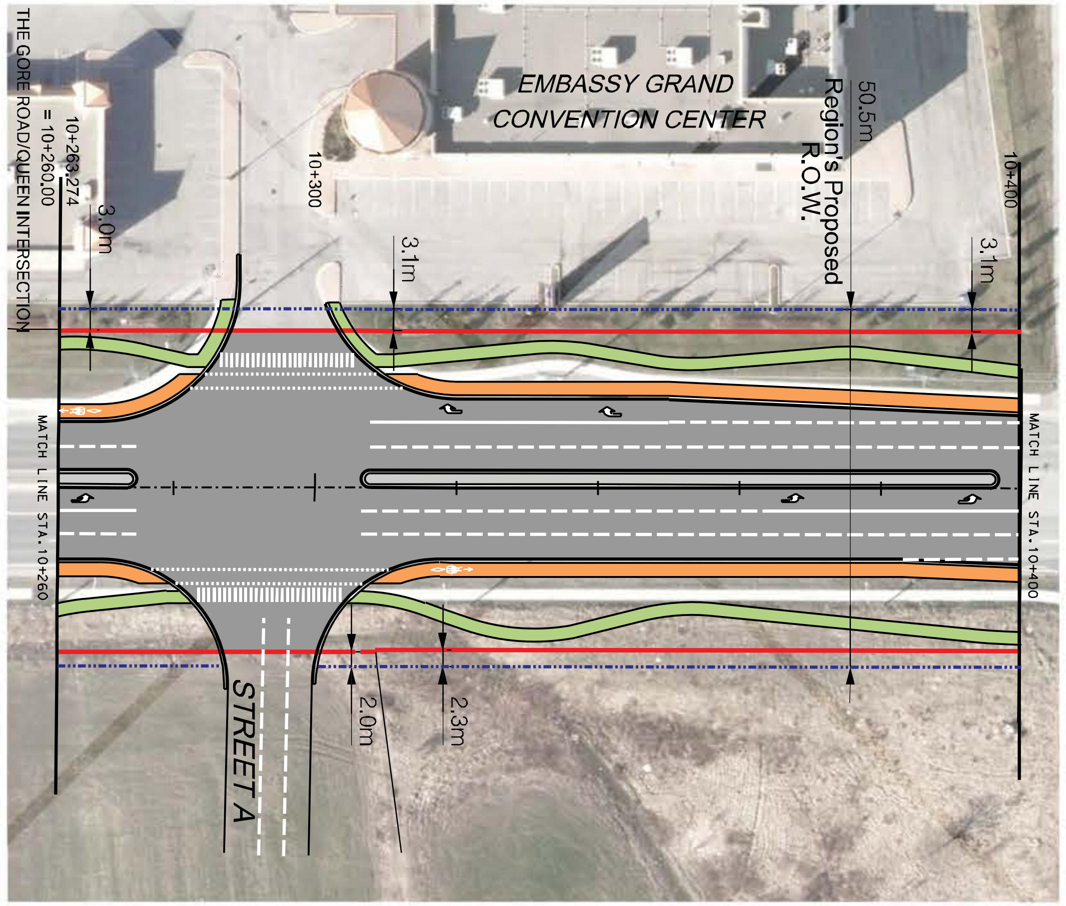
If no Part II Order requests are received then the Region may proceed with the detailed design and construction of the recommended works as presented in the study.

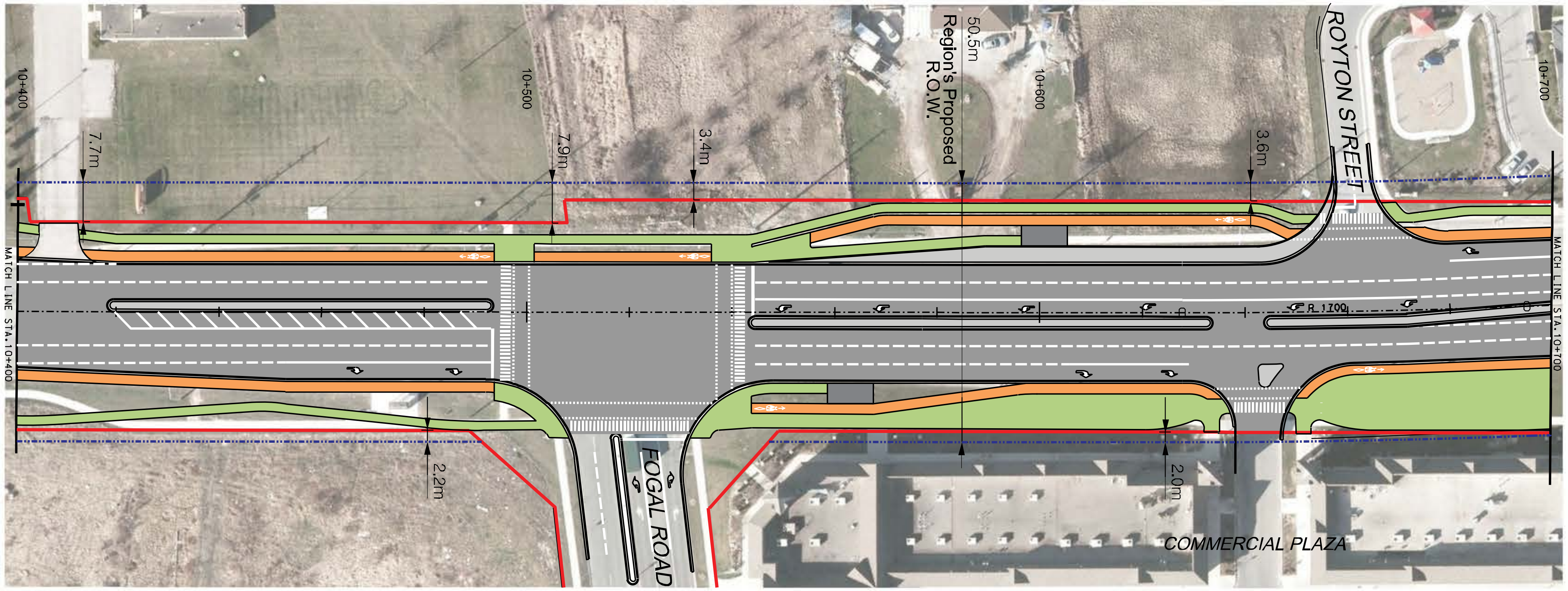
This notice was first issued on November 17, 2016

With the exception of personal information, all comments will become part of the public record of the study. The study is being conducted according to the requirements of the Municipal Class Environmental Assessment Schedule C, as amended in 2007, 2011 and 2015, which is a planning process approved under Ontario's *Environmental Assessment Act.*

Appendix C

Recommended Design Alternative Plates





SERVICE DATA

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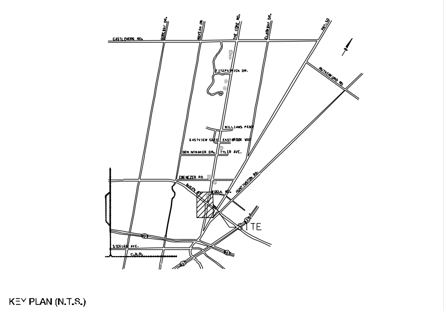
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
▭	MULTI-USE PATH (MUP)
⬛	BUS STOP
🟥	EXISITING ROW
┈	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m

HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

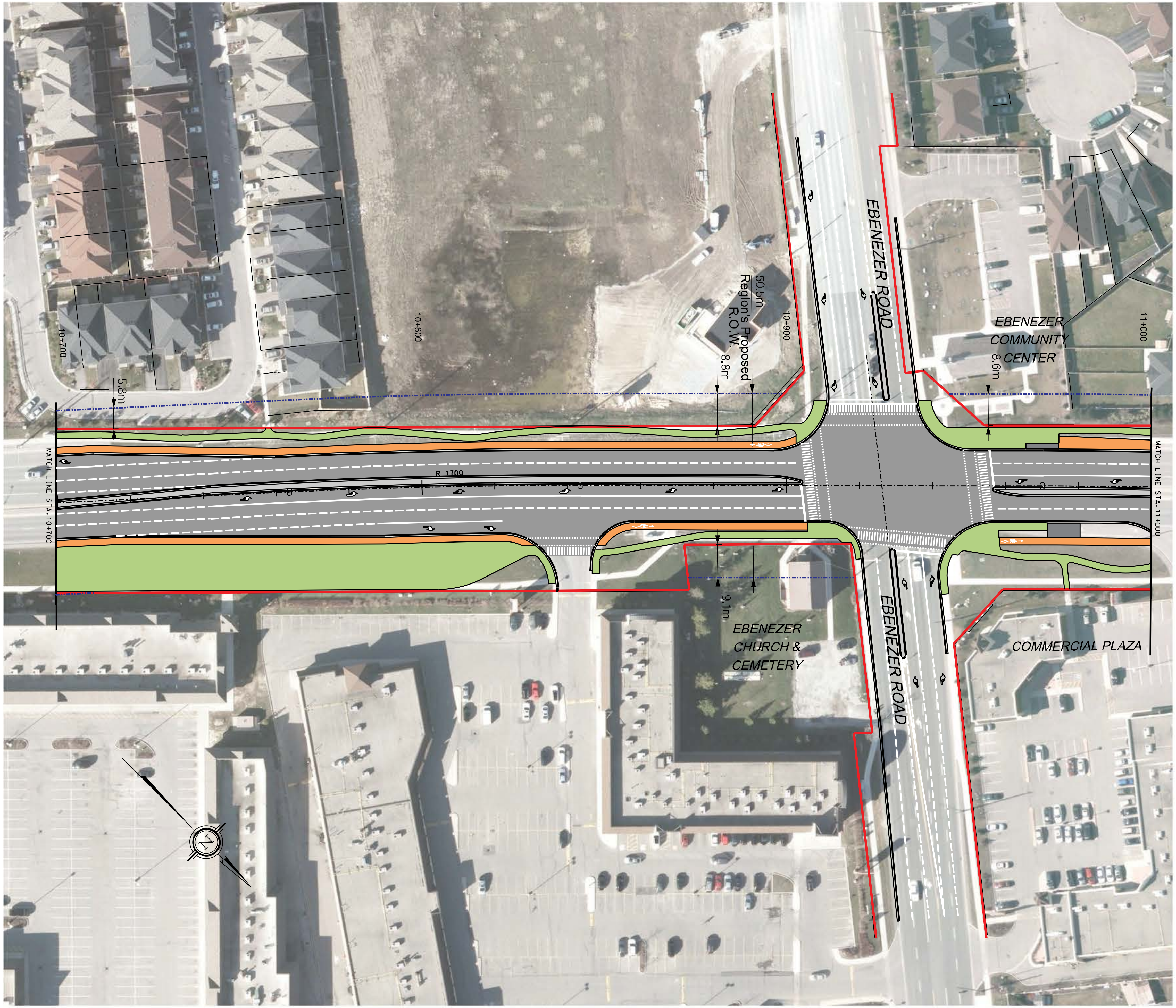
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 10 + 100 To Sta. 10 + 700

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-01
Date JULY 2016	Sheet 1 of 14	



SERVICE DATA

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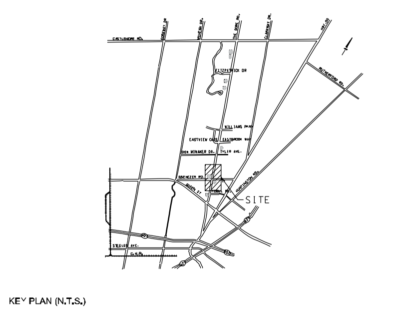
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
▭	MULTI-USE PATH (MUP)
⬛	BUS STOP
🟥	EXISITING ROW
‐·‐·‐	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

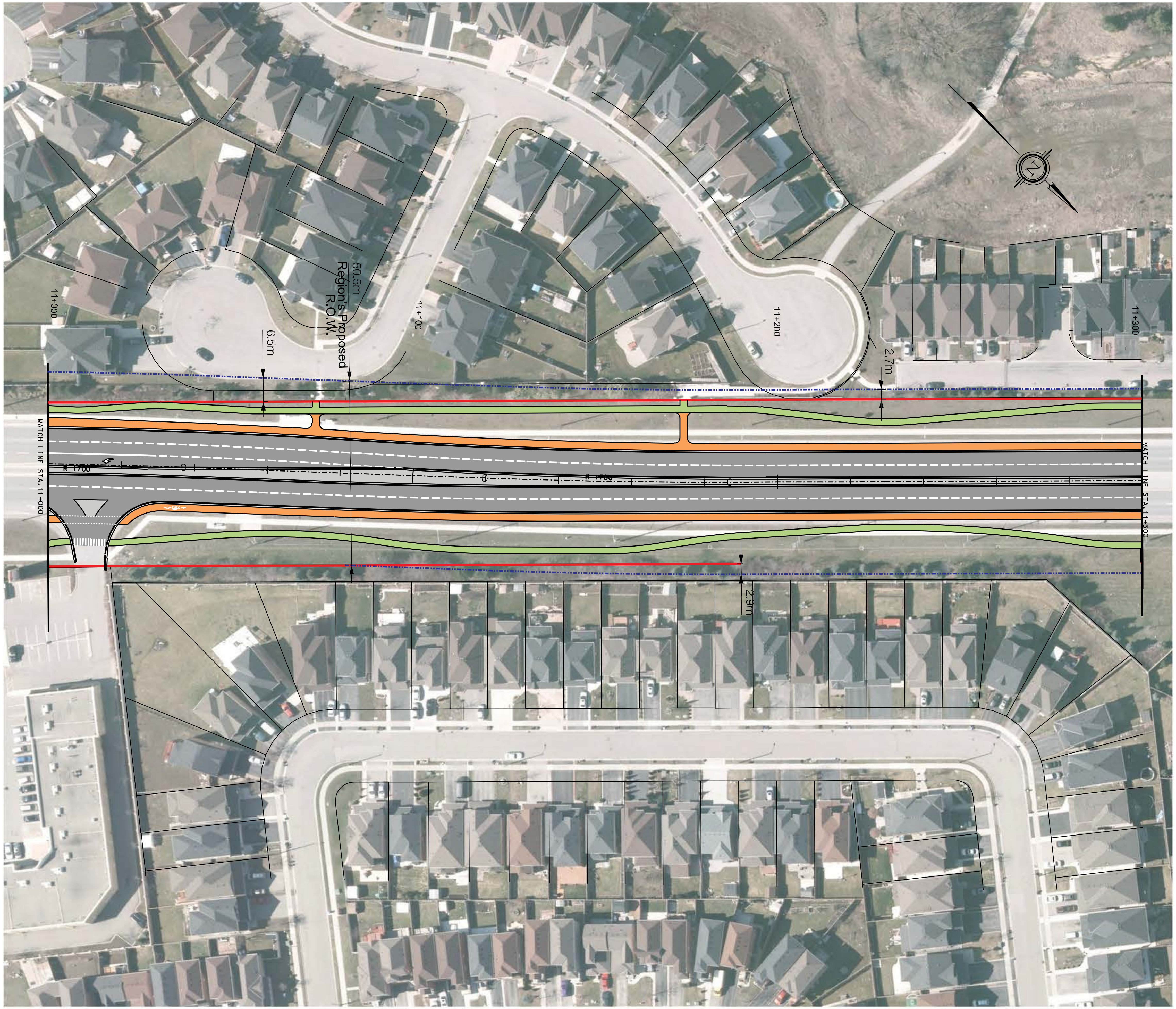
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 10 + 700 To Sta. 11 + 000

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-02
Date JULY 2016	Sheet 2 of 14	



SERVICE DATA

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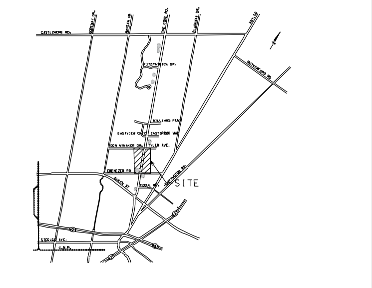
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
━	EXISITING ROW
-·-	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m
HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

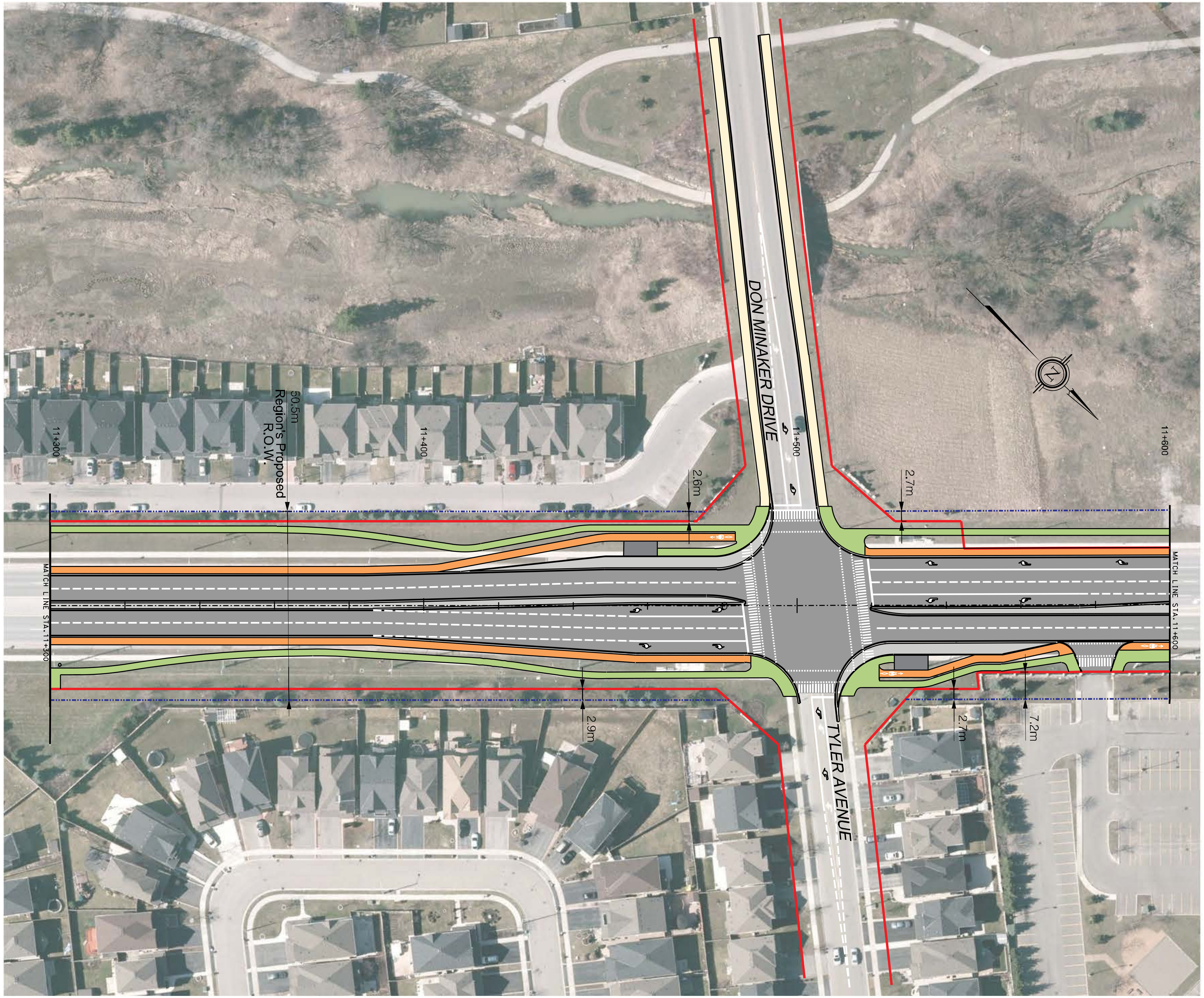
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 11 +300 To Sta. 11 +600

CAD Area	Area	Project No.	60311637
Checked by A.N.	Drawn by J.K.	Plan No.	NC-03
Date JULY 2016	Sheet 3 of 14		



SERVICE DATA

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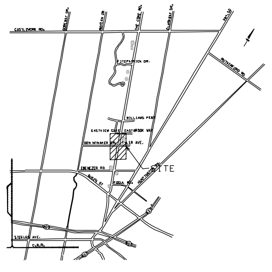
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
▭	MULTI-USE PATH (MUP)
▨	BUS STOP
—	EXISITING ROW
-·-·-	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ___ Chkd. ___

Approved by ___

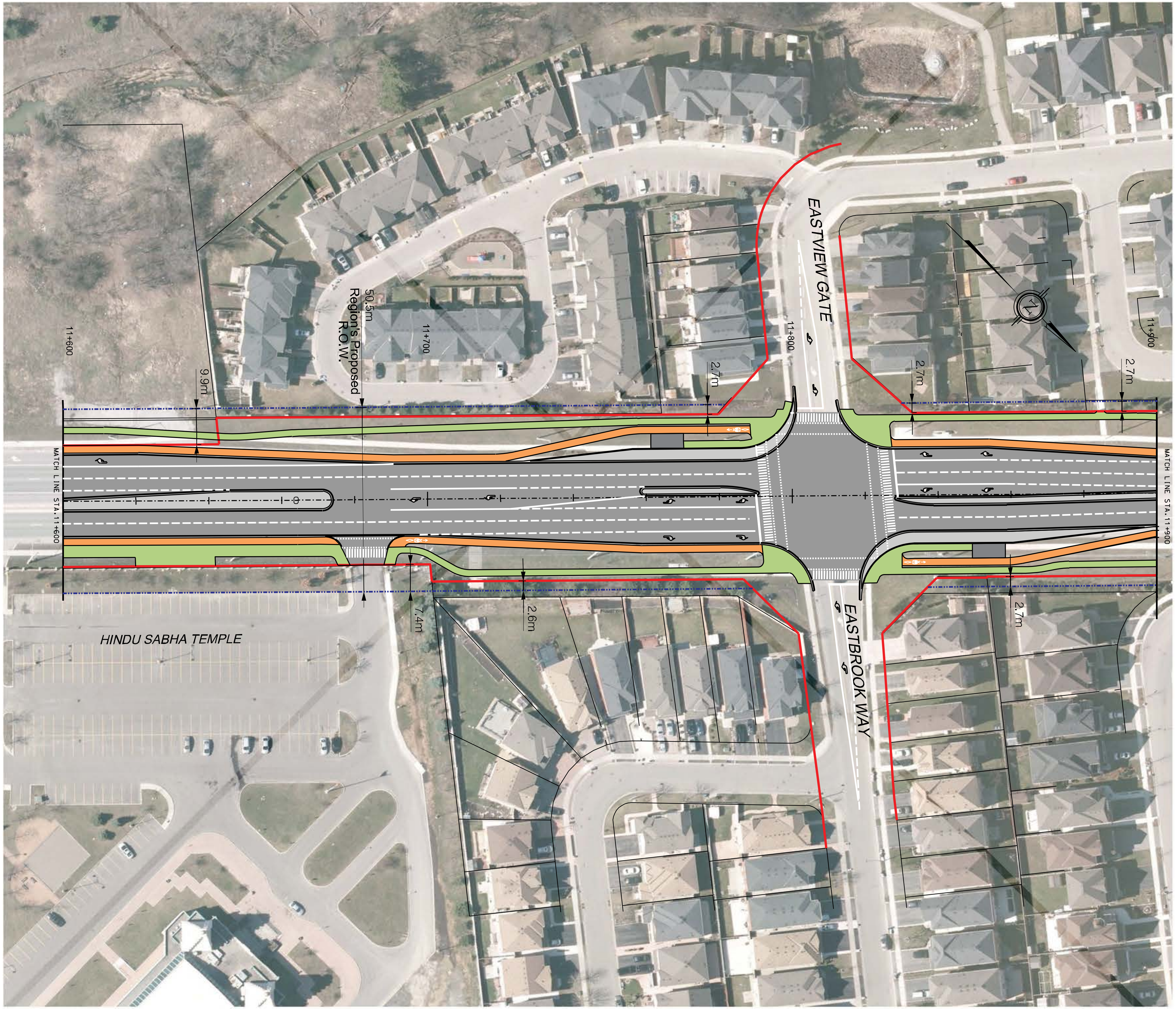
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 11 + 300 To Sta. 11 + 600

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-04
Date JULY 2016	Sheet 4 of 14	



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ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

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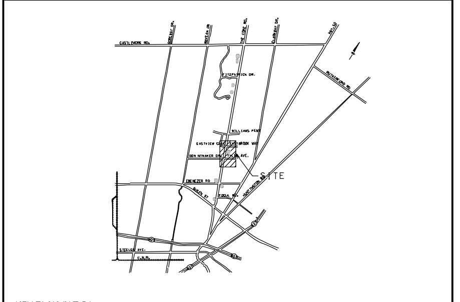


KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
🟥	EXISITING ROW
┄	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

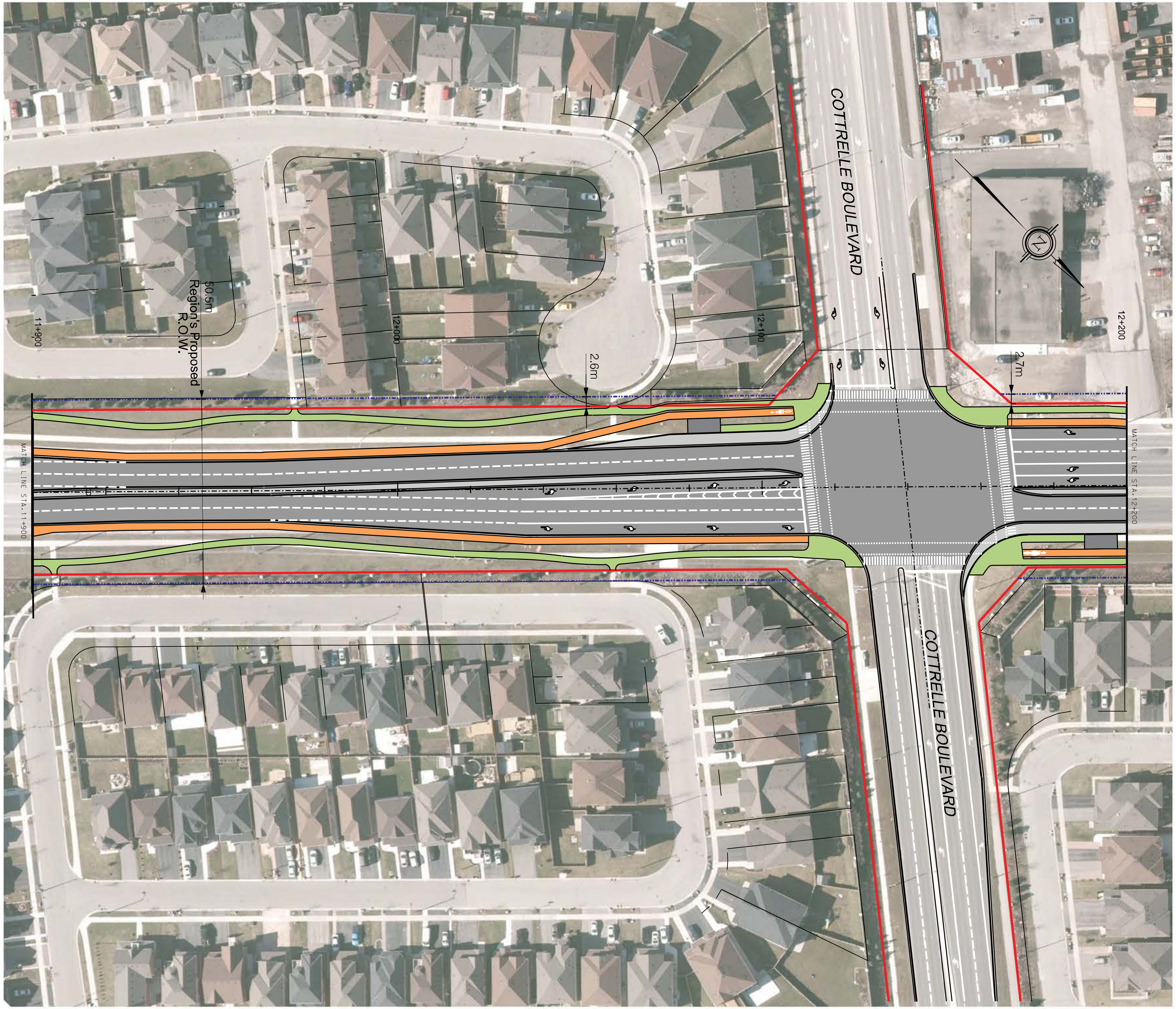
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 11 +600 To Sta. 11 +900

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-05
Date JULY 2016	Sheet 5 of 14	



SERVICE DATA

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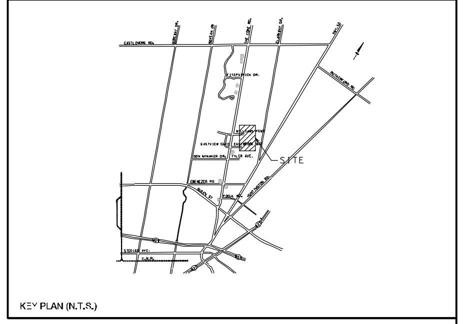
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
▭	MULTI-USE PATH (MUP)
▨	BUS STOP
━	EXISITING ROW
┄	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m
HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

Region of Peel
Working for you

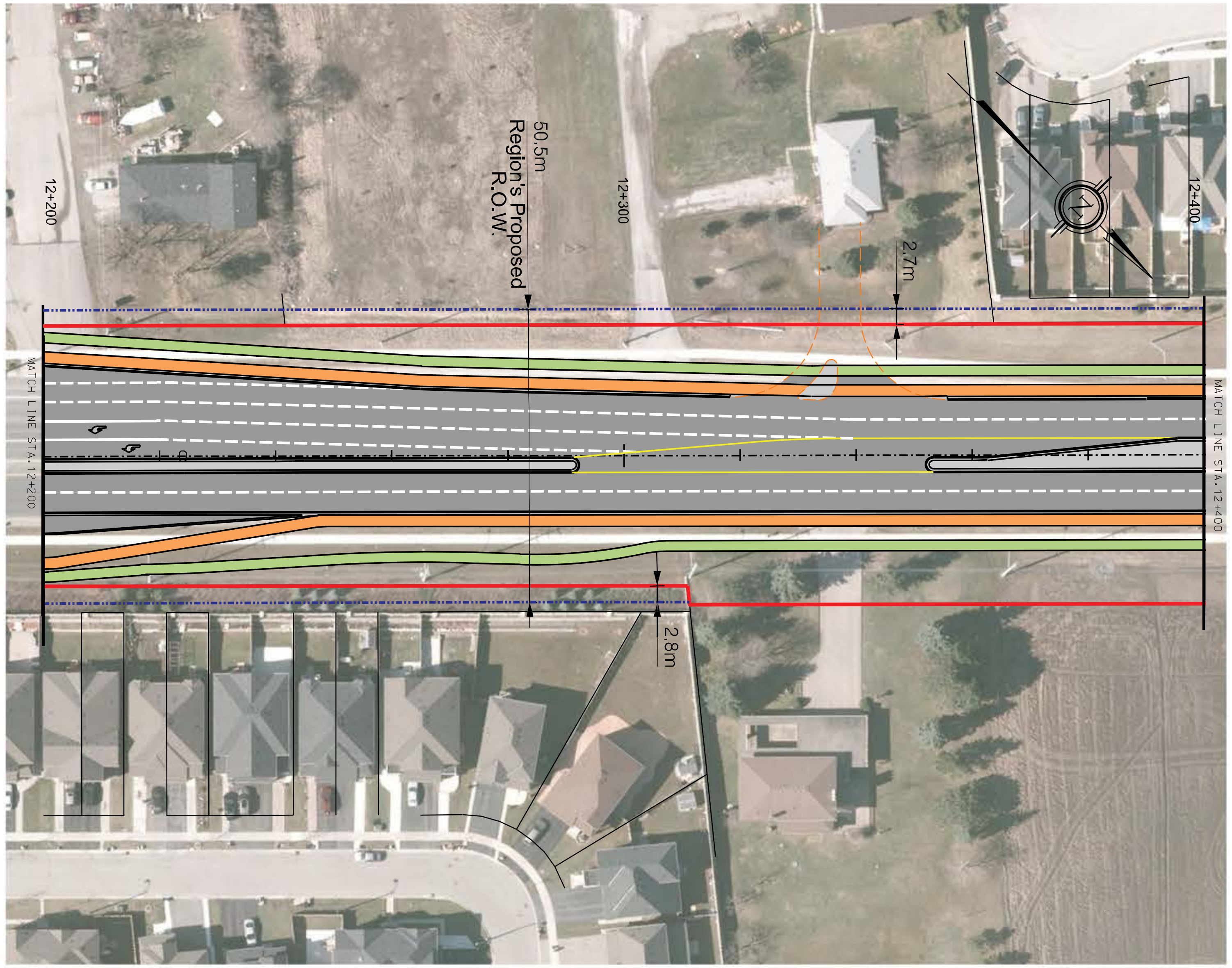
THE GORE ROAD

(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 11 +900 To Sta. 12 +200

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-06
Date JULY 2016	Sheet 6 of 14	

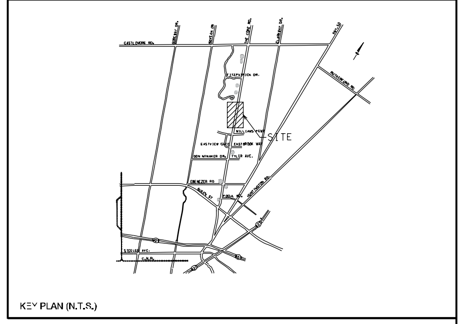


SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
━	EXISITING ROW
-·-·-	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

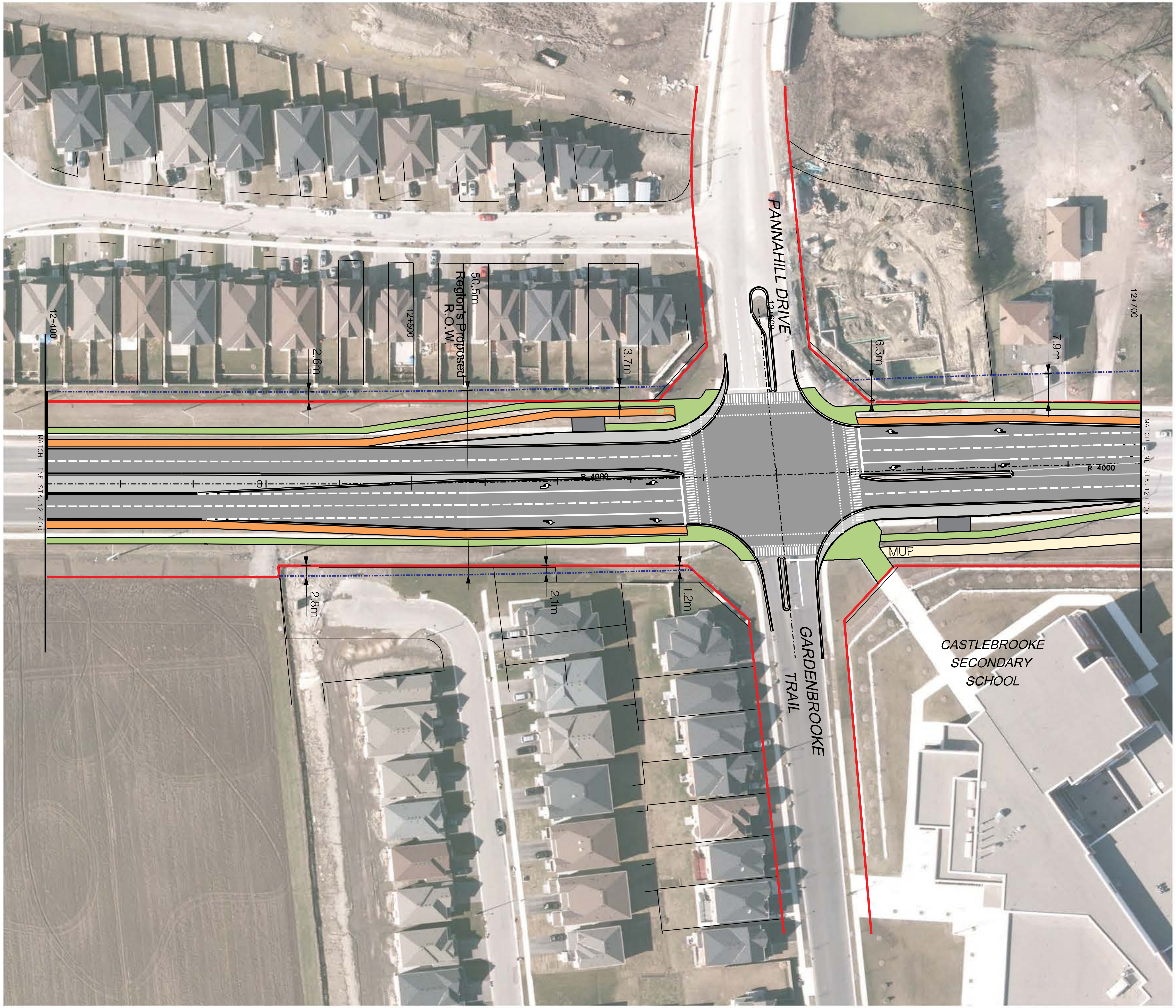
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 12 +200 To Sta. 12 +400

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-07
Date JULY 2016	Sheet 7 of 14	



SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
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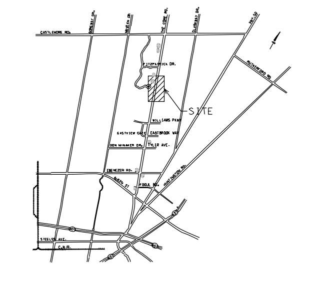
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
—	EXISITING ROW
-·-·-	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m
HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

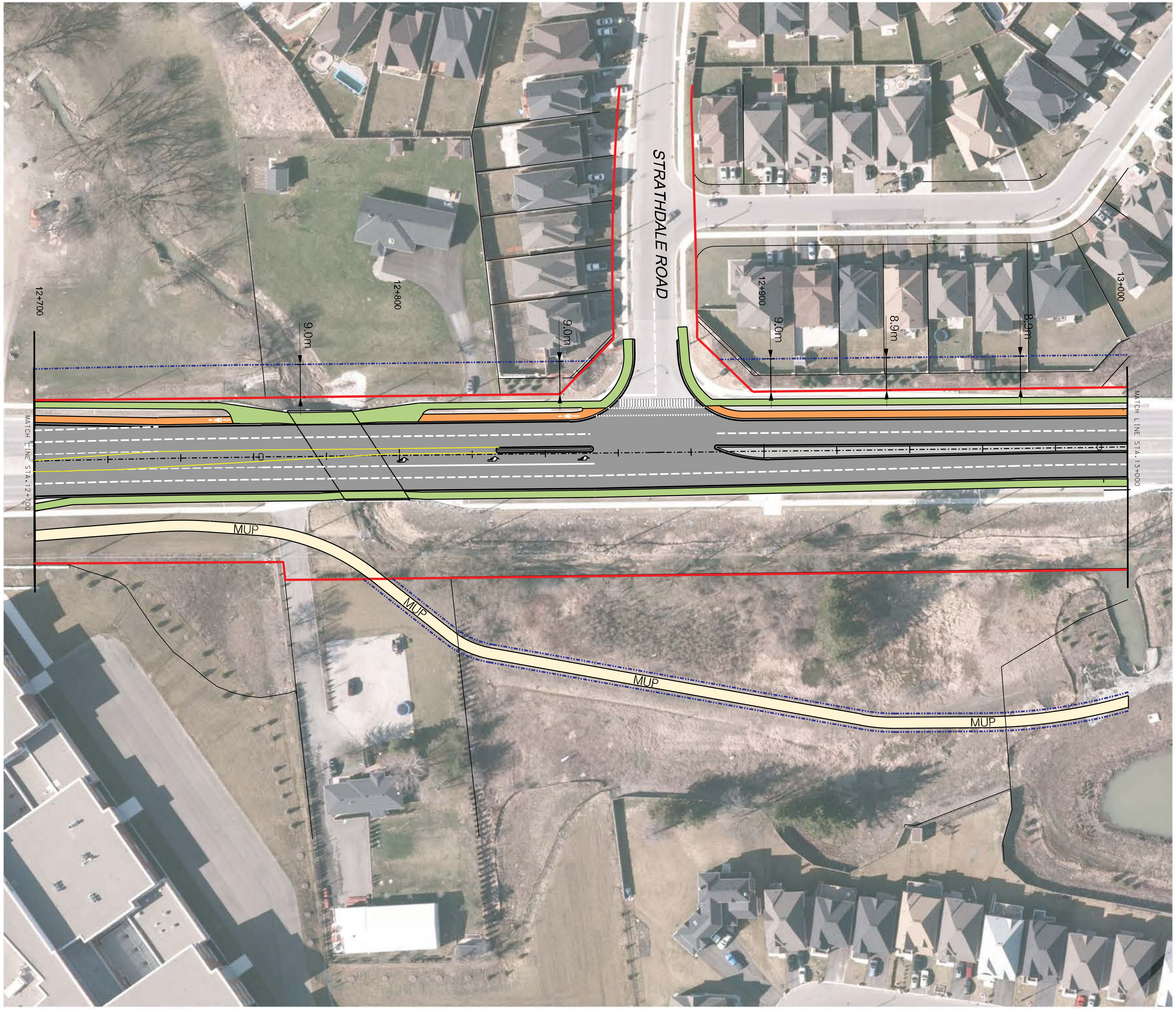
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 12 + 400 To Sta. 12 + 700

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-08
Date JULY 2016	Sheet 8 of 14	



SERVICE DATA

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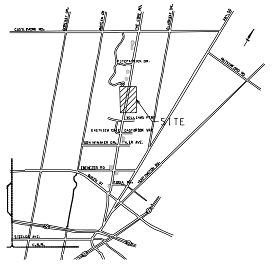
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
🟥	EXISITING ROW
─·─·─	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

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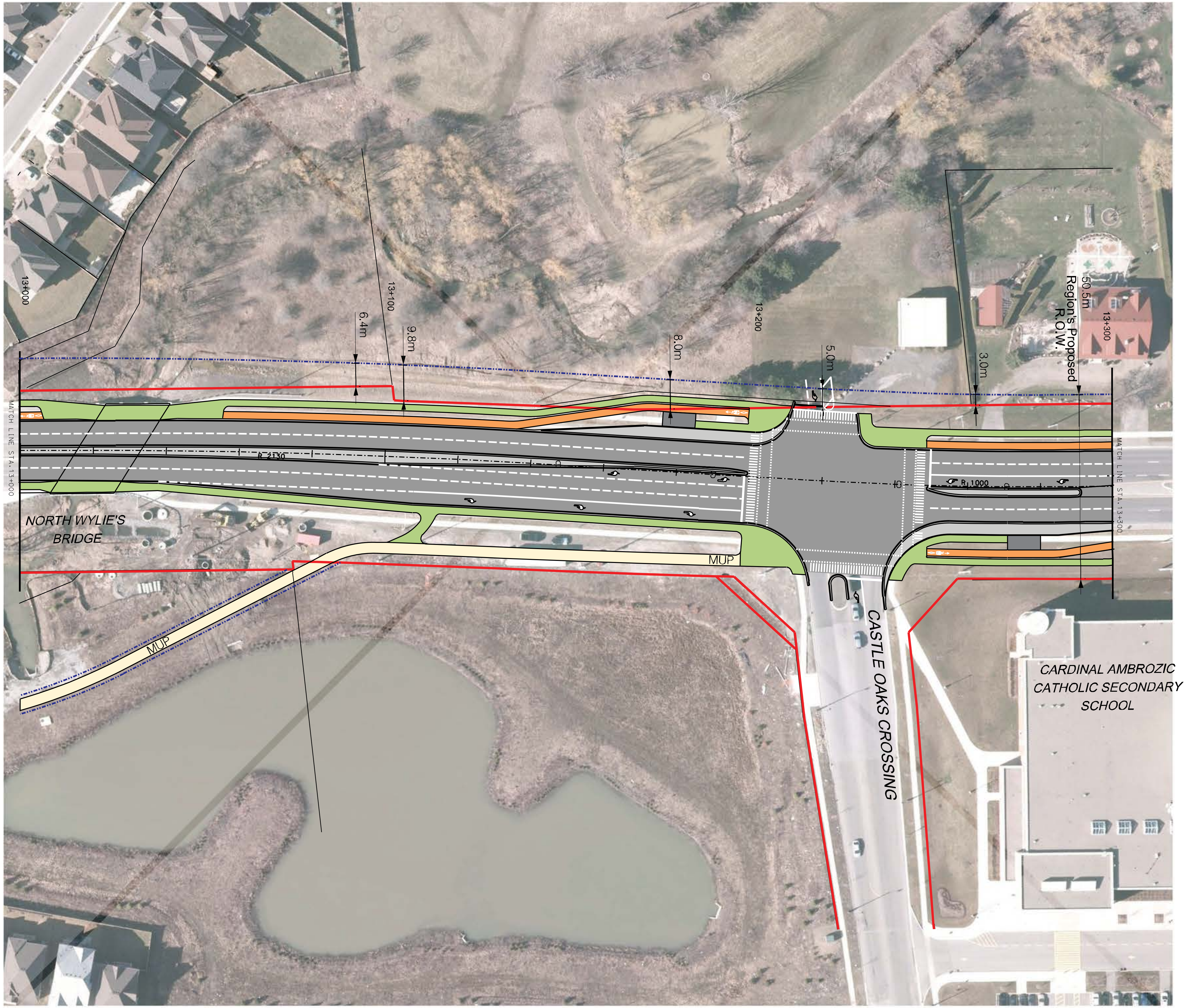
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 12 + 700 To Sta. 13 + 000

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-09
Date JULY 2016	Sheet 9 of 14	

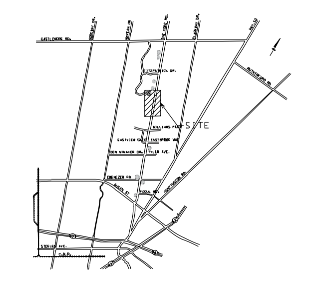


SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
🟥	EXISITING ROW
┄	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m
HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

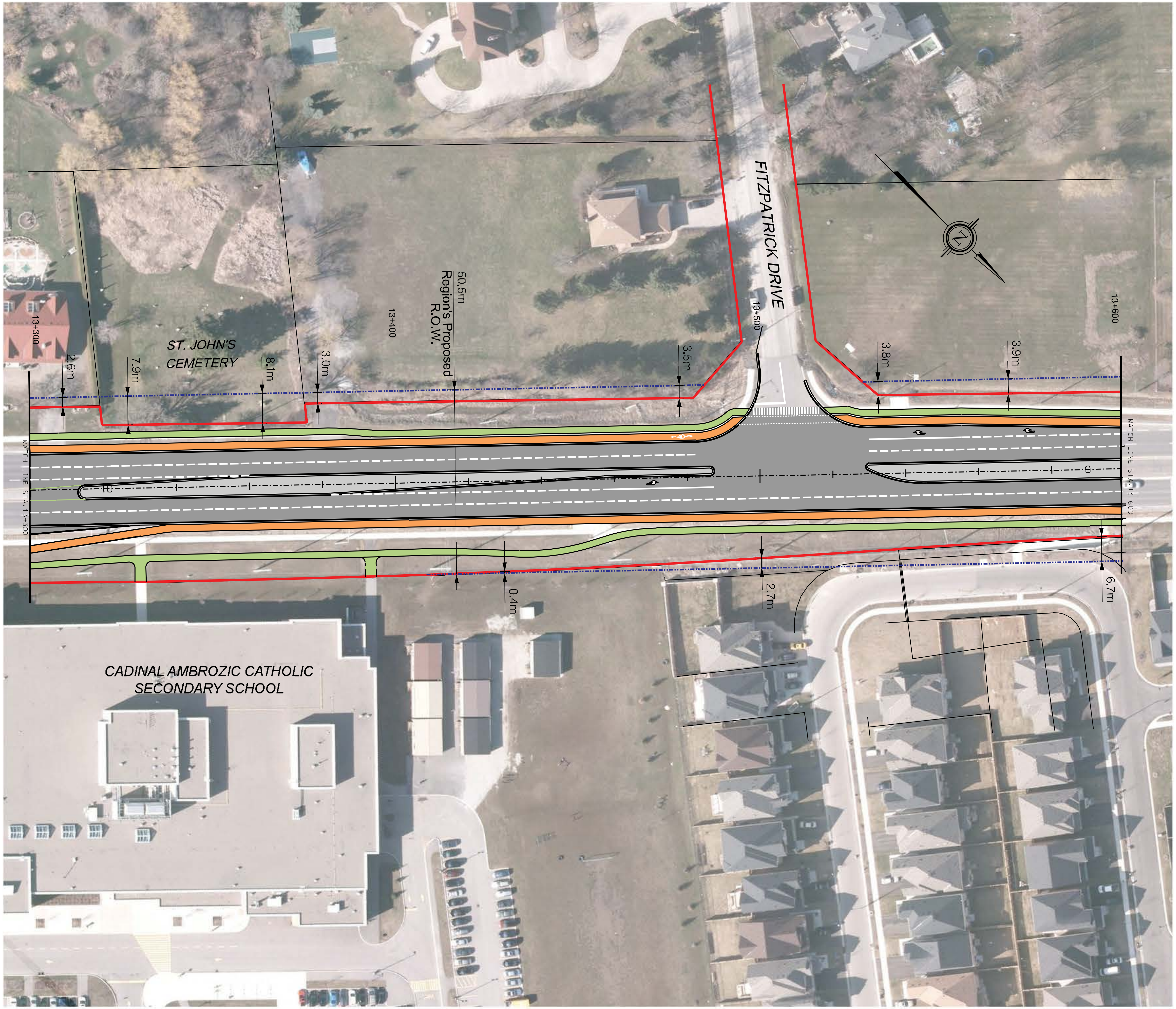
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 13 + 000 To Sta. 13 + 300

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-10
Date JULY 2016	Sheet 10 of 14	



SERVICE DATA

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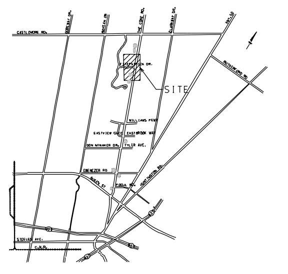
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

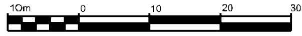
DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
━	EXISITING ROW
-·-	PROPOSED ROW FOR FUTURE DEVELOPMENT



HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

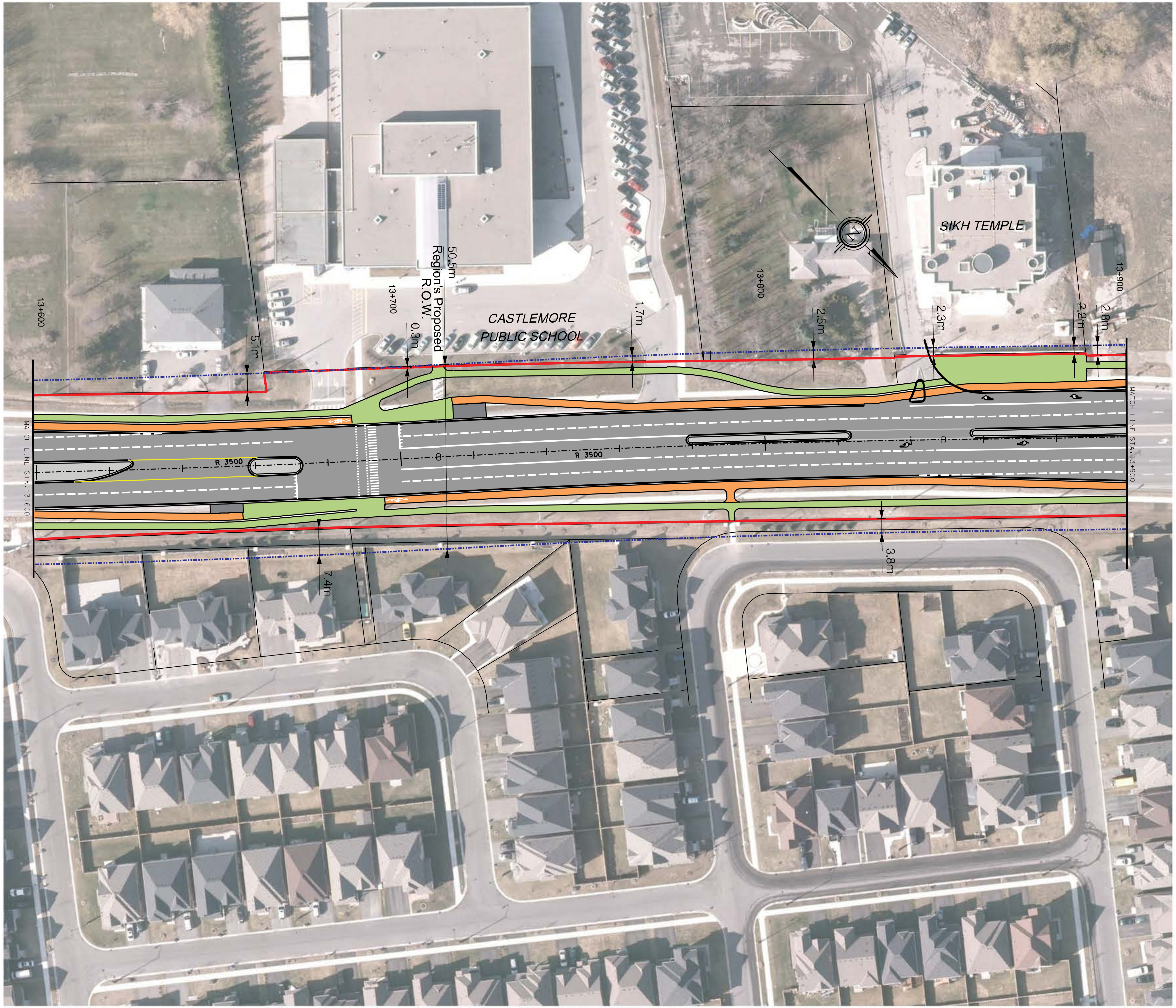
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 13 + 300 To Sta. 13 + 600

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-11
Date JULY 2016	Sheet 11 of 14	



SERVICE DATA

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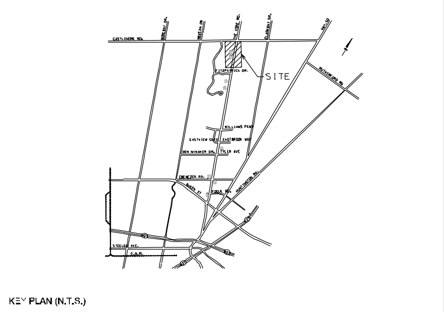
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
▭	MULTI-USE PATH (MUP)
■	BUS STOP
━	EXISITING ROW
┅	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO CASTLEMORE DRIVE)

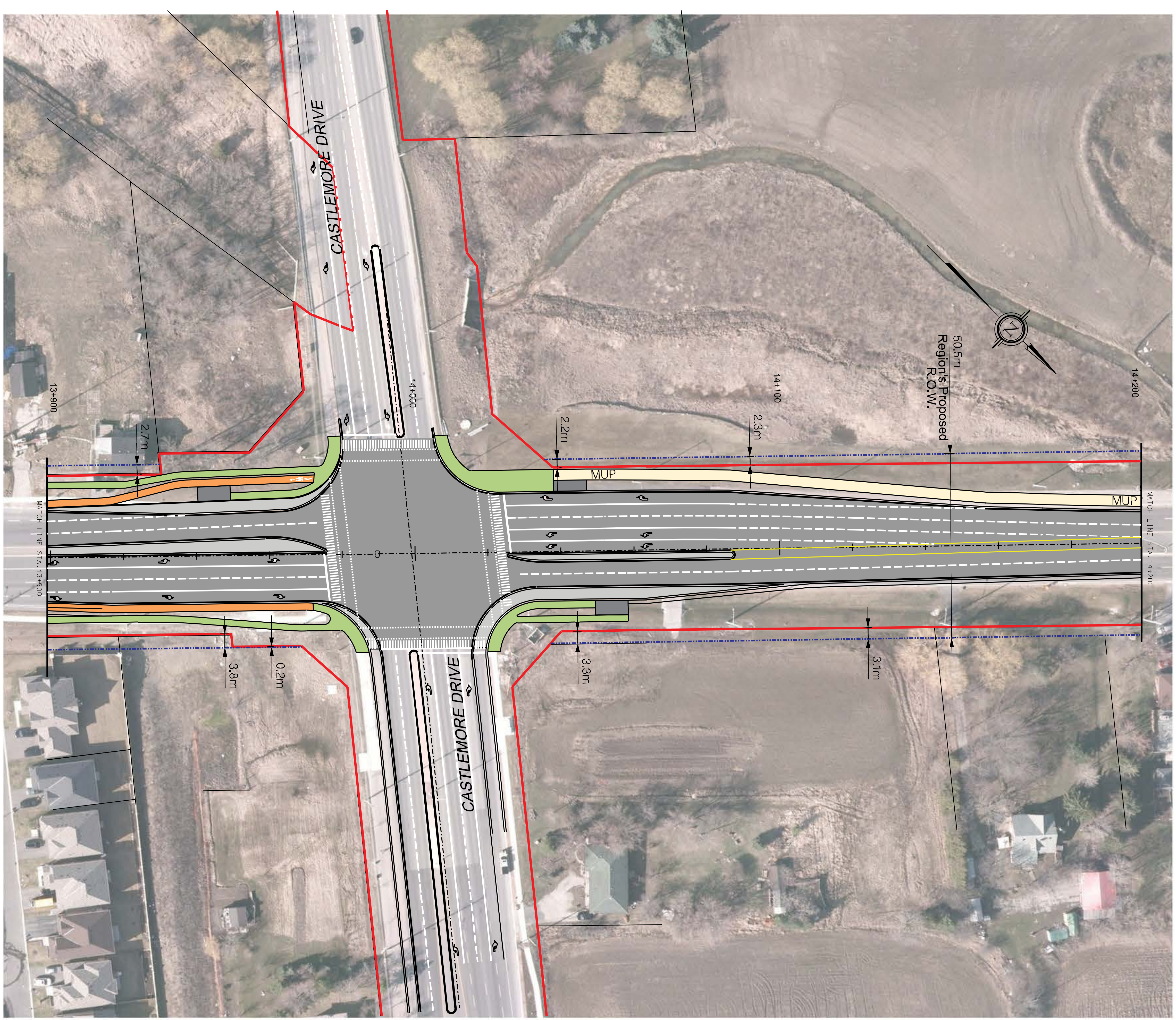
NEW CONSTRUCTION

Sta. 13 + 600 To Sta. 13 + 900

CAD Area		Area	
Checked by A.N.		Drawn by J.K.	
Date JULY 2016		Sheet 12 of 14	

Project No. 60311637

Plan No. NC-12



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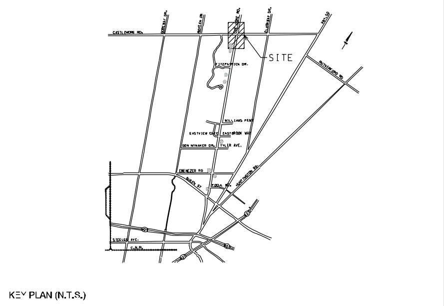
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
🟨	MULTI-USE PATH (MUP)
⬛	BUS STOP
—	EXISITING ROW
-·-·-	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ____ ____ ____ Chkd. ____

Approved by ____ ____ ____ ____

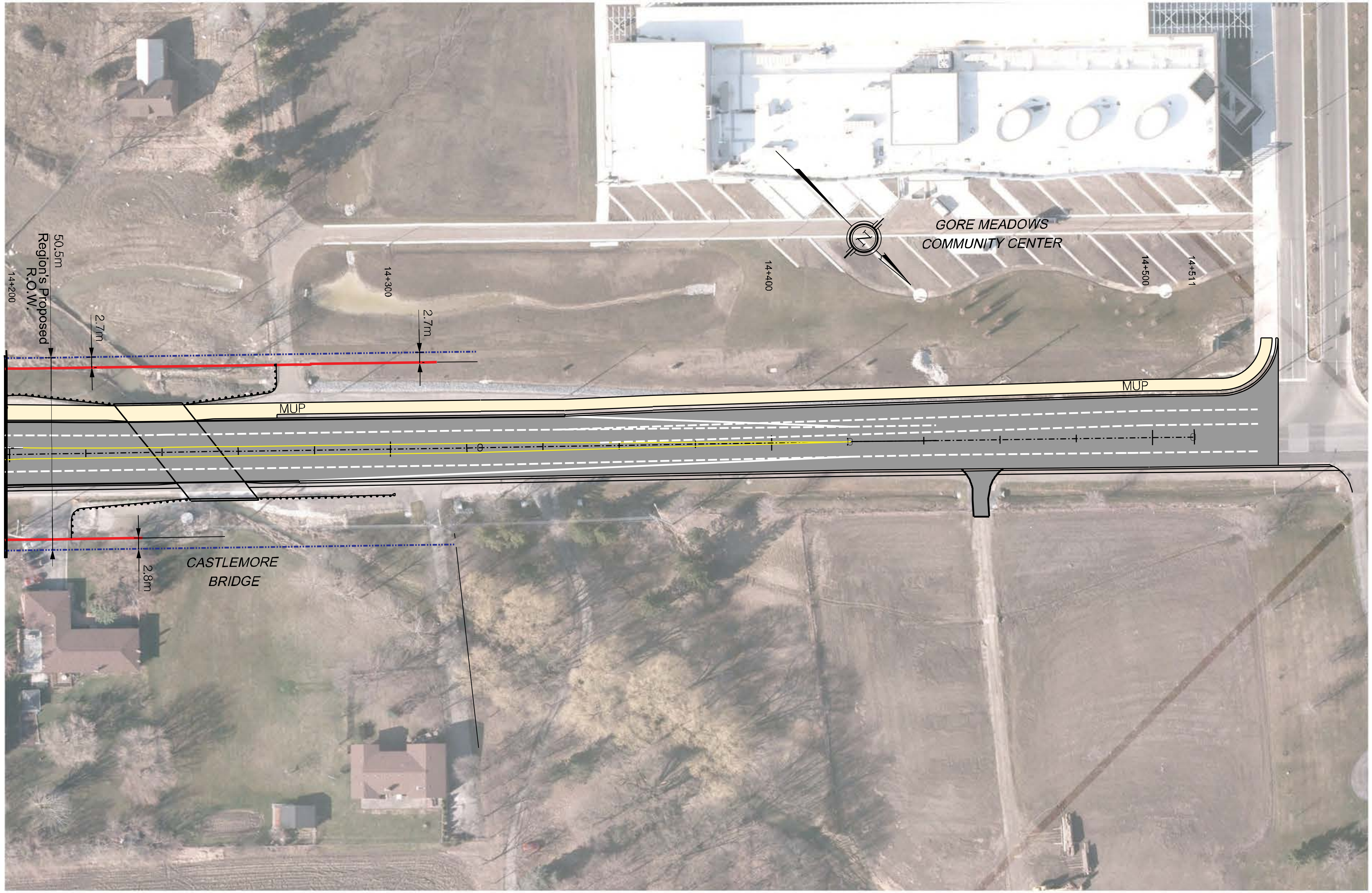
Region of Peel
Working for you

THE GORE ROAD
(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 13 + 900 To Sta. 14 + 200

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-13
Date JULY 2016	Sheet 13 of 14	



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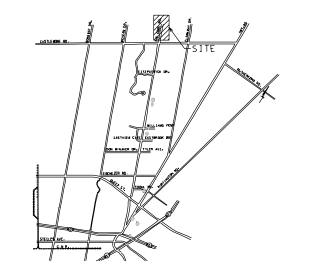
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

SERVICE DATA

REVISIONS

DATE	DETAILS	INIT.
AUG. 10, 2016	SUBMITTED FOR FINAL ESR	SS



KEY PLAN (N.T.S.)

LEGEND

🟧	CYCLE TRACK
🟩	SIDEWALK
▭	MULTI-USE PATH (MUP)
⬛	BUS STOP
━	EXISITING ROW
┅	PROPOSED ROW FOR FUTURE DEVELOPMENT

10m 0 10 20 30m HORIZONTAL SCALE

AECOM

Designed by ____ Chkd. ____ Approved by ____

Region of Peel
Working for you

THE GORE ROAD

(200m NORTH OF QUEEN STREET TO
CASTLEMORE DRIVE)

NEW CONSTRUCTION

Sta. 14 +200 To Sta. ## +###

CAD Area	Area	Project No. 60311637
Checked by A.N.	Drawn by J.K.	Plan No. NC-14
Date JULY 2016	Sheet 14 of 14	

Appendix D

Transportation Operations, Turning Movement Counts and Signal Timing Plans

Regional Municipality of Peel

Schedule C Class Environmental Assessment for The Gore Road (Queen Street to Castlemore Road) Traffic Operations Analysis (Final)

Prepared by:

AECOM
5080 Commerce Boulevard 905 238 0007 tel
Mississauga, ON, Canada L4W 4P2 905 238 0038 fax
www.aecom.com

Project Number:

60311637

Date:

March 2016

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Revision #	Revised By	Date	Issue / Revision Description

AECOM Signatures

Report Prepared By: FINAL

Pranav Dave, P. Eng., PTOE
Senior Traffic Engineer

Report Reviewed By: FINAL

Stephen Schijns, P.Eng.
Manager - Roads

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APPENDICES

1. Introduction

1.1 Background

AECOM Canada Ltd. was retained by the Regional Municipality of Peel to undertake a Schedule 'C' Class Environmental Assessment (EA) Study to confirm the opportunity to improve traffic operations by roadway widening on The Gore Road (Regional Road 8) from Queen Street (Regional Road 107) to approximately 400 m north of Castlemore Road, in the City of Brampton.

According to Peel Region's 2012 Updated Long Range Transportation Plan (LRTP), this regional-wide transportation master plan identifies the need to widen The Gore Road within the study area to address the capacity deficiency issue emerging from the future traffic demand.

The traffic study report assesses the existing traffic conditions at the key intersections along The Gore Road between Queen Street and approximately 400m north of Castlemore Road; estimates and examines the traffic growth and expected future traffic volumes; analyzes the traffic impacts from the introduction of the projected traffic volumes; and finally proposes infrastructure improvements to address the deficiencies and accommodate the future traffic growth for the horizon years of 2021 and 2031.

1.2 Purpose of the Study

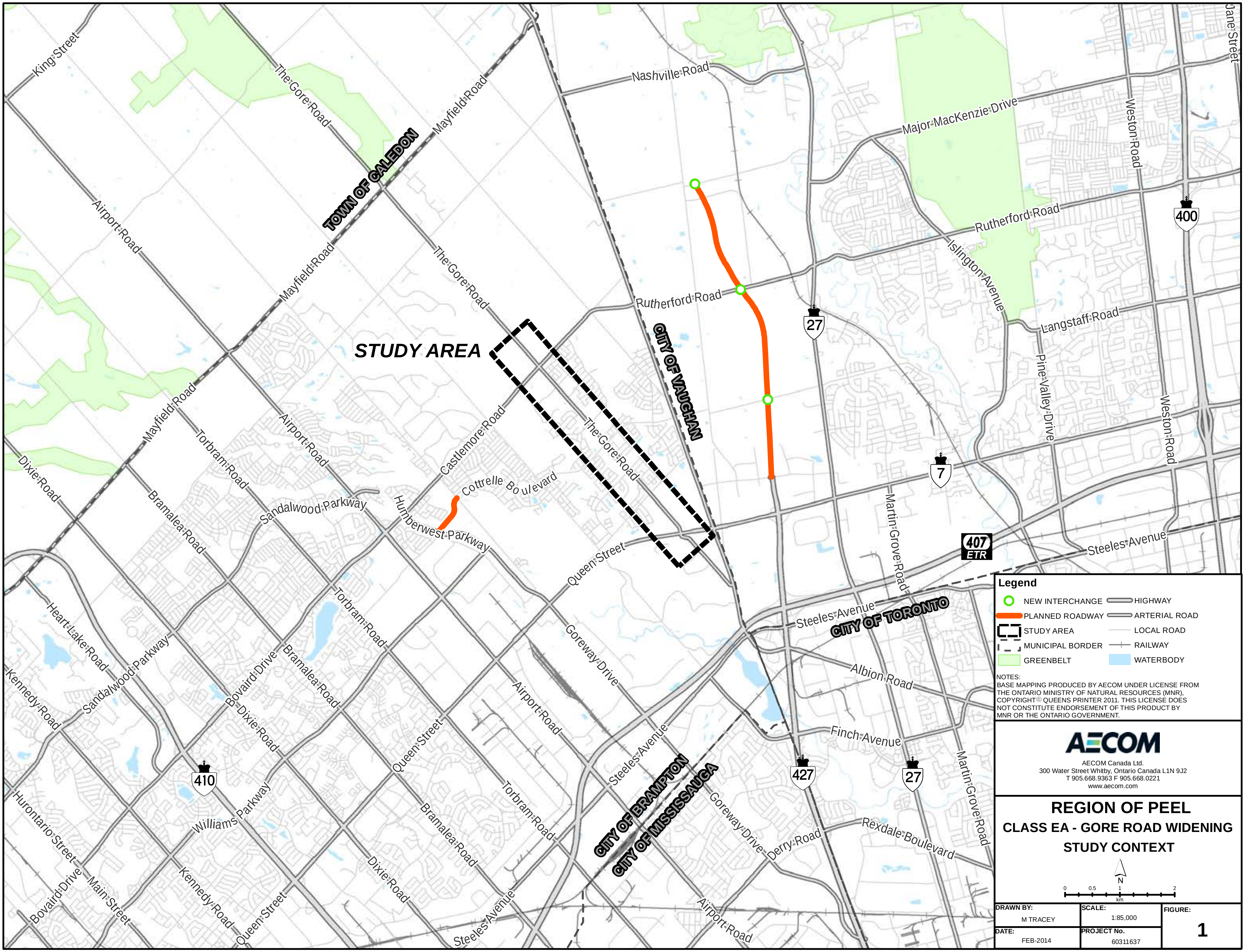
This Class EA study is being undertaken to validate and confirm the need for additional north-south capacity through road widening improvements along this section of The Gore Road. The study also considers the future Active Transportation corridor, including a future multi-use trail with connections to other neighbourhoods. Using a Context Sensitive Design approach, this study follows a comprehensive and sound planning process that will recognize the multimodal transportation needs while supporting established community areas and businesses.

This study is classified as a 'Schedule C' project. This traffic study report validates the widening opportunity based on the previous Phases 1 and 2 analysis findings from LRTP, and therefore, in support of Phases 3 and 4 of the planning and design process.

1.3 Study Scope

The site context and site location is shown in **Figure 1** and **Figure 2** respectively. This report summarizes the following:

- Traffic data review, including turning movement counts (TMC), annual average daily traffic volumes (AADT) and relevant traffic and safety study reports;
- An assessment of the existing traffic operations/conditions within the study area at key intersections on The Gore Road between Queen Street and Castlemore Road inclusive for weekday AM and PM peak hours;
- Identification of deficiencies (if any), which are contributing to the poor existing traffic operations;
- Projections of the future traffic growth to horizon year 2021 and 2031;
- The analysis of the traffic impacts resulting from the introduction of the future traffic volumes to the road network (future operational conditions). 2021 and 2031 horizon years were used for future forecasts and traffic operations analysis;
- Assembly of a list of mitigation measures required to address any safety issues and to improve traffic operations in the study area;
- Discussions about preferred alternative design solution;
- Discussion of findings, conclusions and remedial measures with Peel Region traffic staff; and
- Documentation and submittal of our findings and recommendations in a report to the Peel Region.



Legend

○ NEW INTERCHANGE
PLANNED ROADWAY
STUDY AREA
MUNICIPAL BORDER
🟩 GREENBELT
HIGHWAY
ARTERIAL ROAD
LOCAL ROAD
RAILWAY
WATERBODY

NOTES:
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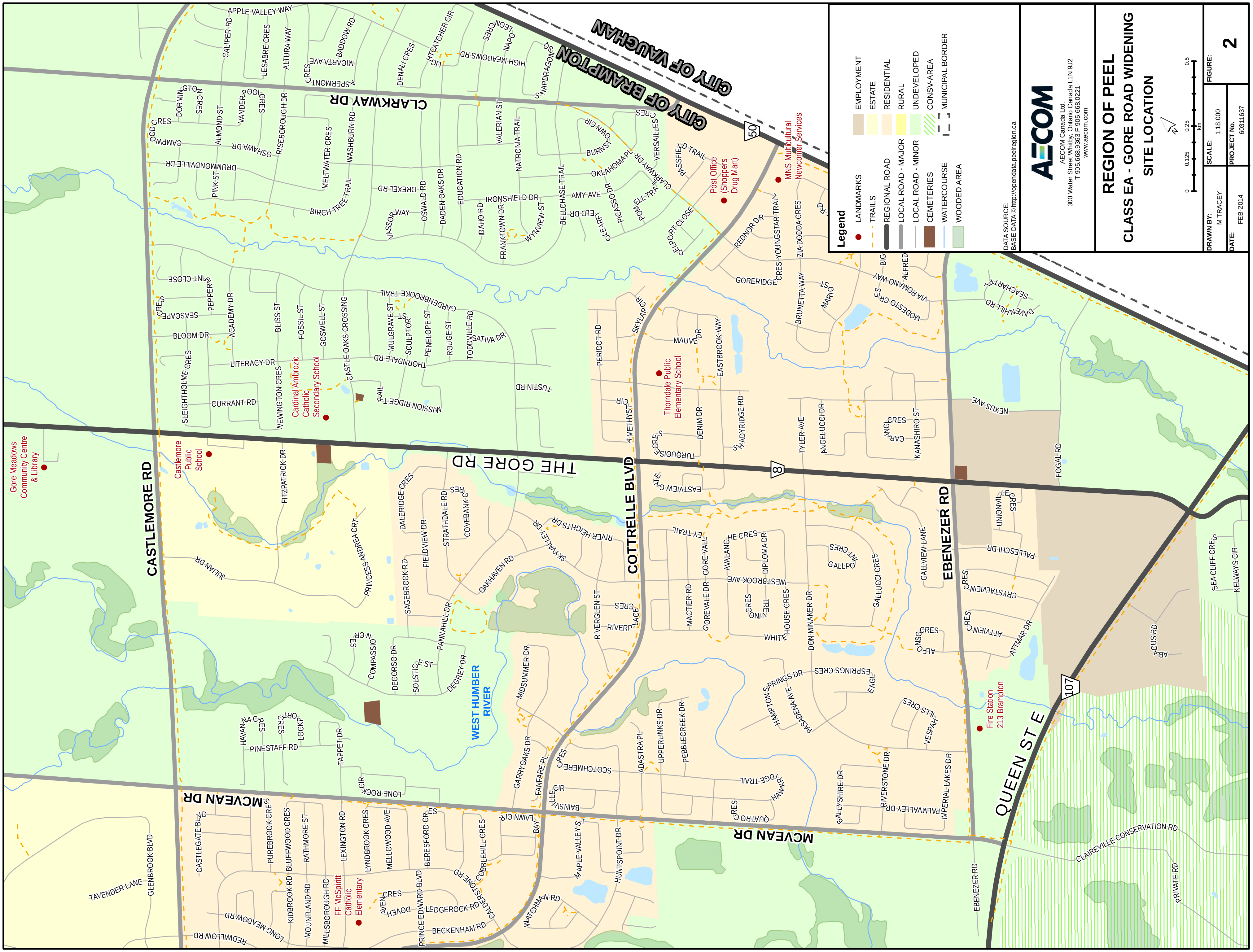
www.aecom.com

REGION OF PEEL
CLASS EA - GORE ROAD WIDENING
STUDY CONTEXT

N
0 0.5 1 2
km

DRAWN BY: M TRACEY	SCALE: 1:85,000	FIGURE: 1
DATE: FEB-2014	PROJECT No. 60311637	



Legend

- ● LANDMARKS
- TRAILS
- REGIONAL ROAD
- LOCAL ROAD - MAJOR
- LOCAL ROAD - MINOR
- CEMETERIES
- WATERCOURSE
- WOODED AREA
- EMPLOYMENT
- ESTATE
- RESIDENTIAL
- RURAL
- UNDEVELOPED
- CONSV-AREA
- MUNICIPAL BORDER

DATA SOURCE:
BASE DATA © http://opendata.peelregion.ca

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www.aecom.com

REGION OF PEEL
CLASS EA - GORE ROAD WIDENING
SITE LOCATION

0 0.125 0.25 0.5 km

N

DRAWN BY: M TRACEY	SCALE: 1:18,000
DATE: FEB-2014	PROJECT No. 60311637
FIGURE: 2	

2. Transportation Infrastructure

2.1 Existing Road Network

The Gore Road is designated as a north-south major arterial in the City of Brampton's Official Plan (OP), Schedule B (City Road Hierarchy). It is under the jurisdiction of the Regional Municipality of Peel. It has a posted speed limit of 60 km/h beginning the south end of study limit to 400 m north of Queen Street, 70 km/h between the section 400 m north of Queen Street to 60m north of Cottrelle Boulevard, 60 km/h between the section 60m north of Cottrelle Boulevard to 365 m north of Castlemore Road and 40 km/h around the school zone between 35m north of Fitzpatrick Drive to 90 m south of Castlemore Road.

According to City of Brampton's OP, major arterial roads under the jurisdiction of the Region are designed to accommodate medium to high volumes of medium distance intra-regional traffic at medium speeds coupled with provision of transit services through transit priority measures or lanes. The arterials are usually designed with high degree of access control to minimize conflicts with mainstream traffic flow. However, under the Peel Region's OP, Schedule G, Rapid Transit Corridors, it indicates that the Gore Road is not considered as one of rapid transit corridors in the future.

2.1.1 Roadway Characteristics

The Gore Road corridor within study limits is a four (4) lane major arterial road with posted speed limit either at 60 km/h or 70km/hr and 40km/h in vicinity of the school zone. It is noted that Gore Road was recently widened from two to four lanes between Cottrelle Boulevard and Castlemore Road in 2012.

The corridor within the study area has ten (10) signalized intersections at Queen Street, Fogal Road, Ebenezer Road, Tyler Avenue/ Don Minaker Drive, Eastbrook Way, Cottrelle Boulevard, Gardenbrooke Trail/ Pannahill Drive, Castle Oaks Crossing, Castlemore School Access and Castlemore Road. There are two (2) unsignalized intersections at Strathdale Road and Fitzpatrick Drive.

The majority of side streets crossing The Gore Road within the study area are designated as collector road (Fogal Road, Ebenezer Road, Tyler Avenue/ Don Minaker Drive, Strathdale Road and Fitzpatrick Drive) under the jurisdiction of City of Brampton except for Queen Street (major arterial as Regional Road), Eastbrook Way (local road), Cottrelle Boulevard (minor arterial), Gardenbrooke Trail/ Pannahill Drive (local road), Castle Oaks Crossing (local road), Castlemore School Access (local road) and Castlemore Road (major arterial as City Road).

2.2 Planned Road Network

Region of Peel recommends several short term and long term horizon road projects considering the forecast growth in population and employment, and the associated travel demand. The following is the list of planned road network by 2031 within the Gore Road study area, which is expected to have an impact on this study and should be considered in the travel Demand forecast and traffic operation analysis.

- Hwy 427 Extension from Zenway Boulevard to Major Mackenzie.
- Castlemore Road widening from 4 lanes to 6 lanes
- Major MacKenzie east/west extension to The Gore Road and North/South extension to Highway 50/ Coleraine

3. Existing Conditions Operations

3.1 Data Collection

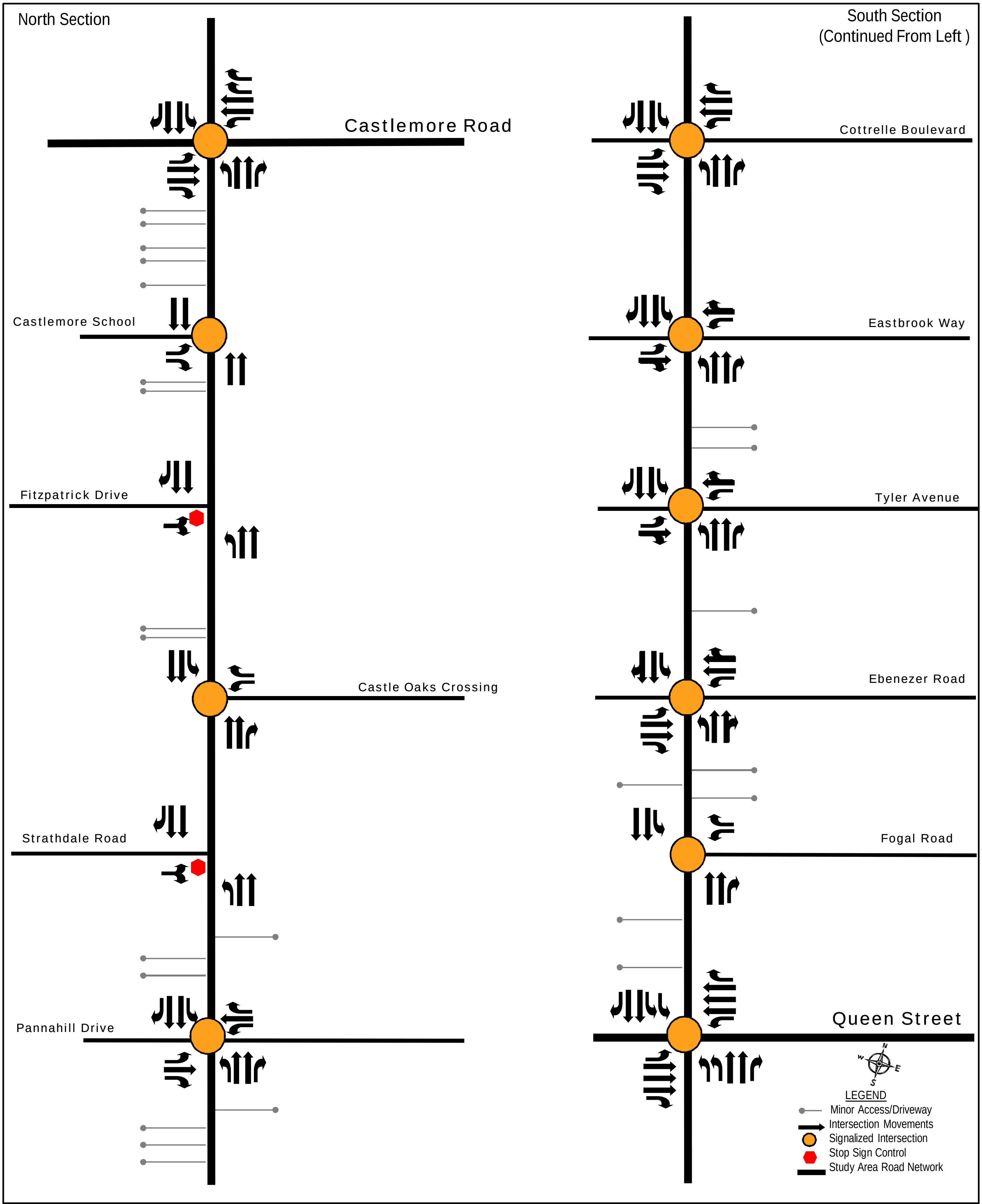
The Turning Movement Counts (TMC) and signal timing plans for the study area were provided by the Regional Municipality of Peel. All the TMCs were recorded on the weekdays of April 2013 (last two weeks). **Table 1** provides a list of traffic volumes inventory utilized for the existing condition analyses. Detailed TMCs and signal timing plans are provided in **Appendix A**. **Figure 3** illustrates existing conditions lane configurations, intersection traffic control and location of minor accesses along Gore Road corridor within study area.

Table 1: Turning Movement Counts Inventory

No.	Location	Intersection Control	Date	Source
			(Month, Day, Yr)	
1	The Gore Rd. / Castlemore Rd.	Signalized	April 25, 2013	Peel Region
2	The Gore Rd. / Castlemore School Access	Signalized	April 25, 2013	Peel Region
3	The Gore Rd. / Fitzpatrick Dr.	Unsignalized	April 25, 2013	Peel Region
4	The Gore Rd. / Castle Oaks Crossing	Signalized	April 24, 2013	Peel Region
5	The Gore Rd. / Strathdale Rd.	Unsignalized	April 30, 2013	Peel Region
6	The Gore Rd. / Gardenbrooke Trail/ Pannahill Dr.	Signalized	April 24, 2013	Peel Region
7	The Gore Rd. / Cottrelle Blvd.	Signalized	April 24, 2013	Peel Region
8	The Gore Rd. / Eastbrook Way	Signalized	April 24, 2013	Peel Region
9	The Gore Rd. / Tyler Ave./ Don Minaker Dr.	Signalized	April 24, 2013	Peel Region
10	The Gore Rd. / Ebenezer Rd.	Signalized	April 24, 2013	Peel Region
11	The Gore Rd. / Fogal Rd.	Signalized	April 24, 2013	Peel Region
12	The Gore Rd. / Queen St.	Signalized	April 23, 2013	Peel Region

3.1.1 Link Volumes and Intersection Volumes

It is noted that existing data was collected on different days, and there are driveways between intersections, therefore the count data was not further balanced between intersections. **Figure 4** illustrates link volumes on Gore Road for weekday AM, mid-day and PM peak hours. **Figure 5** illustrates existing traffic volumes at key study area intersections.



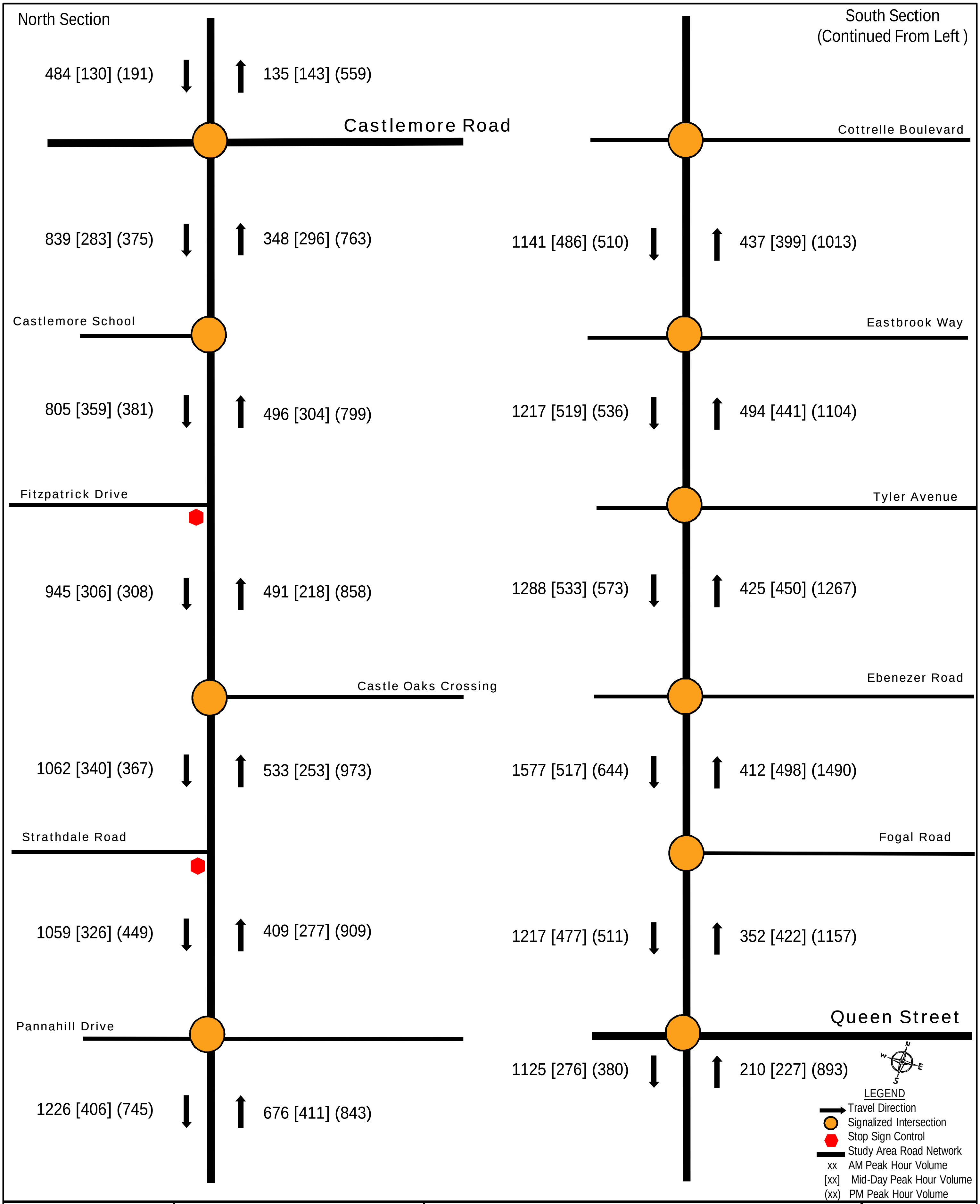
Project:

Gore Road Widening EA

Title:

Existing Traffic Control, Link and Intersection Lane Configuration

Figure 3



AECOM

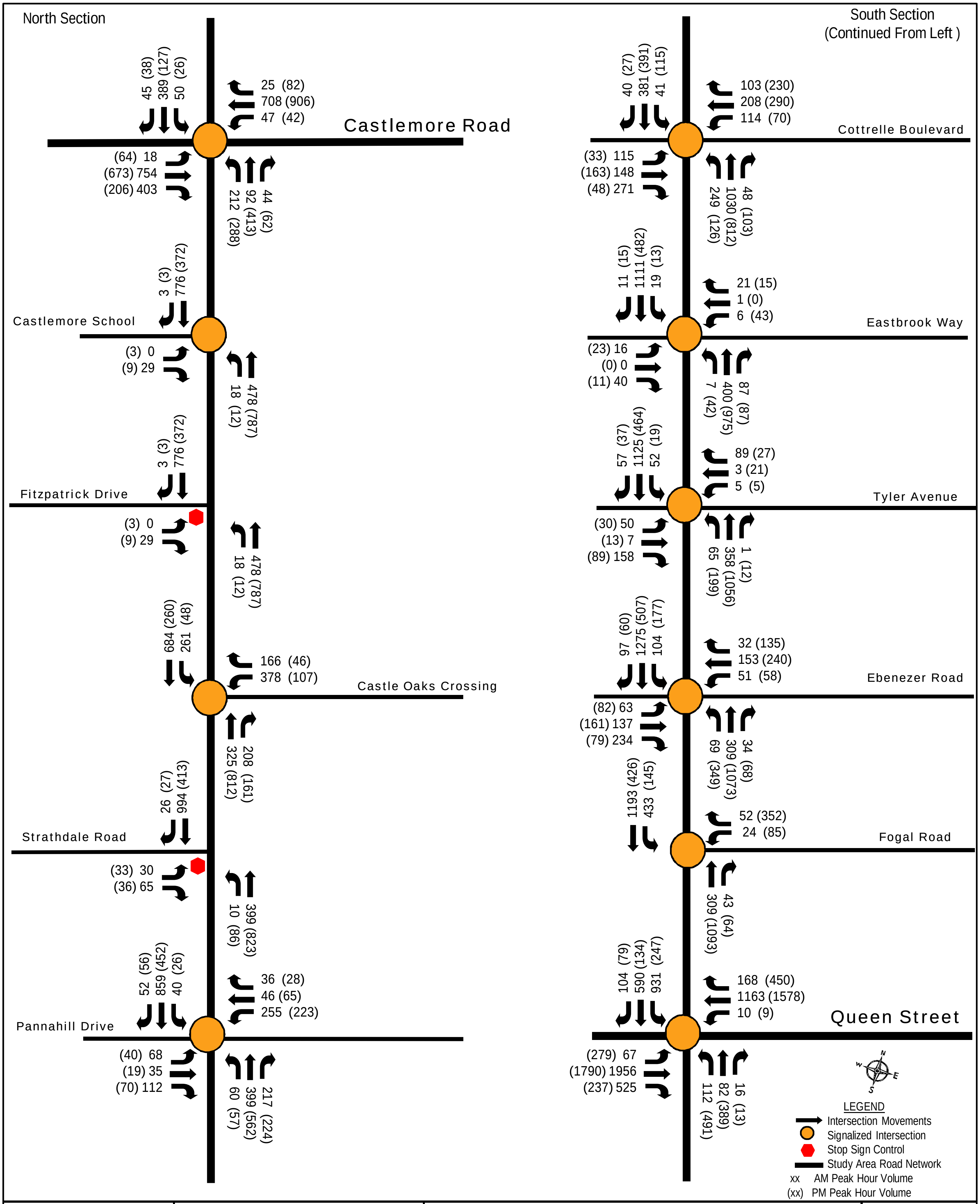
Project:

Gore Road Widening EA

Title:

Existing Conditions (2013) Weekday AM [Mid-Day] and (PM) Peak Hour Link Volumes

Figure 4



AECOM

Project:

Gore Road Widening EA

Title:

Existing Conditions (2013) Weekday
AM (PM) Peak Hour Turn Movement Counts

Figure 5

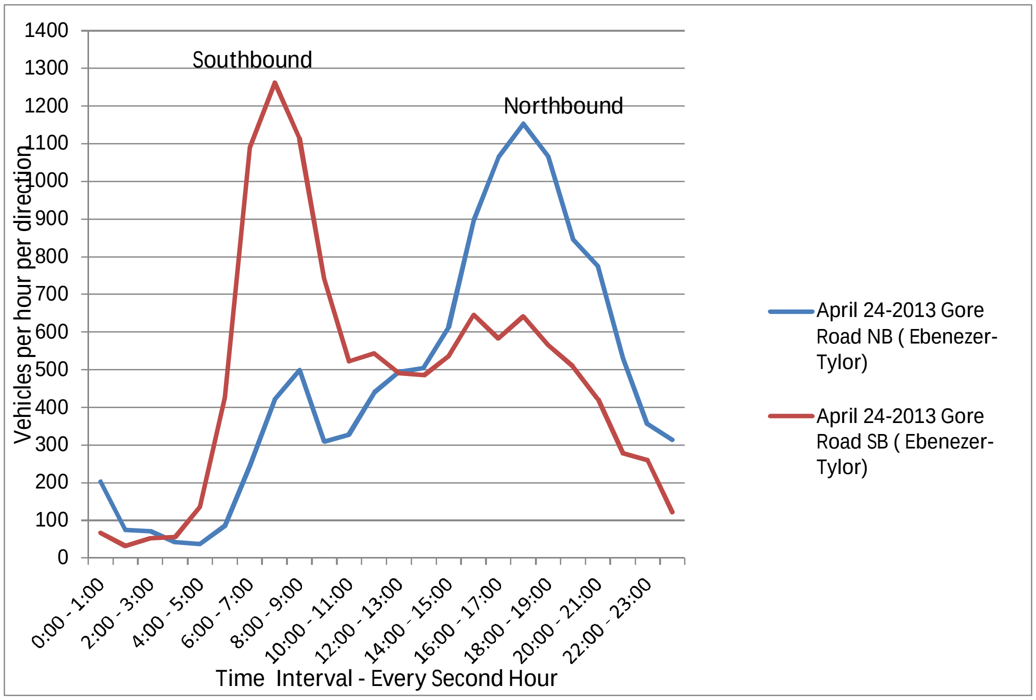
3.1.2 Average Annual Daily Traffic (AADT)

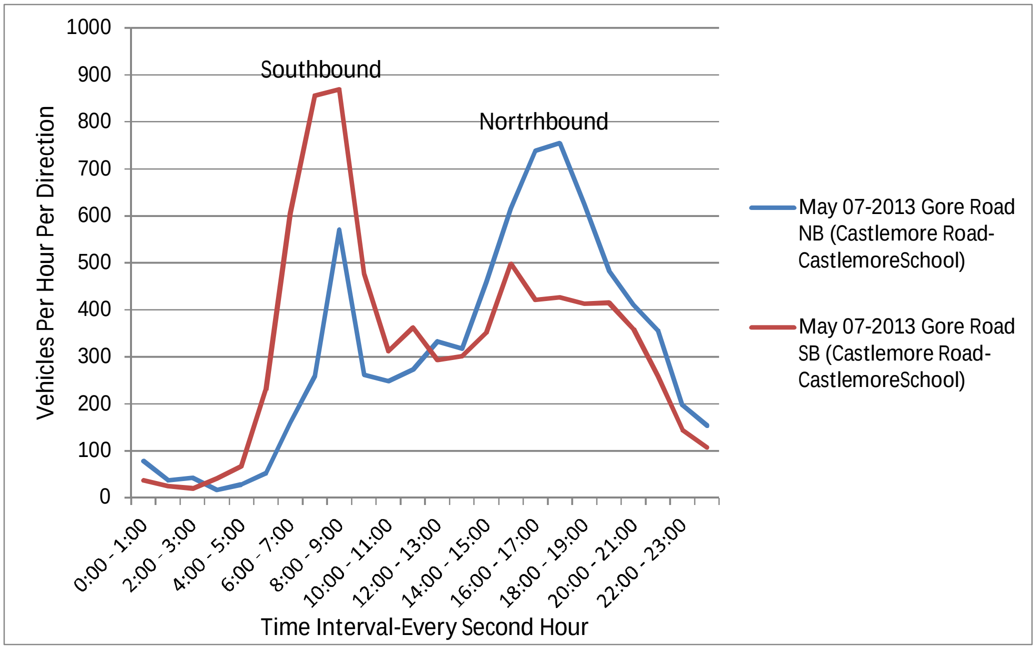
The Annual Average Daily Traffic (AADT) volumes were provided by the Region of Peel at two locations within the study area. It is noted that these traffic volumes were conducted at the following two locations:

1) North of Ebenezer Road between Ebenezer Road and Tyler Avenue (Dated April 24, 2013)
2) South of Castlemore Road between Castlemore Road and Castlemore School (Dated May 07, 2013)

Figure 6 shows daily traffic volumes variations based on the provided AADT information.

Figure 6: Daily Traffic Volumes Variation – Gore Road

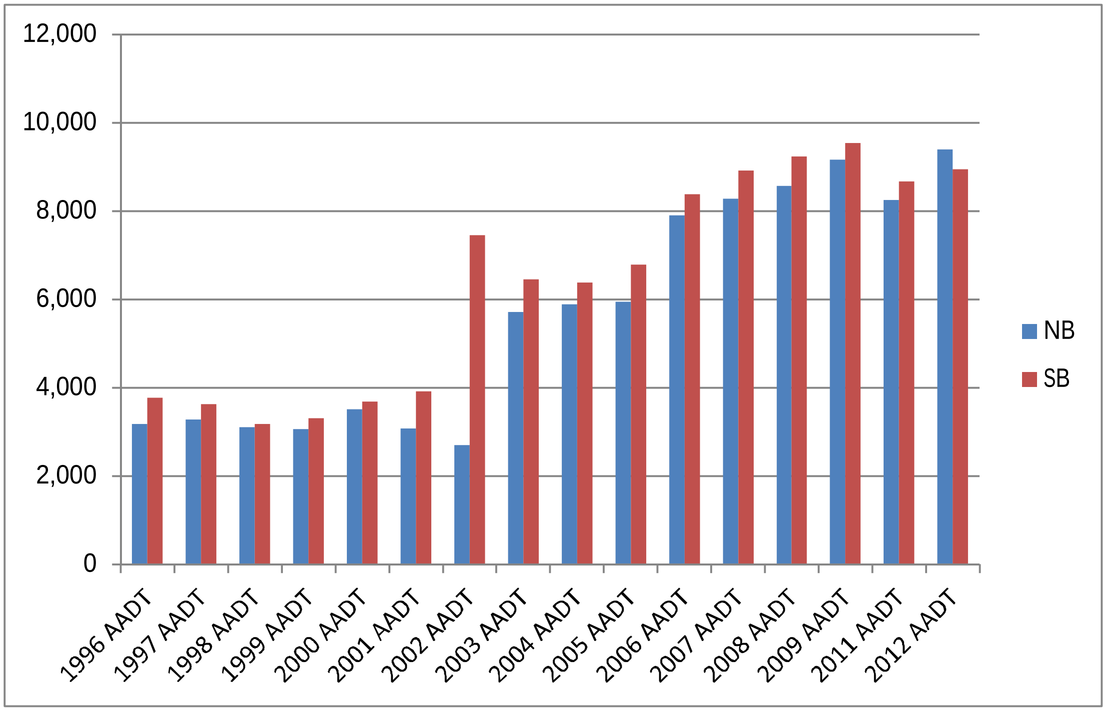




In the AM peak hour in peak southbound direction on Gore Road, observed volumes are approximately 1,250 vehicles per hour (vph) north of Ebenezer Road and 875 vph south of Castlemore Road. Similarly in the PM peak hour in peak northbound direction, observed traffic volumes are approximately 750 vph north of Ebenezer Road and 1,150 vph south of Castlemore Road.

Figure **7** shows historical AADT information on Gore Road just north of Highway 7.

Figure 7: Gore Road Historical AADT North of Highway 7



3.1.3 Heavy Vehicles

The heavy vehicle percentages for Gore Road corridor for the weekday AM and PM peak hours were calculated based on the turning movement counts for each individual movement for traffic operations analysis purposes. Heavy vehicle percentages were also calculated on the link volumes bases to understand the amount of trucks/buses travelling on to Gore Road during peak hours. Between 2 % to 7% heavy vehicles were observed on Gore Road corridor between Queen Street and Castlemore Road during weekday peak hours except the northbound section between Queen Street and Fogal Road where approximately 13% heavy vehicles were observed in AM peak hour.

3.1.4 Intersection Traffic Control

The signal timings for the study area were provided by the Regional Municipality of Peel. Majority of intersections are signalized within the study area along Gore Road except the T-intersections of Fitzpatrick Drive and Strathdale Road that are stop controlled for eastbound traffic.

All the study area signalized intersections on Gore Road are currently operate as actuated co-ordinated mode with 100 seconds cycle lengths except for Queen Street and Castlemore Road intersections. Gore Road/Queen Street intersection operates as actuated co-ordinated mode along Queen Street with 160 seconds cycle length whereas Gore Road/Castlemore Road intersection operates under free mode with maximum cycle length of 103 seconds. Majority of signalized intersections along Gore Road operate under simple two phase traffic signals except at Queen Street, Ebenezer Road and Cottrelle Boulevard where additional turn phases are also provided.

3.2 Existing Traffic Conditions Analysis

3.2.1 Existing Link/Midblock Analysis

The capacity of a facility reflects its ability to accommodate a moving stream of vehicles and represents the maximum number of vehicles that can reasonably be expected to pass a given point during a specified period. The Level of Service (LOS) for corridor operation for Gore Road is based on a desired service volume of 900 vehicles per lane per hour. For a two lane road, the desired capacity is 1,800 vph. **Table 2** outlines the current operating condition of the corridor.

Table 2: Link Volumes/Midblock Capacity Analysis

Road Section on Gore Road Corridor	Lanes per Direction	Desired Capacity (vph)	AM Peak Hour				PM Peak Hour			
			NB		SB		NB		SB	
			Volume	V/C	Volume	V/C	Volume	V/C	Volume	V/C
Castlemore Road to Castlemore School Access	2	1,800	348	0.19	839	0.47	763	0.42	375	0.21
Castlemore School Access to Fitzpatrick Drive	2	1,800	496	0.28	805	0.45	799	0.44	381	0.21
Fitzpatrick Drive to Castle Oaks Crossing	2	1,800	419	0.23	945	0.53	858	0.48	308	0.17
Castle Oaks Crossing to Strathdale Road	2	1,800	533	0.30	1,062	0.59	973	0.54	367	0.20
Strathdale Road to Pannahill Drive	2	1,800	409	0.23	1,059	0.59	909	0.51	449	0.25
Pannahill Drive to Cottrelle Boulevard	2	1,800	676	0.38	1,226	0.68	843	0.47	745	0.41
Cottrelle Boulevard to Eastbrook Way	2	1800	437	0.24	1,141	0.63	1,013	0.56	510	0.28
Eastbrook Way to Tyler Avenue	2	1,800	494	0.27	1,217	0.68	1,104	0.61	536	0.30
Tyler Avenue to Ebenezer Road	2	1,800	425	0.24	1,288	0.72	1,267	0.70	573	0.32
Ebenezer Road to Fogal Road	2	1,800	412	0.23	1,577	0.88	1,490	0.83	644	0.36
Fogal Road to Queen Street	2	1,800	352	0.20	1,217	0.68	1,157	0.64	511	0.28

Link volumes capacity analysis results indicate that Gore Road corridor can easily accommodate existing traffic volumes without any significant traffic operations issue and also have room for additional future traffic volumes growth.

3.2.2 Study Area Intersections Operations Analysis

Traffic analysis was conducted to determine existing conditions at key intersections along The Gore Road corridor within the study area using performance metrics such as Level of Service (LOS) and volume-to-capacity ratio (v/c). The study area extends between Queen Street and Castlemore Road, inclusive of both end intersections. The traffic analysis considered the following key intersections in the study area:

- The Gore Road / Castlemore Road (Signalized)
- The Gore Road / Castlemore School Access (Signalized)
- The Gore Road / Fitzpatrick Drive (Unsignalized)
- The Gore Road / Castle Oaks Crossing (Signalized)
- The Gore Road / Strathdale Road (Unsignalized)
- The Gore Road / Gardenbrooke Trail / Pannahill Drive (Signalized)
- The Gore Road / Cottrelle Boulevard (Signalized)
- The Gore Road / Eastbrook Way (Signalized)
- The Gore Road / Tyler Avenue / Don Minaker Drive (Signalized)
- The Gore Road / Ebenezer Road (Signalized)
- The Gore Road / Fogal Road (Signalized)
- The Gore Road / Queen Street (Signalized)

Traffic operations for all the intersections within the study area were analyzed using Region of Peel Synchro Guidelines. The Synchro software is developed based on the Highway Capacity Manual (HCM 2000) methodologies and provides a detailed assessment of traffic operations including levels of service (LOS), delays and volume to capacity ratios for overall, approaches, as well as individual movements of unsignalized and signalized intersections. LOS describes the “driver experience” on a transportation facility, with each LOS associated with the average delay each driver would experience at an intersection (see **Table 3**).

Table 3: Level of Service Descriptions

LOS	Signalized Intersections		Unsignalized Intersections	
	Description	Delay	Description	Delay
A	Very seldom does a vehicle wait longer than one red light. The approach appears open, turns are easily made and drivers have freedom of operation.	≤10 sec	Little or no traffic delay occurs. Approaches appear open, turning movements are easily made, and drivers have freedom of operation.	≤10 sec
B	An occasional green light is fully used and many greens approach full use. Many drivers begin to feel somewhat restricted within groups of vehicles approaching the intersection.	≤20 sec	Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation.	≤15 sec
C	Intersection operation is stable but often has fully used greens. Drivers feel more restricted and occasionally may wait more than one red light. Queues may develop behind turning vehicles.	≤35 sec	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.	≤25 sec
D	Drivers experience increasing restriction and instability of traffic flow. There are substantial delays to vehicles during short peaks within the peak hour, but there is enough time with lower demand to permit occasional clearing of queues and prevent excessive backups.	≤55 sec	Long traffic delays occur. Drivers emerging from minor streets experience significant restriction and frustration. Drivers on the major street will experience congestion and delay.	≤35 sec
E	The capacity of the road is reached. There are long queues of vehicles waiting upstream of the intersection and delays to vehicles may extend to several signal cycles.	≤80 sec	Very long traffic delays occur. Operations approach the capacity of the intersection.	≤50 sec
F	Vehicle demand exceeds the available capacity and delays extending through the peak hour are experienced.	>80 sec	Vehicle demand exceeds the available capacity. Very long traffic delays occur frequently.	>50 sec

The V/C ratio represents how full a road or intersection movement is, based on actual volumes versus the maximum number of vehicles that can travel. A V/C between 0.00 and 0.49 means that less than half the capacity is being used by vehicles; this is generally associated with good operating conditions. As the V/C approaches 1.00, traffic conditions worsen and at 1.00 the theoretical maximum number of vehicles is reached and operations are generally very poor. The V/C can exceed 1.00, indicating very bad operations and extended traffic delays.

The “critical movements” identified in the capacity analyses summary tables are those having an LOS of E or F and/or a V/C ratio of 0.85 or greater for signalized intersections, and for unsignalized intersections an LOS of E, or F. Since the analysis is based on actual volumes, V/C > 1.00 indicates that the counted traffic volumes exceeded the capacity calculated by the analysis procedure/software. Individual movements at intersections with calculated V/C > 1.00 are operating essentially above capacity and can be expected to experience severe recurring queuing and congestion during both the AM and PM peak periods.

The existing traffic volumes (Figure 5) were analysed using existing lane configuration (Figure 3) and signal timings provided by the Regional Municipality of Peel. The traffic operational analysis results of the study area signalized and unsignalized intersections are summarized in **Table 4**. Detailed Synchro outputs are provided in **Appendix B**.

Table 4: Existing Condition Traffic Analysis - AM and PM Peak Hours

Intersection	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
The Gore Road & Castlemore Road (Signalized)	EB	EBL	10.2	B	0.06	13.9	B	0.30
		EBT	12.8	B	0.45	13.2	B	0.40
		EBR	12.7	B	0.39	11.4	B	0.13
	WB	WBL	11.2	B	0.17	11.6	B	0.14
		WBT	12.5	B	0.42	14.7	B	0.54
		WBR	9.9	A	0.02	10.8	B	0.05
	NB	NBL	25.8	C	0.65	25.5	C	0.67
		NBT	15.7	B	0.08	18.1	B	0.33
		NBR	15.4	B	0.03	16.0	B	0.04
	SB	SBL	16.2	B	0.13	16.4	B	0.09
		SBT	17.4	B	0.33	16.3	B	0.10
		SBR	15.4	B	0.03	15.9	B	0.02
	Overall Intersection		14.5	B	0.53	15.6	B	0.59
The Gore Road & Castlemore School Exit (Signalized)	EB	EBL	0	A	0	51.1	D	0.10
		EBR	42.0	D	0.02	48.4	D	0.01
	NB	NBT	1.6	A	0.18	1.0	A	0.27
	SB	SBT	3.5	A	0.28	1.5	A	0.12
	Overall Intersection		3.7	A	0.26	1.6	A	0.27
The Gore Road & Fitzpatrick Drive (Unsignalized)	EB	EBLR	10.4	B	0.04	11.1	B	0.02
	NB	NBL	9.3	A	0.02	8.1	A	0.01
The Gore Road & Castle Oaks Crossing (Signalized)	WB	WBL	43.7	D	0.79	46.5	D	0.53
		WBR	27.3	C	0.11	39.3	D	0.03
	NB	NBT	16.1	B	0.19	3.8	A	0.30
		NBR	43.9	D	0.13	3.1	A	0.10
	SB	SBL	15.0	B	0.41	3.8	A	0.10
		SBT	13.0	B	0.32	3.4	A	0.10
	Overall Intersection		23.9	C	0.55	7.9	A	0.33
The Gore Road & Strathdale Road (Unsignalized)	EB	EBL	27.6	D	0.16	23.1	C	0.14
		EBR	11.9	B	0.11	10.1	B	0.05
	NB	NBL	10.2	B	0.01	8.6	A	0.08
The Gore Road & Pannahill Drive/Gardenbrooke Trail (Signalized)	EB	EBL	35.2	D	0.27	36.9	D	0.19
		EBT	37.9	D	0.14	39.0	D	0.09
		EBR	37.6	D	0.10	38.7	D	0.05
	WB	WBL	60.0	E	0.86	47.1	D	0.75
		WBT	37.4	D	0.19	37.6	D	0.26
	NB	NBL	13.0	B	0.18	4.5	A	0.10
		NBT	11.7	B	0.18	4.6	A	0.25
		NBR	35.1	D	0.17	2.5	A	0.17
	SB	SBL	3.2	A	0.07	9.8	A	0.06

Intersection	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
		SBT	4.5	A	0.39	11.6	B	0.20
		SBR	3.1	A	0.04	17.9	B	0.04
	Overall Intersection		20.0	B	0.52	15.8	B	0.40
The Gore Road & Cottrelle Boulevard (Signalized)	EB	EBL	39.9	D	0.51	32.8	C	0.15
		EBT	34.1	C	0.22	33.0	C	0.22
		EBR	34.2	C	0.19	31.4	C	0.03
	WB	WBL	38.9	D	0.48	34.4	C	0.28
		WBT	34.8	C	0.30	34.6	C	0.38
		WBR	32.9	C	0.07	35.1	D	0.36
	NB	NBL	17.8	B	0.45	3.4	A	0.20
		NBT	16.6	B	0.50	3.5	A	0.35
		NBR	39.1	D	0.03	0.5	A	0.07
	SB	SBL	6.3	A	0.13	11.3	B	0.30
		SBT	6.7	A	0.17	8.1	A	0.17
		SBR	3.9	A	0.03	39.4	D	0.02
	Overall Intersection		21.9	C	0.48	15.5	B	0.36
The Gore Road & Eastbrook Way (Signalized)	EB	EBL	38.0	D	0.09	41.4	D	0.16
		EBT	37.3	D	0.03	39.6	D	0.01
	WB	WBL	41.4	D	0.35	42.9	D	0.28
		WBT	37.2	D	0.02	39.6	D	0.01
	NB	NBL	3.5	A	0.02	1.3	A	0.06
		NBT	3.6	A	0.16	2.1	A	0.36
		NBR	2.7	A	0.06	0.3	A	0.06
	SB	SBL	3.9	A	0.03	2.7	A	0.03
		SBT	6.8	A	0.44	3.4	A	0.19
		SBR	3.9	A	0.01	3.2	A	0.01
	Overall Intersection		8.4	A	0.43	4.5	A	0.35
The Gore Road & Don Minaker Drive/Tyler Avenue (Signalized)	EB	EBL	38.2	D	0.25	41.7	D	0.20
		EBT	41.4	D	0.48	40.7	D	0.13
	WB	WBL	35.8	D	0.03	39.8	D	0.04
		WBT	36.1	D	0.07	40.6	D	0.12
	NB	NBL	6.1	A	0.22	1.9	A	0.30
		NBT	4.1	A	0.14	1.3	A	0.39
		NBR	4.0	A	0.00	0.0	A	0.01
	SB	SBL	3.4	A	0.07	3.1	A	0.05
		SBT	4.2	A	0.44	3.3	A	0.18
		SBR	2.3	A	0.04	2.7	A	0.02
	Overall Intersection		9.7	A	0.45	5.6	A	0.36

Intersection	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
The Gore Road & Ebenezer Rd. (Signalized)	EB	EBL	39.1	D	0.33	47.0	D	0.59
		EBT	36.8	D	0.23	35.7	D	0.25
		EBR	40.3	D	0.45	34.2	C	0.05
	WB	WBL	38.0	D	0.26	37.0	D	0.28
		WBT	37.3	D	0.29	38.0	D	0.47
	NB	NBL	13.1	B	0.27	7.3	A	0.56
		NBT	8.2	A	0.16	9.9	A	0.58
	SB	SBL	3.7	A	0.14	14.6	B	0.49
		SBT	15.0	B	0.65	11.8	B	0.30
	Overall Intersection		19.7	B	0.58	17.3	B	0.59
The Gore Road & Fogal Road (Signalized)	WB	WBL	41.5	D	0.13	29.7	C	0.19
		WBR	40.5	D	0.03	43.9	D	0.76
	NB	NBT	3.4	A	0.11	12.1	B	0.51
		NBR	3.1	A	0.03	8.2	A	0.05
	SB	SBL	4.7	A	0.55	25.8	C	0.62
		SBT	2.9	A	0.45	6.1	A	0.20
	Overall Intersection		4.7	A	0.50	17.6	B	0.66
The Gore Road & RR 107/ Queen St. E./RR 107 / Queen St. E. (Signalized)	NB	NBL	66.1	E	0.28	56.7	E	0.60
		NBT	65.3	E	0.23	53.5	D	0.47
	SB	SBL	138.4	F	1.14	74.3	E	0.62
		SBT	59.1	E	0.68	66.6	E	0.32
		SBR	0.1	A	0.07	0.1	A	0.06
	EB	EBL	25.9	C	0.30	433.9	F	1.82
		EBT	37.6	D	0.84	34.3	C	0.77
		EBR	0.6	A	0.33	0.2	A	0.15
	WB	WBL	41.7	D	0.24	34.7	C	0.17
		WBT	35.6	D	0.58	42.0	D	0.78
		WBR	0.1	A	0.11	0.5	A	0.30
	Overall Intersection		51.5	D	0.89	57.2	E	1.33

Based on the intersection capacity analyses results presented in **Table 4**, the majority of signalized and unsignalized intersections within the study area are operating at overall LOS C or better with reserved capacity during both the AM and PM peak hours, except for the intersection of The Gore Road and Queen Street, which is operating at overall LOS E during the PM peak hour. However, signal timing optimization may yield better LOS for the intersection of The Gore Road and Queen Street. The following individual movements are operating at LOS E or worse:

<u>AM Peak Hour</u>

- The Gore Road at Queen Street – northbound double left, northbound thru-right, southbound double left, and southbound through

PM Peak Hour

- The Gore Road at Queen Street – northbound double left, northbound thru-right, southbound double left, southbound through and eastbound left

As shown in **Table 4**, signalized intersection of The Gore Road and Queen Street is operating at overall LOS D (E) with a few individual movements operating at v/c ratio greater than 1.0 during the AM (PM) peak hour. The operational performance observed at this intersection is the result of the combination of heavy eastbound and westbound traffic along Queen Street and northbound/southbound left turn volumes on The Gore Road. During the AM peak hour, the eastbound traffic volume is observed to be greater than 2,000 vehicles, while similar eastbound traffic volume is also observed during the PM peak hour.

4. Future Conditions Operations

This section presents the analysis methodology and results for the future conditions operations. The future conditions horizon year is 2031 per study requirements. Travel demand in the study area was forecasted using the Regional travel demand model based on EMME. Intersection operational performance analysis was conducted using Synchro/SimTraffic, based on HCM methodology. A sensitivity analysis was conducted for the intersection of The Gore Road and Queen Street to assess the impacts of concurrent phasing of northbound and southbound movements as opposed to the existing north/south split phasing operations.

4.1 2031 Travel Demand Forecasting

The Peel Region travel demand forecasting model (EMME-based) was used and refined by AECOM to better reflect existing conditions road network and zone connectors in study area and to support a more realistic loading of traffic along The Gore Road. There were certain links that needed to be added or deleted from the model network in order to reflect existing or planned roads. The changes were primarily related to the existing and extended Highway 427 (e.g. addition of connection at Zenway Boulevard to the 2011 model and the addition of southbound off-ramp at interchange with Highway 7 in 2031), modifications to the connecting roadway network (e.g. removal of Cottrelle Boulevard connection between Humberwest Parkway and Goreway Drive from the 2011 model), and the allocation of traffic generated by large blocks of land among the facing roadways (additional and modified zone connectors). The model does include trips generated by planned development of the lands north of Castlemore Road.

Once the model was refined, 2011 to 2031 screenline growth rates (AM peak hour) were extracted from the refined model and applied to observed turning movement counts (TMCs) along The Gore Road (AM and PM peak hours). A four-lane cross-section (no widening for The Gore Road) was assumed in model runs that generated the growth rates.

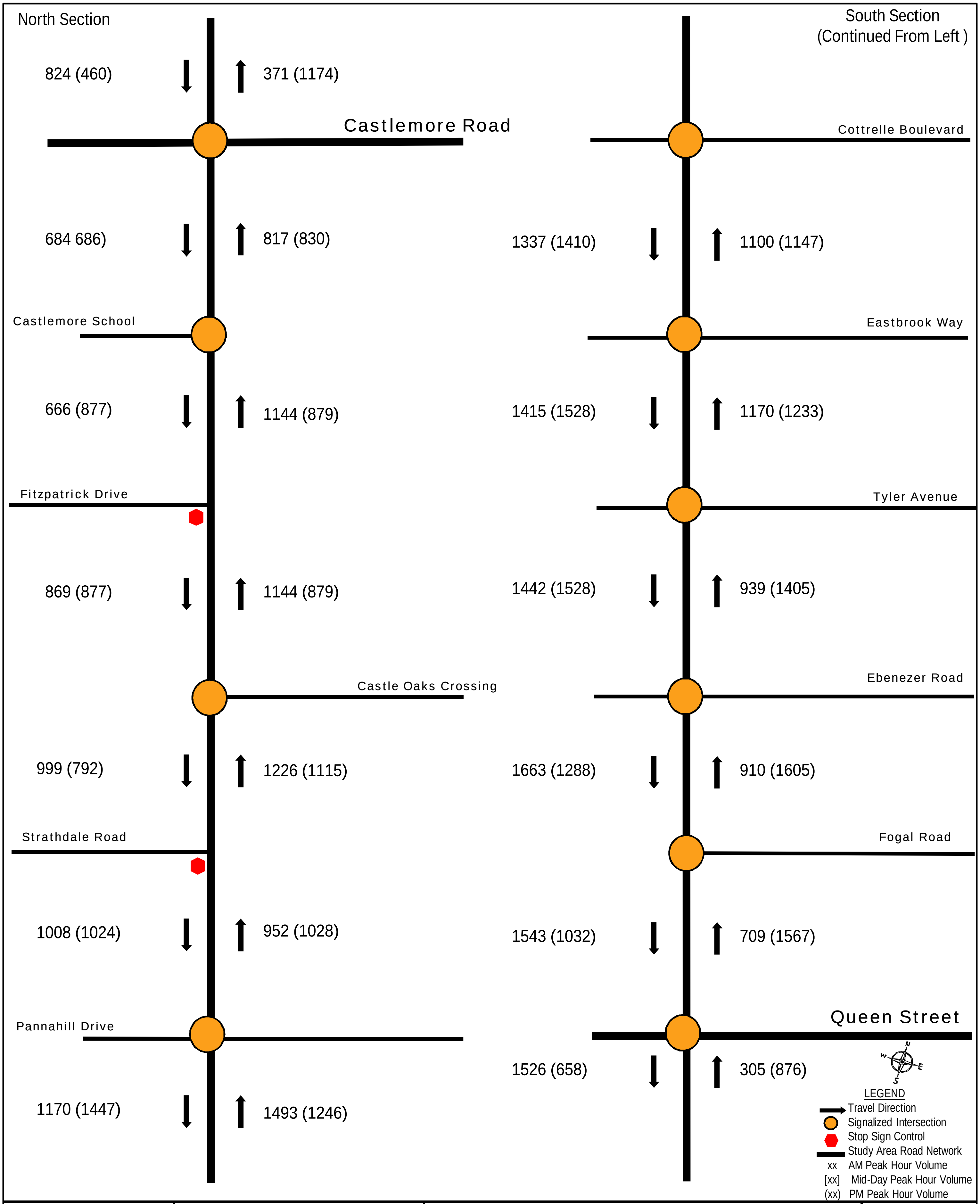
- South of Castlemore Road Screenline (extending from Goreway Drive to Clarkway Drive) AM peak growth rate applied to The Gore Road TMC’s between Castlemore Road and Queen Street: 4.5% northbound through and 1.7% southbound through.
- Growth applied in reverse direction for PM peak hour forecast

Various adjustments were then made to observed traffic counts to account for the re-distribution of traffic associated with removal of the Fogal Road / Zenway Boulevard interchange once the Highway 427 extension is in place (using EMME select link plots as a guide). The observed turning movement distribution was adjusted based on the EMME model forecast for each major intersection. Side street turn distribution was not changed.

Through a careful analysis of the forecasts, it was noted that the direct application of the model growth rate would result in a significant and unrealistic increase in the amount of traffic travelling down The Gore Road to the southbound left turn at Queen Street; the volumes being applied to the Queen Street intersection would be substantially above the volume currently accommodated by the double southbound left turn operating at capacity. Rather than providing a triple southbound left turn or assuming substantial queue growth, the southbound AM peak hour approach volume at Queen Street was capped at the current observed level and the “excess” demand was re-distributed to left turns at Cottrelle Boulevard and Castlemore Road.

Similarly, the forecast northbound left turn at The Road Gore and Queen Street resulting from application of the model’s 2011-to-2031 growth rate was adjusted in the PM peak hour to account for existing dual left turn capacity constraints. The movement was capped at the current observed level and remaining additional traffic re-distributed to the westbound through movement at The Gore Road and Queen Street (trips assumed to route through the intersection via Highway 50 instead).

The future 2031 peak hour link volumes and TMCs are illustrated in **Figure 8** and **Figure 9**, respectively.



AECOM

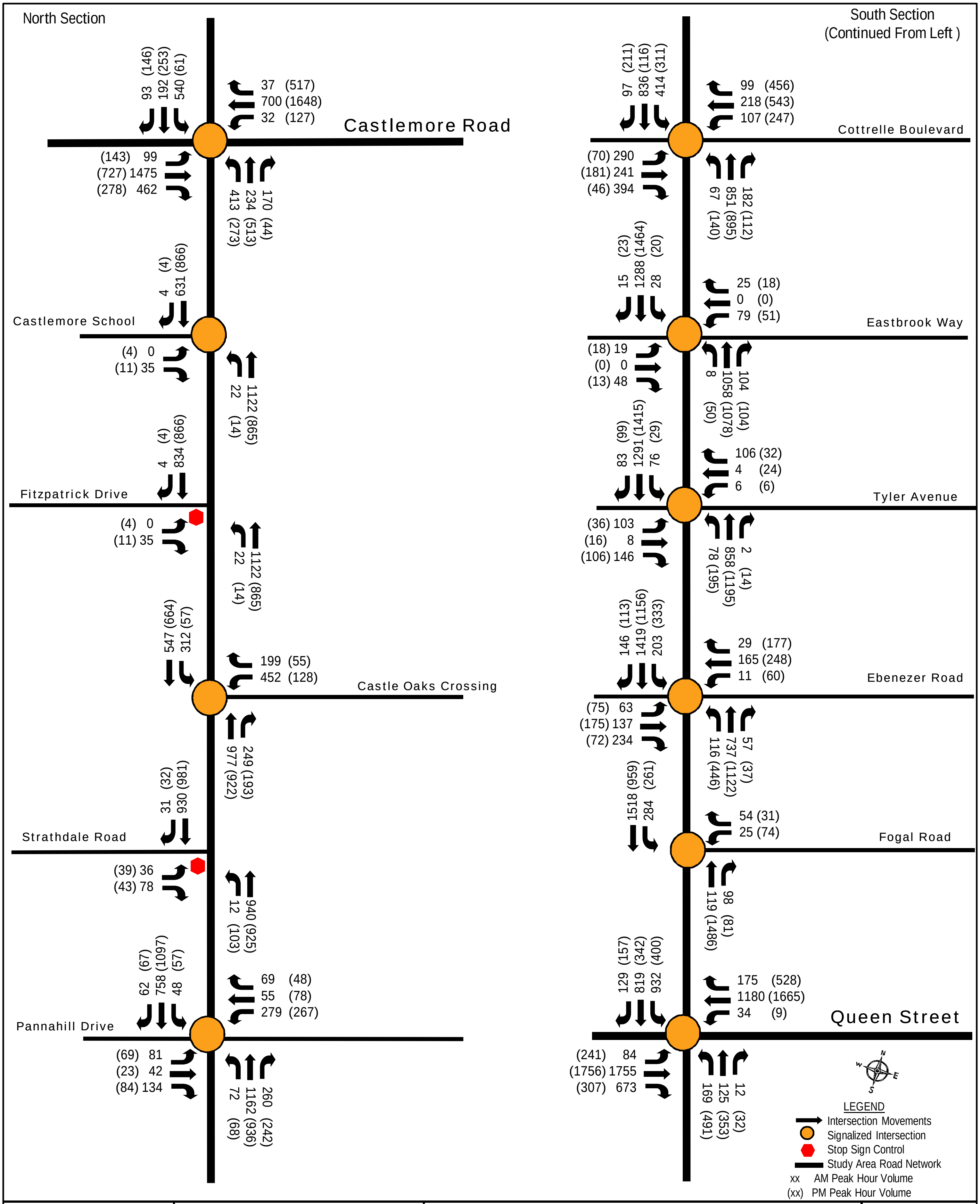
Project:

Gore Road Widening EA

Title:

Future Condition (2031) Weekday
AM (PM) Peak Hour Link Volumes

Figure 8



AECOM

Project:

Gore Road Widening EA

Title:

Future Condition (2031) Weekday
AM (PM) Peak Hour Turn Movement Counts

Figure 9

4.1.1 Future 2031 Forecast: Key Results

The results of intersection level analysis (using EMME model screenline growth rates that are applied to observed counts) does not suggest the need for additional through lane capacity improvements along The Gore Road beyond four-lanes between Castlemore Road and Queen Street by 2031. To the south of Queen Street, the Claireville Conservation Area serves as a natural barrier and The Gore Road only continues a short distance to connect to Highway 50. As a result, turns represent a significant portion of the overall flow along Gore Road, particularly at the approach to Queen Street.

AM peak hour capacity deficiencies along The Gore Road are generally focused around key intersections with major east-west roads that link to existing/future Highway 427 interchanges:

- Castlemore Road: Southbound left is at capacity in 2031 in the AM peak hour, which suggests the potential need for dual-left turn lanes. Eastbound through movement is also expected to operate above capacity with the existing 2 through lanes in 2031. However, Castlemore Road is planned to be widened to 6 lanes (3 lanes in each direction) and the additional through lane was found to address this issue.
- Cottrelle Boulevard: Southbound left is at or approaching capacity in 2031 in the AM peak hour, which suggests the potential need for dual-left turn lanes.
- Queen Street: Existing dual southbound left is expected to continue to operate near capacity in the 2031 AM peak hour with similar delays and performance to existing conditions. There may also be an opportunity to further relieve the critical southbound left movement in the future through improvements to the left turn capacity at Castlemore Road and Cottrelle Boulevard (as outlined above), which may draw additional traffic away from Queen Street.

PM peak hour capacity deficiencies were less significant:

- Potential capacity issues with southbound left at Fogal Road (260 veh/h), northbound left at Ebenezer Road (400 veh/h), and eastbound left at Castlemore Road (140 veh/h) can be addressed through signal optimization (split optimization and phasing) to stay under the volume/capacity thresholds: 0.85 for through and 0.90 for turns.
- Issues remain at The Gore Road and Queen Street.

4.2 Intersection Operations Analysis

Synchro/SimTraffic 9 was utilized to conduct a HCM and queue analysis at each intersection. A detailed assessment including level of service (LOS), delay, volume to capacity ratios (V/C), as well as the turn lanes queue and storage length analysis was conducted at each intersection for AM and PM peak hours**.**

4.2.1 Preliminary Alternative - The Gore Road and Queen Street Intersection

The preliminary analysis was conducted for The Gore Road/Queen Street intersection using the current NB and SB split phasing operations. The traffic operational analysis results for the intersection of The Gore Road and Queen Street are summarized in **Table 5**. Critical delays (LOS E or F) and v/c ratios greater than 0.85 are highlighted.

Table 5: 2031 Gore Road/Queen Street Intersection Split Phase Results – AM and PM Peak Hours

Intersection	Approach/Movement	AM Peak Hour: Split Phasing			PM Peak Hour: Split Phasing		
		Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
The Gore Road/Queen Street (Signalized)	NBL	68.7	E	0.42	57.8	E	0.61
	NBT	66.8	E	0.32	54.1	D	0.46
	SBL	69.7	E	0.93	104.1	F	0.96
	SBT	56.1	E	0.76	79.9	E	0.77
	SBR	0.1	A	0.09	0.2	A	0.11
	EBL	35.8	D	0.44	99.4	F	0.96
	EBT	56	E	0.94	33.9	C	0.75
	EBR	0.9	A	0.43	0.3	A	0.2
	WBL	42.1	D	0.41	39.7	D	0.16
	WBT	43.8	D	0.67	64.2	E	0.96
	WBR	0.2	A	0.12	0.6	A	0.35
	Overall Intersection	47.1	D	0.88	49.2	D	0.88

The intersection of The Gore Road and Queen Street is expected to operate at overall LOS D and v/c ratio of 0.88 in both AM and PM peak hours under split phasing. These preliminary analysis results were shared with the Region of Peel via email on January 12, 2016. Subsequently, AECOM was directed by the Region of Peel via email on February 1st, 2016 to consider concurrent phase operations in NB and SB directions on Gore Road.

Under concurrent phasing, the intersection approaches can be better aligned with improved sight lines for turning traffic. It also allows for reduction in pedestrian wait times and crossing distances. Considering that both The Gore Road and Queen Street are key corridors serviced by City of Brampton public transit routes (#501/501A Zum Queen, #1/1A Queen, #31 McVean, #35/35A Clarkway, and #50 Gore Road), the concurrent phasing option offers better balance between traffic and pedestrian operations at the intersection rather than the traffic-focused split phasing operations.

It should also be noted that the traffic demand forecast at this intersection (see Section 4.1 for details) considered a conservative approach in estimating the turning movements at this intersection. As noted previously, there may also be an opportunity to further relieve the critical southbound left movement at The Gore Road and Queen Street intersection in the future through improvements to the left turn capacity at Castlemore Road and Cottrelle Boulevard, which may draw additional traffic away from Queen Street.

4.2.2 Preferred Alternative – The Gore Road Corridor

Base on the ongoing discussions with the Region, the following improvements are proposed to accommodate future traffic growth on The Gore Road within the Study Area.

The Gore Road and Castlemore Road Intersection improvements

- Widening of Castlemore Road to a six (6) lane cross-section as planned
- Introduction of 90 m dual left turn lanes with “fully protected” turn phase

The Gore Road and Cottrelle Boulevard Intersection improvements

- Introduction of 80 m dual left turn lanes with “fully protected” turn phase

The Gore Road and Queen Street Intersection improvements

- Introduction of concurrent phasing for NB and SB directions in order to address the existing sight lines issues and to better accommodate pedestrian movements at this intersection.

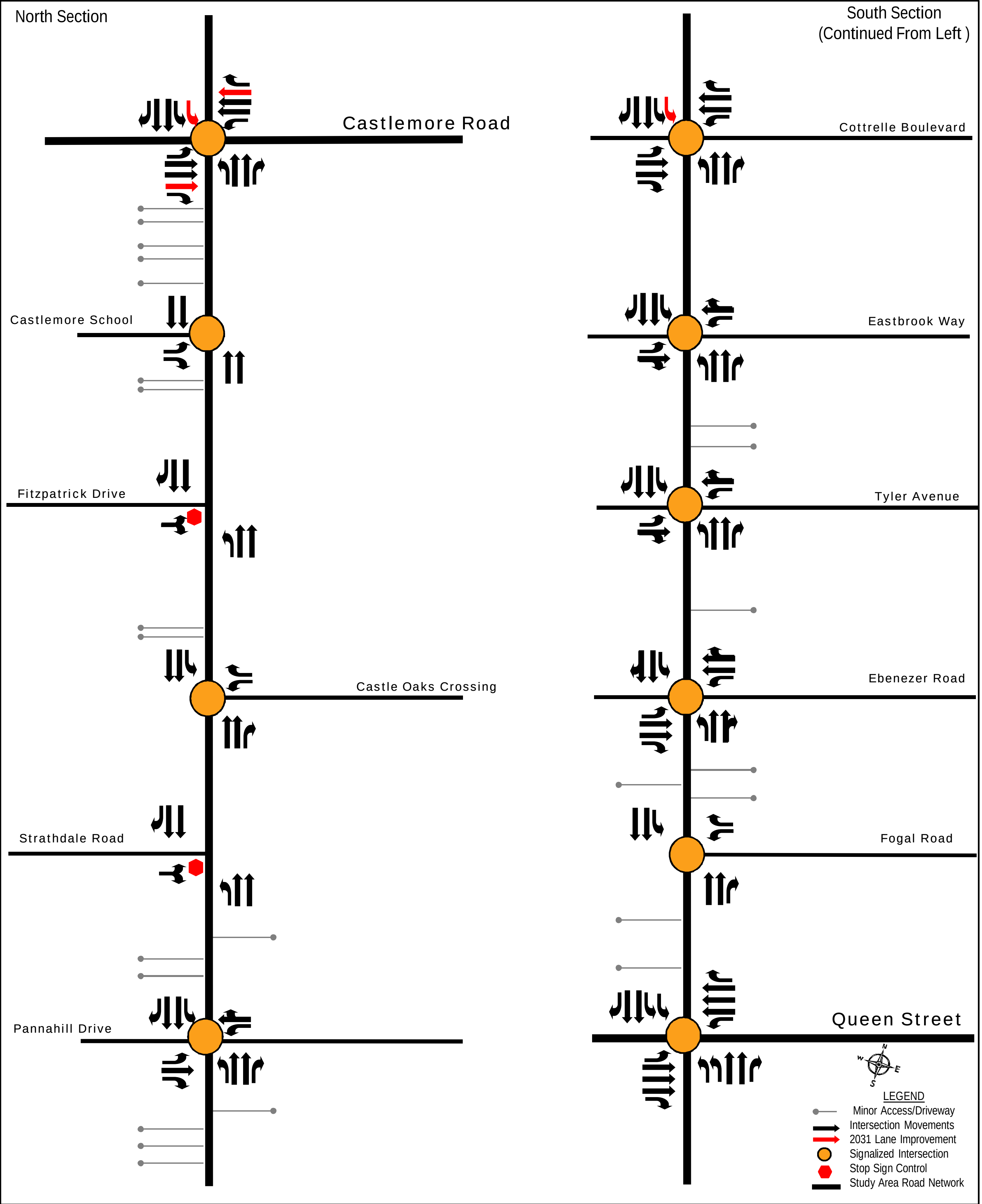
The signal timings splits provided by the Region are shown in **Table 6**.

Table 6: The Gore Road at Queen Street – Concurrent Phasing Splits

Approach	Movement	AM Peak Hour Split (s)	PM Peak Hour Split (s)
NB	NBL	22	28
	NBT	46	54
SB	SBL	32	20
	SBT	56	46
	SBR	56	46
EB	EBL	12	18
	EBT	70	74
	EBR	70	74
WB	WBL	12	12
	WBT	70	68
	WBR	70	68

Traffic operations analysis was conducted for each of the study area's signalized intersections in the 2031 AM and PM peak hour through Synchro/SimTraffic modelling. The future traffic operation analysis was conducted based on the 2031 traffic volumes, lane configurations (**Figure 8** to **Figure 10**) and the 2031 signal timings for AM and PM peak periods. The 2031 signal timings were obtained by optimizing the existing signal timings and maintaining the existing cycle length at each intersection based on the 2031 lane configuration and volumes.

Table 7 summarizes the HCM traffic operation results of the intersections along Gore Road. The highlighted values illustrate the movement is operating with critical delays (LOS E or F) or near/at capacity (v/c > 0.85). Detailed 2031 Synchro (HCM) output is provided in **Appendix C.**



AECOM

Project:

Gore Road Widening EA

Title:

Future Condition (2031) Traffic Control, Link and Intersection Lane Configuration

Figure 10

Table 7: 2031 Traffic Analysis Results – AM and PM Peak Hours

Intersection	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
The Gore Road & Castlemore Road (Signalized)	EB	EBL	23.4	C	0.33	41.4	D	0.74
		EBT	25.5	C	0.62	19.1	B	0.29
		EBR	21.2	C	0.30	18.3	B	0.18
	WB	WBL	31.7	C	0.36	35.2	D	0.50
		WBT	20.3	C	0.29	38.4	D	0.84
		WBR	17.5	B	0.02	33.8	C	0.58
	NB	NBL	46.2	D	0.83	57.2	E	0.83
		NBT	45.5	D	0.40	35.2	D	0.48
		NBR	47.2	D	0.42	29.8	C	0.03
	SB	SBL	58.5	E	0.86	57.9	E	0.38
		SBT	39.8	D	0.26	23.2	C	0.18
		SBR	37.9	D	0.06	22.4	C	0.09
	Overall Intersection		32.8	C	0.71	33.4	C	0.80
The Gore Road & Castlemore School Exit (Signalized)	EB	EBL	0	A	0	47.8	D	0.07
		EBR	42.0	D	0.02	46.8	D	0.01
	NB	NBT	1.0	A	0.42	0.9	A	0.31
	SB	SBT	3.3	A	0.23	2.3	A	0.30
	Overall Intersection		2.6	A	0.38	2.0	A	0.30
The Gore Road & Fitzpatrick Drive (Unsignalized)	EB	EBLR	11.1	B	0.06	14.0	B	0.04
	NB	NBL	9.6	A	0.03	9.7	A	0.02
The Gore Road & Castle Oaks Crossing (Signalized)	WB	WBL	47.1	D	0.86	42.7	D	0.51
		WBR	25.4	C	0.13	36.8	D	0.04
	NB	NBT	36.1	D	0.71	5.9	A	0.36
		NBR	75.8	E	0.16	6.3	A	0.12
	SB	SBL	37.9	D	0.84	5.1	A	0.15
		SBT	15.6	B	0.27	5.0	A	0.26
	Overall Intersection		36.8	D	0.87	8.8	A	0.38
The Gore Road & Strathdale Road (Unsignalized)	EB	EBL	16.8	C	0.11	19.9	C	0.14
		EBR	12.3	B	0.14	12.6	B	0.08
	NB	NBL	10.0	B	0.02	11.2	B	0.15
The Gore Road & Pannahill Drive/Gardenbrooke Trail (Signalized)	EB	EBL	37.0	D	0.35	36.8	D	0.30
		EBT	38.3	D	0.17	38.0	D	0.10
		EBR	38.2	D	0.15	38.0	D	0.09
	WB	WBL	63.7	E	0.89	65.4	E	0.89
		WBT	36.5	D	0.23	38.8	D	0.35
	NB	NBL	17.6	B	0.19	10.4	B	0.28
		NBT	22.7	C	0.54	10.0	B	0.42
		NBR	28.7	C	0.25	15.7	B	0.20
	SB	SBL	7.4	A	0.23	10.2	B	0.19

Intersection	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
		SBT	5.9	A	0.35	12.5	B	0.50
		SBR	5.4	A	0.04	9.8	A	0.05
	Overall Intersection		23.9	C	0.66	19.0	B	0.62
The Gore Road & Cottrelle Boulevard (Signalized)	EB	EBL	44.0	D	0.80	28.2	C	0.33
		EBT	25.0	C	0.21	25.0	C	0.16
		EBR	34.0	C	0.66	23.8	C	0.03
	WB	WBL	26.5	C	0.30	36.3	D	0.68
		WBT	24.7	C	0.19	28.4	C	0.48
		WBR	23.6	C	0.06	32.9	C	0.63
	NB	NBL	25.3	C	0.32	40.2	D	0.56
		NBT	32.7	C	0.70	38.6	D	0.65
		NBR	43.2	D	0.12	81.2	F	0.07
	SB	SBL	51.2	D	0.82	53.7	D	0.83
		SBT	9.0	A	0.44	29.0	C	0.73
		SBR	3.7	A	0.06	17.9	B	0.18
	Overall Intersection		28.8	C	0.76	34.5	C	0.75
The Gore Road & Eastbrook Way (Signalized)	EB	EBL	37.6	D	0.10	39.5	D	0.17
		EBT	37.1	D	0.06	37.7	D	0.01
	WB	WBL	41.8	D	0.41	40.9	D	0.28
		WBT	36.7	D	0.02	37.8	D	0.01
	NB	NBL	1.7	A	0.03	6.8	A	0.27
		NBT	2.1	A	0.41	4.0	A	0.41
		NBR	0.4	A	0.07	2.7	A	0.07
	SB	SBL	7.4	A	0.09	2.3	A	0.06
		SBT	11.7	B	0.52	5.1	A	0.60
		SBR	4.1	A	0.01	5.8	A	0.01
	Overall Intersection		9.1	A	0.50	5.9	A	0.55
The Gore Road & Don Minaker Drive/Tyler Avenue (Signalized)	EB	EBL	41.7	D	0.49	40.2	D	0.21
		EBT	39.1	D	0.39	39.2	D	0.14
	WB	WBL	35.1	D	0.03	38.2	D	0.04
		WBT	35.5	D	0.08	39.0	D	0.13
	NB	NBL	14.5	B	0.33	43.2	D	0.60
		NBT	10.3	B	0.34	2.9	A	0.45
		NBR	4.2	A	0.00	0.3	A	0.01
	SB	SBL	2.3	A	0.19	15.5	B	0.11
		SBT	3.4	A	0.51	19.4	B	0.69
		SBR	0.3	A	0.05	26.8	C	0.06
	Overall Intersection		10.5	B	0.51	16.2	B	0.60

Intersection	Approach/Movement		AM Peak Hour			PM Peak Hour		
			Delay (s)	LOS	v/c	Delay (s)	LOS	v/c
The Gore Road & Ebenezer Rd. (Signalized)	EB	EBL	39.0	D	0.33	52.1	D	0.63
		EBT	36.7	D	0.23	35.9	D	0.27
		EBR	40.3	D	0.45	34.1	C	0.05
	WB	WBL	35.4	D	0.06	37.3	D	0.29
		WBT	37.4	D	0.31	38.0	D	0.47
	NB	NBL	21.4	C	0.48	28.6	C	0.77
		NBT	11.6	B	0.40	40.6	D	0.72
	SB	SBL	3.4	A	0.40	20.7	C	0.72
		SBT	14.9	B	0.76	59.6	E	0.97
	Overall Intersection		18.2	B	0.67	43.2	D	0.83
The Gore Road & Fogal Road (Signalized)	WB	WBL	41.6	D	0.14	42.7	D	0.36
		WBR	40.6	D	0.03	39.0	D	0.02
	NB	NBT	3.8	A	0.23	20.8	C	0.76
		NBR	3.3	A	0.07	11.1	B	0.08
	SB	SBL	3.3	A	0.49	63.8	E	0.70
		SBT	2.0	A	0.57	0.7	A	0.37
	Overall Intersection		3.8	A	0.52	18.5	B	0.69
The Gore Road & RR 107/ Queen St. E./RR 107 / Queen St. E (Signalized)	NB	NBL	73.2	E	0.55	125.5	F	1.05
		NBT	48.0	D	0.16	45.9	D	0.37
	SB	SBL	392.9	F	1.71	255.8	F	1.36
		SBT	52.8	D	0.73	52.0	D	0.39
		SBR	39.3	D	0.10	48.0	D	0.13
	EB	EBL	29.9	C	0.42	163.0	F	1.16
		EBT	56.0	E	0.94	40.7	D	0.82
		EBR	46.7	D	0.72	25.8	C	0.20
	WB	WBL	35.6	D	0.30	34.5	C	0.15
		WBT	40.9	D	0.64	57.7	E	0.93
		WBR	31.2	C	0.12	42.3	D	0.55
	Overall Intersection		101.9	F	1.02	70.7	E	0.95

HCM Analysis Results

The critical movements with LOS E/F and v/c ratio above 0.85 for through movements and above 0.90 for turns are highlighted in **Table 7**. Based on the intersection capacity analyses results presented in **Table 7**, the majority of signalized intersections in the study area are expected to operate at overall LOS D or better during AM and PM peak hours under 2031 traffic condition. There is a number of left turns which is expected experience critical level of delay (LOS E or F) but without exceeding capacity.

The intersection of The Gore Road and Queen Street operates at overall LOS F in the AM peak hour and at overall LOS E in the AM peak hour. Under concurrent phasing operations, the intersection does not have sufficient capacity to accommodate both the high volume left-turning traffic on Gore Road (932 vph for southbound left in the AM peak hour, 491 vph for northbound left in the PM peak hour) and the high volume through-traffic on Queen Street (ranges between 1,180 and 1,756 vph per direction).

4.3 Queue Analysis

Table 8 summarizes the storage length and queue analysis results of the key intersections along Gore Road. The highlighted values illustrate that the 95th percentile queues are expected to exceed the storage.

Detailed 2031 SimTraffic output is provided in **Appendix D**.

Table 8: 2031 Queue Analysis Results

Intersection	Approach/ Movement		AM Peak Hour		PM Peak Hour		Available Storage Length (m)
			Avg. Queue (m)	95th % Queue (m)	Avg. Queue (m)	95th % Queue (m)	
The Gore Road & Castlemore Road	EB	EBL	22.4	46.5	27.0	51.1	75
		EBR	36.5	75.0	18.5	31.3	90
	WB	WBL	13.0	28.0	46.8	88.1	70
		WBR	4.7	12.6	59.6	110.4	130
	NB	NBL	63.3	106.1	53.4	100.6	130
		NBR	18.9	36.6	6.9	26.4	60
	SB	SBL	61.8	95.3	5.1	15.5	40 (Existing single left) 90 (Proposed dual left, total 180)
		SBL	68.5	99.1	12.4	24.8	
		SBR	8.1	18.2	14.2	30.7	35
The Gore Road & Castlemore School Exit	EB	EBL	7.0	15.8	0.8	4.4	15
		EBR	7.2	15.1	3.0	9.8	15
The Gore Road & Fitzpatrick Drive	NB	NBL	3.2	10.5	2.1	8.1	30
	SB	SBR	0.2	2.7	0.0	1.0	30
The Gore Road & Castle Oaks Crossing	WB	WBL	84.2	134.5	25.2	43.5	30
	NB	NBR	56.1	118.6	6.0	14.5	90
	SB	SBL	34.3	43.8	10.5	23.3	30
The Gore Road & Strathdale Road	NB	NBL	1.3	6.8	10.4	21.2	60
		SBR	0.2	2.4	0.5	3.9	35
The Gore Road & Pannahill Drive/Gardenbrooke Trail	EB	EBL	13.3	24.1	12.5	23.6	15
		EBR	15.2	31.6	12.6	26.3	35
	WB	WBL	46.1	61.1	43.0	62.1	45
	NB	NBL	17.9	51.8	11.6	28.2	65
		NBR	30.2	57.5	20.1	48.2	35
	SB	SBL	12.8	29.8	15.5	39.3	45
		SBR	5.8	17.3	15.2	45.2	40
The Gore Road & Cottrelle Boulevard	EB	EBL	70.5	103.0	17.7	33.6	80
		EBR	45.0	75.9	7.6	19.5	80
	WB	WBL	18.7	33.4	51.8	85.5	85
		WBR	10.9	21.9	50.8	79.7	65

Intersection	Approach/ Movement		AM Peak Hour		PM Peak Hour		Available Storage Length (m)
			Avg. Queue (m)	95th % Queue (m)	Avg. Queue (m)	95th % Queue (m)	
	NB	NBL	17.6	38.7	34.6	67.2	30
		NBR	28.0	69.8	34.1	81.6	60
	SB	SBL	39.7	60.4	33.4	53.7	80 (Existing single left) 80 (Proposed dual left, total 160)
		SBL	44.6	64.8	46.2	77.5	
		SBR	4.1	10.1	9.7	18.6	155
The Gore Road & Eastbrook Way	EB	EBL	5.2	15.8	7.3	18.1	20
	WB	WBL	15.0	25.1	11.5	22.7	20
	NB	NBL	1.5	6.5	9.9	22.7	40
		NBR	6.2	22.7	6.1	26.0	40
	SB	SBL	6.3	34.8	17.0	98.1	200
		SBR	3.1	19.7	2.7	17.9	40
The Gore Road & Don Minaker Drive/Tyler Avenue	EB	EBL	21.6	38.3	8.5	19.3	45
	WB	WBL	1.9	7.9	1.2	6.0	30
	NB	NBL	17.3	34.9	23.7	42.5	40
		NBR	0.0	0.8	1.1	7.8	40
	SB	SBL	20.6	70.0	21.0	78.6	90
		SBR	17.0	84.2	42.5	134.3	120
The Gore Road & Ebenezer Rd.	EB	EBL	11.6	23.7	16.0	31.8	100
		EBR	36.2	68.7	10.2	21.0	85
	WB	WBL	2.9	10.6	12.2	27.5	45
		WBTR	15.6	27.0	36.0	57.8	60
	NB	NBL	15.2	28.6	94.7	156.2	125
	SB	SBL	39.4	73.4	55.2	67.5	50
The Gore Road & Fogal Road	WB	WBL	6.9	18.3	17.3	37.5	100
		WBR	6.1	12.6	4.4	11.7	100
	NB	NBR	4.6	13.6	12.6	38.6	35
	SB	SBL	126.0	235.8	45.0	95.7	160
The Gore Road & RR 107/ Queen St. E./RR 107 / Queen St. E.	NB	NBL	18.7	47.4	66.5	69.9	60
		NBL	34.6	54.9	74.6	75.6	60
	SB	SBL	84.2	86.5	81.4	94.1	80
		SBL	92.0	93.3	90.3	101.2	80
		SBR	10.4	56.9	2.3	22.9	80
	EB	EBL	37.7	115.1	123.6	187.8	150
		EBR	24.4	79.6	1.3	23.0	150
	WB	WBL	11.6	33.5	8.1	55.3	140
		WBR	0.0	0.0	12.5	67.8	150

Queue Analysis Results

The queue analysis results show that, for some of the intersections, queues along The Gore Road (NB/SB) and side streets (EB/WB) are expected to exceed the available storage lengths based on the 95th percentile queuing results. In the current analysis, dual southbound left turns are proposed at the intersections of The Gore Road at Castlemore and Cottrelle Boulevard, which is expected to be providing sufficient storage for their respective turning movements. The feasibility of more storage at the other locations could be further investigated to accommodate 95th percentile queues at those locations.

At the intersection of The Gore Road and Queen Street, the southbound and northbound left turning movements are expected to have 95th percentile queues exceeding capacity, even with the dual left turns. The southbound left turn is critical in the AM peak hour and the northbound left turn is critical in the PM peak hour. For the AM peak hour, the southbound left turn is overcapacity and the queues may spill back several intersections upstream, reaching or exceeding Ebenezer Road. SimTraffic simulation for the AM peak hour showed that the left side southbound through lane (of the two through lanes) on The Gore Road is used by the aforementioned queue spillback, from the intersection at Queen Street to Ebenezer Road.

5. Summary of Conclusions and Recommendations

AECOM Canada Ltd. was retained by the Regional Municipality of Peel to undertake a Schedule ‘C’ Class Environmental Assessment (EA) Study to confirm the opportunity to improve traffic operations by roadway widening on The Gore Road (Regional Road 8) from Queen Street (Regional Road 107) to approximately 400 m north of Castlemore Road, in the City of Brampton.

According to Peel Region’s 2012 Updated Long Range Transportation Plan (LRTP), this regional-wide transportation master plan identifies the need to widen The Gore Road within the study area to address the capacity deficiency issue emerging from the future traffic demand.

The traffic study report assesses the existing traffic conditions at the key intersections along The Gore Road between Queen Street and approximately 400 m north of Castlemore Road; estimates and examines the traffic growth and expected future traffic volumes; analyzes the traffic impacts from the introduction of the projected traffic volumes; and finally proposes infrastructure improvements to address the deficiencies and accommodate the future traffic growth for the horizon years of 2021 and 2031.

5.1 Existing Conditions

1. The Gore Road is a north-south major arterial in the City of Brampton, under the jurisdiction of the Regional Municipality of Peel. In the study area, it has two lanes per direction plus storage lanes for turns at intersections. It has various posted speed limits along the study area, ranging from 40 km/h in the school zone south of Castlemore Road to 70 km/h between Queen Street and Cottrelle Boulevard.
2. Based on existing counts, the peak direction is southbound in the AM peak hour and northbound in the PM peak hour.
3. Link volumes capacity analysis results indicate that Gore Road corridor can easily accommodate existing traffic volumes without any significant traffic operations issue and also have room for additional growth in the future.
4. With the exception of the intersection of The Gore Road and Queen Street, signalized and unsignalized intersections within the study area operate at overall LOS C or better with reserved capacity during both the AM and PM peak hours.

5. The signalized intersection of The Gore Road and Queen Street operate at overall LOS D (E) with some movements at or above theoretical capacity during the AM (PM) peak hour. The operational performance observed at this intersection is the result of the combination of heavy eastbound and westbound traffic along Queen Street and northbound/southbound left turn volumes on The Gore Road.

5.2 Future Conditions

1. The Peel Region travel demand forecasting model (EMME-based) was refined and used to forecast 2031 horizon year traffic levels on The Gore Road and the study area intersections.
    a. The model accounted for major changes within or near the study area, such as the extension of Highway 427 and its new interchanges and planned developments of lands north of Castlemore Road.
    b. Based on screenline results, AM peak hour growth rate (annualized) was found to be 4.5% for northbound through and 1.7% for southbound through movements. Growth rates were assumed to be identical in reverse directions for the PM peak hour.
    c. The direct application of the model growth rate would result in a significant and unrealistic increase in the amount of traffic, given the capacity constraints at intersections. Additional adjustments were made to the future volume forecasts; for example, the southbound AM peak hour approach volume at Queen Street was capped at the current observed level and the excess demand was re-distributed to left turns at Cottrelle Boulevard and Castlemore Road.
2. Operational alternatives were considered for the intersection of The Gore Road and Queen Street.
    a. The preliminary analysis was conducted for The Gore Road/Queen Street intersection using the current northbound and southbound split phasing operations. The intersection of The Gore Road and Queen Street is expected to operate at overall LOS D and v/c ratio of 0.88 in both AM and PM peak hours under split phasing.
    b. Under concurrent phasing, the intersection approaches can be better aligned with improved sight lines for turning traffic. It also allows for reduction in pedestrian wait times and crossing distances. In terms of operations, this intersection is expected to operate at overall LOS E (F) in the AM (PM) peak hour.
    c. Based on the alternatives analysis, concurrent phasing is preferred in order to address the existing sight lines issues and to better accommodate pedestrian movements at this intersection. To relieve the critical southbound left movement at The Gore Road and Queen Street intersection, the left turn capacity at the intersection of Castlemore Road and Cottrelle Boulevard can be increased through future improvements.
3. With the exception of the intersection of The Gore Road and Queen Street, signalized intersections in the study area are expected to operate at overall LOS D or better during AM and PM peak hours under 2031 traffic condition. There is a number of left turns expected experience critical level of delay but without exceeding capacity.
4. At the intersection of The Gore Road and Queen Street, the southbound and northbound left turning movements are expected to have 95th percentile queues exceeding capacity, even with the dual left turns. For the AM peak hour, the southbound queue on The Gore Road caused by limited southbound left turn capacity at the Queen Street can block access to or limit the entry from the Embassy Grand Convention Center, Fogal Road, Ebenezer Road, and other local roads and private driveways in between Queen Street and Ebenezer Road.

5.3 Recommendations

1. Base on the analysis results and discussions with the Region, the following improvements are proposed to accommodate future traffic growth on The Gore Road within the Study Area.

   The Gore Road and Castlemore Road Intersection

   a. Widening of Castlemore Road to a six (6) lane cross-section as planned
   b. Introduction of 90 m dual left turn lanes with "fully protected" turn phase

   The Gore Road and Cottrelle Boulevard Intersection

   c. Introduction of 80 m dual left turn lanes with "fully protected" turn phase

   The Gore Road and Queen Street Intersection

   d. Introduction of concurrent phasing for NB and SB directions in order to address the existing sight lines issues and to better accommodate pedestrian movements at this intersection.
2. Queuing analysis results suggest that in the AM peak hour, the southbound left turn is overcapacity and queues may spillback several intersections upstream, reaching up to Ebenezer Road. Although the recommended improvements to left turn capacity at other intersections may likely relieve some of the southbound left turn demand at Queen Street, additional travel demand management measures and transit-oriented policies may be needed to further mitigate the potential blockages.

APPENDICES

APPENDIX A

Existing Turning Movement Counts/Signal Timings/ATRs

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Region of Peel
Site #: 0000805384
Intersection: The Gore Rd & Castlemore Rd
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total:	619
North Entering:	484
North Peds:	1
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	2	19	6	27
Cars	43	370	44	457
Totals	45	389	50	

Cyclists	0
Trucks	18
Cars	117
Totals	135

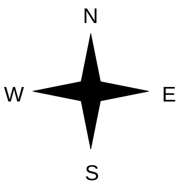
East Leg Total:	1628
East Entering:	780
East Peds:	0
Peds Cross:	⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	39	926	965

Cars	Trucks	Cyclists	Totals
18	7	0	25
683	25	0	708
46	1	0	47
747	33	0	

Castlemore Road



Cyclists	Trucks	Cars	Totals
0	2	16	18
0	17	737	754
0	19	384	403
0	38	1137	

Castlemore Road

Cars	Trucks	Cyclists	Totals
821	27	0	848

The Gore Road

Peds Cross:	⧗
West Peds:	2
West Entering:	1175
West Leg Total:	2140

Cars	800
Trucks	39
Cyclists	0
Totals	839

Cars	200	83	40	323
Trucks	12	9	4	25
Cyclists	0	0	0	0
Totals	212	92	44	

Peds Cross:	⋈
South Peds:	8
South Entering:	348
South Leg Total:	1187

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

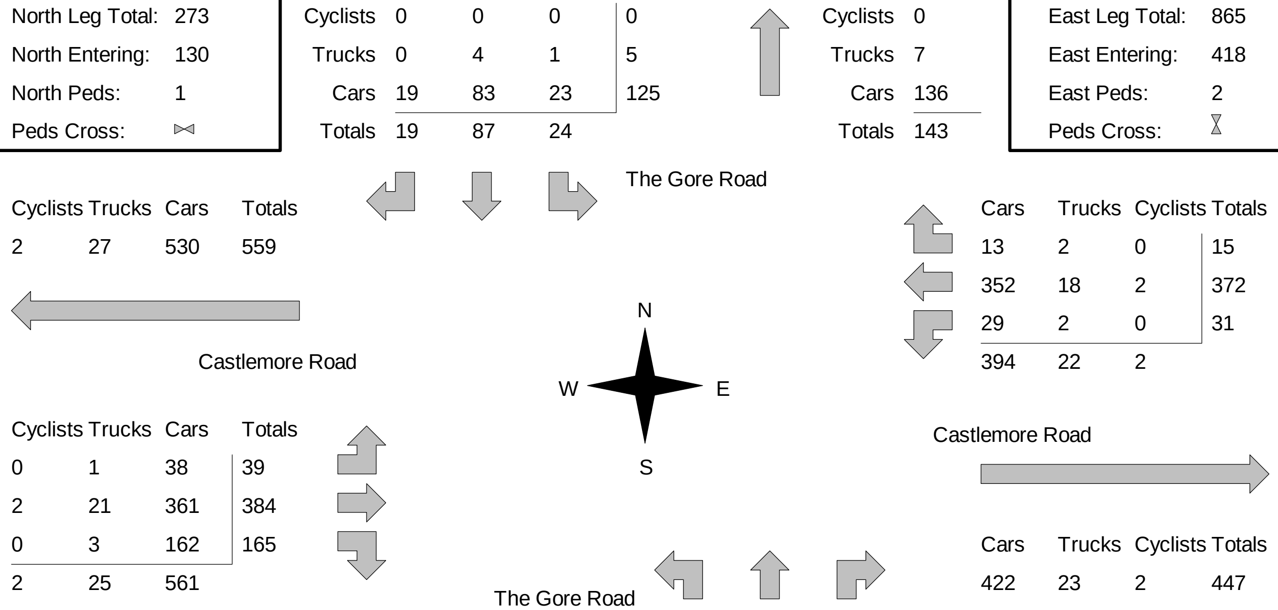
Municipality: Region of Peel
Site #: 0000805384
Intersection: The Gore Rd & Castlemore Rd
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S



North Leg Total:	273
North Entering:	130
North Peds:	1
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	0	4	1	5
Cars	19	83	23	125
Totals	19	87	24	

Cyclists	0
Trucks	7
Cars	136
Totals	143

East Leg Total:	865
East Entering:	418
East Peds:	2
Peds Cross:	⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
2	27	530	559

Cars	Trucks	Cyclists	Totals
13	2	0	15
352	18	2	372
29	2	0	31
394	22	2	

Castlemore Road

Cyclists	Trucks	Cars	Totals
0	1	38	39
2	21	361	384
0	3	162	165
2	25	561	

Castlemore Road

Cars	Trucks	Cyclists	Totals
422	23	2	447

The Gore Road

Peds Cross:	⧗
West Peds:	1
West Entering:	588
West Leg Total:	1147

Cars	274
Trucks	9
Cyclists	0
Totals	283

Cars	159	85	38	282
Trucks	9	4	1	14
Cyclists	0	0	0	0
Totals	168	89	39	

Peds Cross:	⋈
South Peds:	12
South Entering:	296
South Leg Total:	579

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Region of Peel
Site #: 0000805384
Intersection: The Gore Rd & Castlemore Rd
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 750
North Entering: 191
North Peds: 1
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	1	4	3	8
Cars	37	123	23	183
Totals	38	127	26	

Cyclists	0
Trucks	16
Cars	543
Totals	559

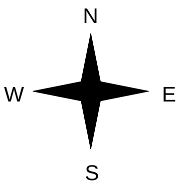
East Leg Total: 1791
East Entering: 1030
East Peds: 0
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	14	1218	1232

Cars	Trucks	Cyclists	Totals
80	2	0	82
895	11	0	906
42	0	0	42
1017	13	0	

Castlemore Road



Cyclists	Trucks	Cars	Totals
0	1	63	64
0	11	662	673
0	6	200	206
0	18	925	

Castlemore Road

Cars	Trucks	Cyclists	Totals
745	16	0	761

The Gore Road

Peds Cross: ⧗
West Peds: 0
West Entering: 943
West Leg Total: 2175

Cars	365
Trucks	10
Cyclists	0
Totals	375

Cars	286	400	60	746
Trucks	2	13	2	17
Cyclists	0	0	0	0
Totals	288	413	62	

Peds Cross: ⋈
South Peds: 1
South Entering: 763
South Leg Total: 1138

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000805384
Intersection: The Gore Rd & Castlemore Rd
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 3977
North Entering: 1881
North Peds: 9
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	9	63	31	103
Cars	237	1335	206	1778
Totals	246	1398	237	

Cyclists	0
Trucks	117
Cars	1979
Totals	2096

East Leg Total: 10345
East Entering: 5186
East Peds: 7
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
4	225	6232	6461

Castlemore Road

Cars	Trucks	Cyclists	Totals
268	25	0	293
4383	165	4	4552
327	14	0	341
4978	204	4	

N
W E
S

Cyclists	Trucks	Cars	Totals
0	8	302	310
7	147	4406	4560
0	65	1773	1838
7	220	6481	

Castlemore Road

Cars	Trucks	Cyclists	Totals
4949	203	7	5159

The Gore Road

Peds Cross: ⧗
West Peds: 8
West Entering: 6708
West Leg Total: 13169

Cars	3435
Trucks	142
Cyclists	0
Totals	3577

Cars	1612	1409	337	3358
Trucks	51	84	25	160
Cyclists	0	0	0	0
Totals	1663	1493	362	

Peds Cross: ⋈
South Peds: 31
South Entering: 3518
South Leg Total: 7095

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Rd & Castlemore Rd | **Count Date:** 25-Apr-2013 | **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	39	424	31	494	2	728	8:00:00	130	81	23	234	1
9:00:00	43	320	44	407	0	751	9:00:00	211	97	36	344	9
11:00:00	0	5	1	6	0	11	11:00:00	1	2	2	5	0
12:00:00	30	115	25	170	0	468	12:00:00	151	103	44	298	1
13:00:00	22	85	37	144	3	439	13:00:00	154	93	48	295	7
14:00:00	26	86	21	133	0	432	14:00:00	178	99	22	299	6
15:00:00	0	0	0	0	0	9	15:00:00	5	3	1	9	0
16:00:00	35	93	21	149	2	734	16:00:00	287	239	59	585	3
17:00:00	13	140	31	184	1	927	17:00:00	270	399	74	743	2
18:00:00	29	129	35	193	1	896	18:00:00	273	377	53	703	2
Totals:	237	1397	246	1880	9	5395		1660	1493	362	3515	31

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	3	0	3	0	5	7:00:00	0	2	0	2	0
8:00:00	53	605	26	684	1	1831	8:00:00	18	854	275	1147	2
9:00:00	65	636	30	731	0	1826	9:00:00	21	696	378	1095	0
11:00:00	1	7	0	8	0	14	11:00:00	0	4	2	6	0
12:00:00	41	267	15	323	0	881	12:00:00	29	336	193	558	1
13:00:00	36	347	17	400	3	970	13:00:00	27	366	177	570	1
14:00:00	22	369	15	406	0	993	14:00:00	48	387	152	587	1
15:00:00	2	5	1	8	0	20	15:00:00	0	11	1	12	0
16:00:00	45	607	51	703	2	1646	16:00:00	35	630	278	943	2
17:00:00	29	899	51	979	1	1870	17:00:00	70	667	154	891	1
18:00:00	47	807	87	941	0	1838	18:00:00	62	607	228	897	0
Totals:	341	4552	293	5186	7	11894		310	4560	1838	6708	8

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	928	791	407	439	463	715	1001	919

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000805384

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	7	7	79	79	5	5	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:30:00	15	8	195	116	12	7	1	1	7	3	1	1	0	0	0	0	0	0	1	1
7:45:00	21	6	309	114	23	11	4	3	10	3	1	0	0	0	0	0	0	0	1	0
8:00:00	33	12	414	105	30	7	6	2	10	0	1	0	0	0	0	0	0	0	2	1
8:15:00	44	11	503	89	39	9	6	0	25	15	1	0	0	0	0	0	0	0	2	0
8:30:00	53	9	594	91	46	7	9	3	29	4	3	2	0	0	0	0	0	0	2	0
8:45:00	65	12	679	85	66	20	10	1	29	0	3	0	0	0	0	0	0	0	2	0
9:00:00	71	6	714	35	72	6	11	1	30	1	3	0	0	0	0	0	0	0	2	0
9:00:09	71	0	714	0	72	0	11	0	30	0	3	0	0	0	0	0	0	0	2	0
11:00:00	71	0	719	5	73	1	11	0	30	0	3	0	0	0	0	0	0	0	2	0
11:15:00	75	4	748	29	78	5	12	1	31	1	3	0	0	0	0	0	0	0	2	0
11:30:00	81	6	770	22	81	3	12	0	35	4	3	0	0	0	0	0	0	0	2	0
11:45:00	92	11	803	33	90	9	13	1	35	0	3	0	0	0	0	0	0	0	2	0
12:00:00	99	7	828	25	97	7	13	0	36	1	4	1	0	0	0	0	0	0	2	0
12:15:00	103	4	854	26	107	10	14	1	38	2	4	0	0	0	0	0	0	0	3	1
12:30:00	108	5	874	20	119	12	14	0	38	0	4	0	0	0	0	0	0	0	4	1
12:45:00	112	4	888	14	130	11	15	1	38	0	5	1	0	0	0	0	0	0	4	0
13:00:00	119	7	911	23	133	3	15	0	38	0	5	0	0	0	0	0	0	0	5	1
13:15:00	123	4	929	18	140	7	15	0	39	1	5	0	0	0	0	0	0	0	5	0
13:30:00	127	4	949	20	147	7	16	1	41	2	5	0	0	0	0	0	0	0	5	0
13:45:00	135	8	971	22	149	2	16	0	42	1	5	0	0	0	0	0	0	0	5	0
14:00:00	143	8	991	20	154	5	17	1	44	2	5	0	0	0	0	0	0	0	5	0
14:00:34	143	0	991	0	154	0	17	0	44	0	5	0	0	0	0	0	0	0	5	0
15:00:00	143	0	991	0	154	0	17	0	44	0	5	0	0	0	0	0	0	0	5	0
15:15:00	151	8	1006	15	160	6	18	1	46	2	6	1	0	0	0	0	0	0	6	1
15:30:00	156	5	1033	27	164	4	20	2	50	4	7	1	0	0	0	0	0	0	6	0
15:45:00	161	5	1046	13	170	6	23	3	51	1	7	0	0	0	0	0	0	0	6	0
16:00:00	170	9	1073	27	172	2	25	2	55	4	8	1	0	0	0	0	0	0	7	1
16:15:00	173	3	1102	29	181	9	26	1	57	2	8	0	0	0	0	0	0	0	8	1
16:30:00	176	3	1138	36	189	8	27	1	59	2	8	0	0	0	0	0	0	0	8	0
16:45:00	179	3	1175	37	196	7	28	1	59	0	8	0	0	0	0	0	0	0	8	0
17:00:00	180	1	1209	34	202	6	28	0	59	0	9	1	0	0	0	0	0	0	8	0
17:15:00	187	7	1242	33	218	16	29	1	61	2	9	0	0	0	0	0	0	0	8	0
17:30:00	192	5	1270	28	223	5	30	1	62	1	9	0	0	0	0	0	0	0	8	0
17:45:00	202	10	1298	28	233	10	31	1	63	1	9	0	0	0	0	0	0	0	9	1
18:00:00	206	4	1334	36	237	4	31	0	63	0	9	0	0	0	0	0	0	0	9	0
18:00:12	206	0	1335	1	237	0	31	0	63	0	9	0	0	0	0	0	0	0	9	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000805384

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	9	9	113	110	15	15	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	25	16	256	143	19	4	1	1	9	8	0	0	0	0	1	1	0	0	1	1
7:45:00	37	12	414	158	22	3	3	2	17	8	1	1	0	0	1	0	0	0	1	0
8:00:00	50	13	583	169	24	2	3	0	24	7	2	1	0	0	1	0	0	0	1	0
8:15:00	60	10	761	178	30	6	3	0	30	6	5	3	0	0	1	0	0	0	1	0
8:30:00	70	10	916	155	34	4	4	1	36	6	6	1	0	0	1	0	0	0	1	0
8:45:00	83	13	1097	181	40	6	4	0	42	6	8	2	0	0	1	0	0	0	1	0
9:00:00	112	29	1196	99	47	7	6	2	47	5	9	1	0	0	1	0	0	0	1	0
9:00:09	113	1	1198	2	47	0	6	0	47	0	9	0	0	0	1	0	0	0	1	0
11:00:00	113	0	1203	5	47	0	6	0	47	0	9	0	0	0	1	0	0	0	1	0
11:15:00	125	12	1274	71	49	2	6	0	51	4	9	0	0	0	1	0	0	0	1	0
11:30:00	134	9	1301	27	52	3	7	1	55	4	9	0	0	0	1	0	0	0	1	0
11:45:00	147	13	1395	94	56	4	8	1	60	5	11	2	0	0	1	0	0	0	1	0
12:00:00	152	5	1455	60	60	4	8	0	62	2	11	0	0	0	1	0	0	0	1	0
12:15:00	161	9	1527	72	64	4	8	0	69	7	11	0	0	0	1	0	0	0	2	1
12:30:00	165	4	1599	72	68	4	8	0	75	6	11	0	0	0	1	0	0	0	2	0
12:45:00	174	9	1692	93	70	2	8	0	78	3	12	1	0	0	1	0	0	0	2	0
13:00:00	188	14	1785	93	75	5	8	0	79	1	13	1	0	0	1	0	0	0	4	2
13:15:00	192	4	1874	89	77	2	10	2	84	5	13	0	0	0	1	0	0	0	4	0
13:30:00	194	2	1958	84	79	2	10	0	89	5	14	1	0	0	1	0	0	0	4	0
13:45:00	203	9	2044	86	83	4	10	0	96	7	14	0	0	0	3	2	0	0	4	0
14:00:00	208	5	2129	85	87	4	10	0	101	5	16	2	0	0	4	1	0	0	4	0
14:00:34	210	2	2129	0	87	0	10	0	101	0	16	0	0	0	4	0	0	0	4	0
15:00:00	210	0	2133	4	88	1	10	0	102	1	16	0	0	0	4	0	0	0	4	0
15:15:00	220	10	2259	126	100	12	10	0	113	11	16	0	0	0	4	0	0	0	5	1
15:30:00	232	12	2353	94	110	10	11	1	118	5	17	1	0	0	4	0	0	0	5	0
15:45:00	247	15	2531	178	121	11	11	0	129	11	18	1	0	0	4	0	0	0	6	1
16:00:00	254	7	2707	176	136	15	11	0	135	6	19	1	0	0	4	0	0	0	6	0
16:15:00	265	11	2891	184	151	15	13	2	138	3	20	1	0	0	4	0	0	0	7	1
16:30:00	268	3	3128	237	158	7	14	1	146	8	20	0	0	0	4	0	0	0	7	0
16:45:00	272	4	3326	198	171	13	14	0	154	8	23	3	0	0	4	0	0	0	7	0
17:00:00	280	8	3585	259	183	12	14	0	156	2	23	0	0	0	4	0	0	0	7	0
17:15:00	293	13	3798	213	194	11	14	0	160	4	23	0	0	0	4	0	0	0	7	0
17:30:00	305	12	3978	180	226	32	14	0	163	3	23	0	0	0	4	0	0	0	7	0
17:45:00	314	9	4221	243	251	25	14	0	165	2	25	2	0	0	4	0	0	0	7	0
18:00:00	327	13	4383	162	268	17	14	0	165	0	25	0	0	0	4	0	0	0	7	0
18:00:12	327	0	4383	0	268	0	14	0	165	0	25	0	0	0	4	0	0	0	7	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000805384

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	19	19	18	18	5	5	1	1	0	0	1	1	0	0	0	0	0	0	0	0
7:30:00	38	19	36	18	7	2	5	4	2	2	1	0	0	0	0	0	0	0	0	0
7:45:00	73	35	61	25	7	0	7	2	2	0	1	0	0	0	0	0	0	0	1	1
8:00:00	122	49	76	15	19	12	8	1	5	3	4	3	0	0	0	0	0	0	1	0
8:15:00	166	44	88	12	25	6	10	2	6	1	5	1	0	0	0	0	0	0	4	3
8:30:00	210	44	117	29	35	10	14	4	8	2	5	0	0	0	0	0	0	0	7	3
8:45:00	273	63	144	27	47	12	19	5	11	3	5	0	0	0	0	0	0	0	9	2
9:00:00	322	49	164	20	54	7	19	0	14	3	5	0	0	0	0	0	0	0	10	1
9:00:09	322	0	164	0	54	0	19	0	14	0	5	0	0	0	0	0	0	0	10	0
11:00:00	323	1	166	2	56	2	19	0	14	0	5	0	0	0	0	0	0	0	10	0
11:15:00	348	25	187	21	67	11	20	1	14	0	6	1	0	0	0	0	0	0	10	0
11:30:00	387	39	218	31	74	7	22	2	20	6	7	1	0	0	0	0	0	0	11	1
11:45:00	433	46	239	21	84	10	22	0	21	1	8	1	0	0	0	0	0	0	11	0
12:00:00	471	38	257	18	96	12	22	0	26	5	9	1	0	0	0	0	0	0	11	0
12:15:00	504	33	281	24	109	13	23	1	30	4	9	0	0	0	0	0	0	0	11	0
12:30:00	542	38	306	25	117	8	25	2	31	1	9	0	0	0	0	0	0	0	12	1
12:45:00	582	40	326	20	123	6	26	1	33	2	10	1	0	0	0	0	0	0	12	0
13:00:00	621	39	341	15	142	19	26	0	35	2	11	1	0	0	0	0	0	0	18	6
13:15:00	657	36	361	20	145	3	28	2	36	1	11	0	0	0	0	0	0	0	21	3
13:30:00	697	40	387	26	154	9	32	4	37	1	11	0	0	0	0	0	0	0	24	3
13:45:00	741	44	411	24	161	7	35	3	37	0	11	0	0	0	0	0	0	0	24	0
14:00:00	789	48	434	23	163	2	36	1	41	4	12	1	0	0	0	0	0	0	24	0
14:00:34	789	0	434	0	163	0	36	0	41	0	12	0	0	0	0	0	0	0	24	0
15:00:00	794	5	435	1	163	0	36	0	43	2	13	1	0	0	0	0	0	0	24	0
15:15:00	863	69	482	47	171	8	40	4	47	4	13	0	0	0	0	0	0	0	25	1
15:30:00	911	48	523	41	187	16	42	2	49	2	13	0	0	0	0	0	0	0	25	0
15:45:00	992	81	588	65	200	13	42	0	51	2	15	2	0	0	0	0	0	0	25	0
16:00:00	1072	80	662	74	218	18	45	3	55	4	17	2	0	0	0	0	0	0	27	2
16:15:00	1132	60	728	66	232	14	49	4	60	5	21	4	0	0	0	0	0	0	28	1
16:30:00	1193	61	835	107	246	14	49	0	64	4	22	1	0	0	0	0	0	0	28	0
16:45:00	1264	71	933	98	262	16	49	0	69	5	23	1	0	0	0	0	0	0	28	0
17:00:00	1338	74	1041	108	285	23	49	0	75	6	24	1	0	0	0	0	0	0	29	1
17:15:00	1408	70	1152	111	297	12	51	2	81	6	24	0	0	0	0	0	0	0	29	0
17:30:00	1482	74	1243	91	309	12	51	0	81	0	24	0	0	0	0	0	0	0	29	0
17:45:00	1550	68	1333	90	322	13	51	0	82	1	25	1	0	0	0	0	0	0	29	0
18:00:00	1609	59	1409	76	337	15	51	0	84	2	25	0	0	0	0	0	0	0	31	2
18:00:12	1612	3	1409	0	337	0	51	0	84	0	25	0	0	0	0	0	0	0	31	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000805384

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	219	217	54	54	1	1	7	7	0	0	0	0	0	0	0	0	0	0
7:30:00	8	2	433	214	107	53	1	0	9	2	1	1	0	0	0	0	0	0	0	0
7:45:00	10	2	654	221	177	70	1	0	14	5	2	1	0	0	0	0	0	0	0	0
8:00:00	17	7	839	185	272	95	1	0	17	3	3	1	0	0	0	0	0	0	2	2
8:15:00	20	3	1022	183	343	71	2	1	24	7	10	7	0	0	0	0	0	0	2	0
8:30:00	22	2	1210	188	463	120	3	1	27	3	20	10	0	0	0	0	0	0	2	0
8:45:00	26	4	1391	181	561	98	3	0	31	4	21	1	0	0	0	0	0	0	2	0
9:00:00	36	10	1518	127	626	65	3	0	34	3	27	6	0	0	0	0	0	0	2	0
9:00:09	36	0	1519	1	626	0	3	0	34	0	27	0	0	0	0	0	0	0	2	0
11:00:00	36	0	1522	3	628	2	3	0	34	0	27	0	0	0	0	0	0	0	2	0
11:15:00	43	7	1601	79	678	50	3	0	36	2	27	0	0	0	1	1	0	0	2	0
11:30:00	50	7	1679	78	730	52	3	0	46	10	27	0	0	0	1	0	0	0	2	0
11:45:00	58	8	1761	82	775	45	3	0	52	6	30	3	0	0	1	0	0	0	3	1
12:00:00	65	7	1838	77	818	43	3	0	53	1	30	0	0	0	1	0	0	0	3	0
12:15:00	70	5	1936	98	855	37	3	0	58	5	31	1	0	0	1	0	0	0	3	0
12:30:00	73	3	2011	75	893	38	5	2	61	3	33	2	0	0	2	1	0	0	4	1
12:45:00	85	12	2110	99	945	52	5	0	63	2	33	0	0	0	2	0	0	0	4	0
13:00:00	90	5	2191	81	990	45	5	0	65	2	35	2	0	0	2	0	0	0	4	0
13:15:00	94	4	2267	76	1025	35	6	1	76	11	36	1	0	0	3	1	0	0	4	0
13:30:00	111	17	2362	95	1070	45	6	0	77	1	36	0	0	0	4	1	0	0	4	0
13:45:00	123	12	2471	109	1107	37	6	0	84	7	36	0	0	0	4	0	0	0	5	1
14:00:00	137	14	2552	81	1139	32	6	0	89	5	38	2	0	0	4	0	0	0	5	0
14:00:34	137	0	2559	7	1140	1	6	0	89	0	38	0	0	0	4	0	0	0	5	0
15:00:00	137	0	2563	4	1140	0	6	0	89	0	38	0	0	0	4	0	0	0	5	0
15:15:00	143	6	2678	115	1208	68	6	0	97	8	40	2	0	0	4	0	0	0	6	1
15:30:00	153	10	2843	165	1283	75	6	0	102	5	45	5	0	0	4	0	0	0	7	1
15:45:00	162	9	3008	165	1347	64	6	0	107	5	49	4	0	0	4	0	0	0	7	0
16:00:00	172	10	3171	163	1403	56	6	0	111	4	53	4	0	0	4	0	0	0	7	0
16:15:00	189	17	3320	149	1426	23	7	1	115	4	56	3	0	0	5	1	0	0	7	0
16:30:00	209	20	3482	162	1476	50	7	0	120	5	57	1	0	0	6	1	0	0	7	0
16:45:00	222	13	3633	151	1510	34	7	0	133	13	59	2	0	0	7	1	0	0	8	1
17:00:00	240	18	3809	176	1549	39	8	1	137	4	61	2	0	0	7	0	0	0	8	0
17:15:00	254	14	3973	164	1598	49	8	0	142	5	62	1	0	0	7	0	0	0	8	0
17:30:00	271	17	4152	179	1656	58	8	0	143	1	65	3	0	0	7	0	0	0	8	0
17:45:00	285	14	4295	143	1710	54	8	0	144	1	65	0	0	0	7	0	0	0	8	0
18:00:00	302	17	4406	111	1773	63	8	0	147	3	65	0	0	0	7	0	0	0	8	0
18:00:12	302	0	4406	0	1773	0	8	0	147	0	65	0	0	0	7	0	0	0	8	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

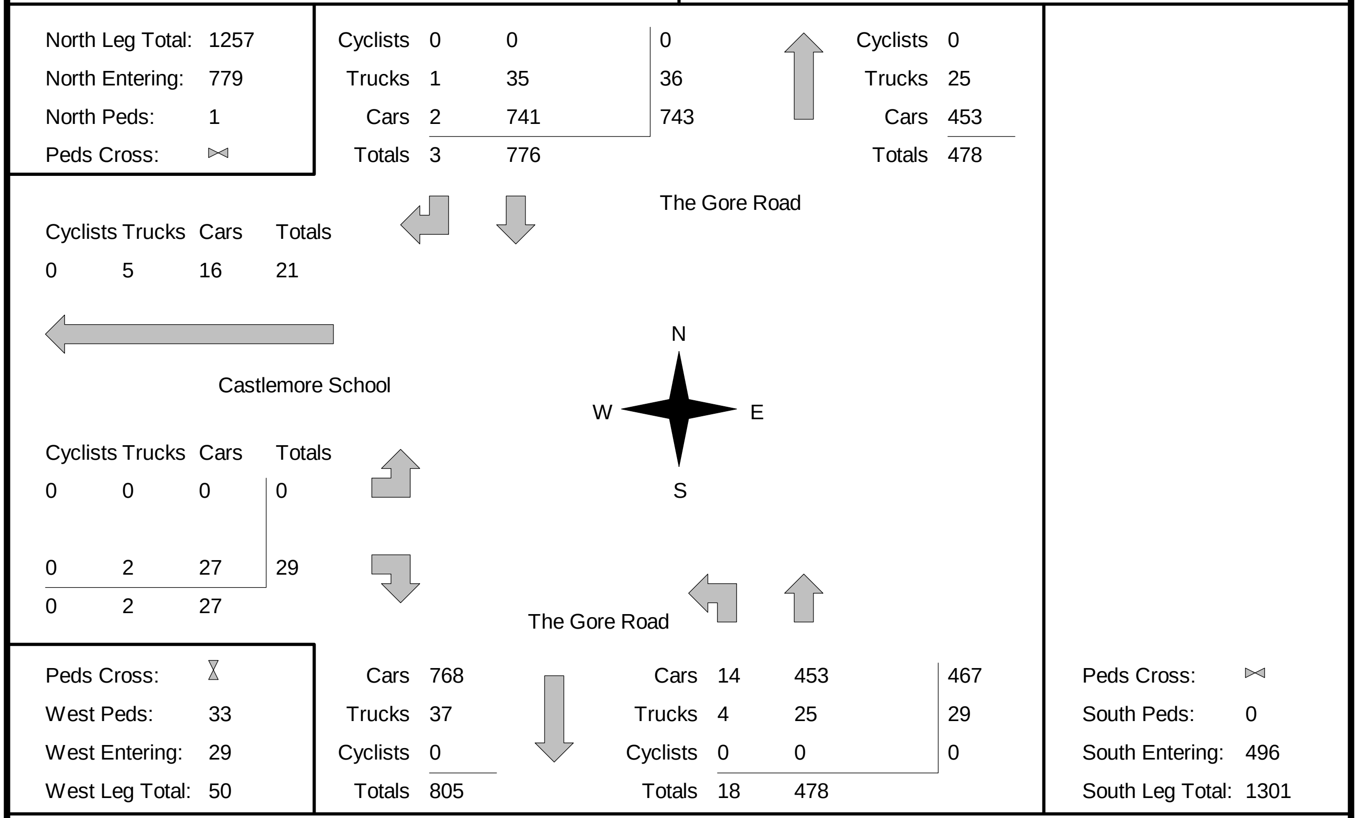
Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Castlemore School
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S



North Leg Total:	1257
North Entering:	779
North Peds:	1
Peds Cross:	⋈

Cyclists	0	0	0
Trucks	1	35	36
Cars	2	741	743
Totals	3	776	

Cyclists	0
Trucks	25
Cars	453
Totals	478

The Gore Road

Cyclists	Trucks	Cars	Totals
0	5	16	21

Castlemore School

Cyclists	Trucks	Cars	Totals
0	0	0	0
0	2	27	29
0	2	27	

The Gore Road

Peds Cross:	⧖
West Peds:	33
West Entering:	29
West Leg Total:	50

Cars	768
Trucks	37
Cyclists	0
Totals	805

Cars	14	453	467
Trucks	4	25	29
Cyclists	0	0	0
Totals	18	478	

Peds Cross:	⋈
South Peds:	0
South Entering:	496
South Leg Total:	1301

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

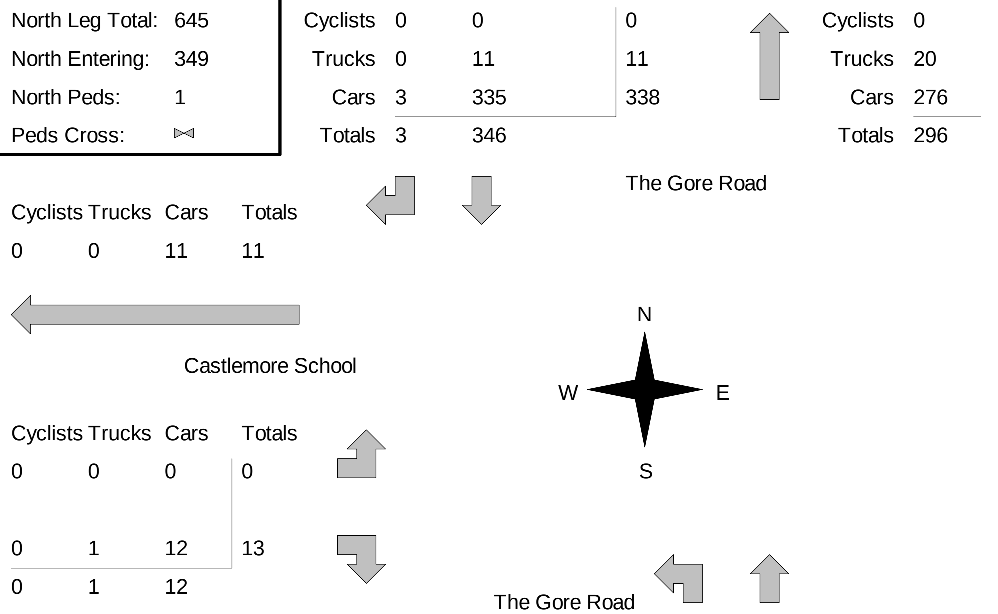
Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Castlemore School
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S



North Leg Total: 645
North Entering: 349
North Peds: 1
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	11	11
Cars	3	335	338
Totals	3	346	

Cyclists	0
Trucks	20
Cars	276
Totals	296

Cyclists	Trucks	Cars	Totals
0	0	11	11

Cyclists	Trucks	Cars	Totals
0	0	0	0
0	1	12	13
0	1	12	

Peds Cross: ⧖
West Peds: 2
West Entering: 13
West Leg Total: 24

Cars	347
Trucks	12
Cyclists	0
Totals	359

Cars	8	276	284
Trucks	0	20	20
Cyclists	0	0	0
Totals	8	296	

Peds Cross: ⋈
South Peds: 0
South Entering: 304
South Leg Total: 663

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Castlemore School
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 1165
North Entering: 375
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	13	13
Cars	3	359	362
Totals	3	372	

Cyclists	0
Trucks	28
Cars	762
Totals	790

The Gore Road

Cyclists	Trucks	Cars	Totals
0	0	15	15

Castlemore School

N
W E
S

Cyclists	Trucks	Cars	Totals
0	0	3	3
0	0	9	9
0	0	12	

The Gore Road

Peds Cross: ⧗
West Peds: 12
West Entering: 12
West Leg Total: 27

Cars	368
Trucks	13
Cyclists	0
Totals	381

Cars	12	759	771
Trucks	0	28	28
Cyclists	0	0	0
Totals	12	787	

Peds Cross: ⋈
South Peds: 0
South Entering: 799
South Leg Total: 1180

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Castlemore School
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 7288
North Entering: 3682
North Peds: 2
Peds Cross: ⋈

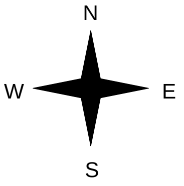
Cyclists	0	0	0
Trucks	2	125	127
Cars	29	3526	3555
Totals	31	3651	

Cyclists	0
Trucks	170
Cars	3436
Totals	3606

The Gore Road

Cyclists	Trucks	Cars	Totals
0	10	125	135

Castlemore School



Cyclists	Trucks	Cars	Totals
0	2	20	22
0	9	96	105
0	11	116	

The Gore Road

Peds Cross: ⧗
West Peds: 139
West Entering: 127
West Leg Total: 262

Cars	3622
Trucks	134
Cyclists	0
Totals	3756

Cars	96	3416	3512
Trucks	8	168	176
Cyclists	0	0	0
Totals	104	3584	

Peds Cross: ⋈
South Peds: 0
South Entering: 3688
South Leg Total: 7444

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Rd & Castlemore Schoo **Count Date:** 25-Apr-2013 **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists					North/South Total Approaches		Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	5	0	5	0	6	7:00:00	0	1	0	1	0
8:00:00	0	771	2	773	0	1015	8:00:00	2	240	0	242	0
9:00:00	0	776	3	779	1	1275	9:00:00	18	478	0	496	0
11:00:00	0	2	0	2	0	9	11:00:00	1	6	0	7	0
12:00:00	0	346	3	349	1	653	12:00:00	8	296	0	304	0
13:00:00	0	289	1	290	0	584	13:00:00	9	285	0	294	0
14:00:00	0	258	4	262	0	540	14:00:00	6	272	0	278	0
15:00:00	0	3	1	4	0	11	15:00:00	0	7	0	7	0
16:00:00	0	463	11	474	0	1075	16:00:00	27	574	0	601	0
17:00:00	0	337	2	339	0	1081	17:00:00	18	724	0	742	0
18:00:00	0	400	4	404	0	1116	18:00:00	14	698	0	712	0
Totals:	0	3650	31	3681	2	7365		103	3581	0	3684	0

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists					East/West Total Approaches		Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	1	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	22	8:00:00	6	0	16	22	7
9:00:00	0	0	0	0	0	29	9:00:00	0	0	29	29	33
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0	13	12:00:00	0	0	13	13	2
13:00:00	0	0	0	0	0	7	13:00:00	2	0	5	7	2
14:00:00	0	0	0	0	0	16	14:00:00	5	0	11	16	3
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	20	16:00:00	3	0	17	20	75
17:00:00	0	0	0	0	0	11	17:00:00	5	0	6	11	14
18:00:00	0	0	0	0	0	9	18:00:00	1	0	8	9	3
Totals:	0	0	0	0	1	127		22	0	105	127	139

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	6	1	1	2	5	3	5	1

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	164	159	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	347	183	1	1	0	0	10	5	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	556	209	1	0	0	0	14	4	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	760	204	2	1	0	0	16	2	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	951	191	2	0	0	0	29	13	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	1162	211	3	1	0	0	43	14	1	1	0	0	0	0	0	0	0	0
8:45:00	0	0	1350	188	3	0	0	0	45	2	1	0	0	0	0	0	0	0	1	1
9:00:00	0	0	1501	151	4	1	0	0	51	6	1	0	0	0	0	0	0	0	1	0
9:00:17	0	0	1503	2	4	0	0	0	51	0	1	0	0	0	0	0	0	0	1	0
11:00:00	0	0	1503	0	4	0	0	0	51	0	1	0	0	0	0	0	0	0	1	0
11:15:00	0	0	1586	83	5	1	0	0	52	1	1	0	0	0	0	0	0	0	2	1
11:30:00	0	0	1660	74	5	0	0	0	55	3	1	0	0	0	0	0	0	0	2	0
11:45:00	0	0	1757	97	6	1	0	0	60	5	1	0	0	0	0	0	0	0	2	0
12:00:00	0	0	1838	81	7	1	0	0	62	2	1	0	0	0	0	0	0	0	2	0
12:15:00	0	0	1906	68	7	0	0	0	65	3	1	0	0	0	0	0	0	0	2	0
12:30:00	0	0	1964	58	7	0	0	0	67	2	1	0	0	0	0	0	0	0	2	0
12:45:00	0	0	2039	75	7	0	0	0	67	0	1	0	0	0	0	0	0	0	2	0
13:00:00	0	0	2120	81	8	1	0	0	69	2	1	0	0	0	0	0	0	0	2	0
13:15:00	0	0	2180	60	9	1	0	0	73	4	1	0	0	0	0	0	0	0	2	0
13:30:00	0	0	2246	66	11	2	0	0	75	2	1	0	0	0	0	0	0	0	2	0
13:45:00	0	0	2309	63	11	0	0	0	77	2	1	0	0	0	0	0	0	0	2	0
14:00:00	0	0	2368	59	12	1	0	0	79	2	1	0	0	0	0	0	0	0	2	0
14:00:19	0	0	2369	1	12	0	0	0	80	1	1	0	0	0	0	0	0	0	2	0
15:00:00	0	0	2370	1	13	1	0	0	80	0	1	0	0	0	0	0	0	0	2	0
15:15:00	0	0	2455	85	14	1	0	0	84	4	1	0	0	0	0	0	0	0	2	0
15:30:00	0	0	2532	77	16	2	0	0	87	3	2	1	0	0	0	0	0	0	2	0
15:45:00	0	0	2693	161	19	3	0	0	97	10	2	0	0	0	0	0	0	0	2	0
16:00:00	0	0	2808	115	23	4	0	0	105	8	2	0	0	0	0	0	0	0	2	0
16:15:00	0	0	2873	65	24	1	0	0	111	6	2	0	0	0	0	0	0	0	2	0
16:30:00	0	0	2963	90	25	1	0	0	116	5	2	0	0	0	0	0	0	0	2	0
16:45:00	0	0	3040	77	25	0	0	0	118	2	2	0	0	0	0	0	0	0	2	0
17:00:00	0	0	3129	89	25	0	0	0	121	3	2	0	0	0	0	0	0	0	2	0
17:15:00	0	0	3232	103	27	2	0	0	124	3	2	0	0	0	0	0	0	0	2	0
17:30:00	0	0	3326	94	29	2	0	0	124	0	2	0	0	0	0	0	0	0	2	0
17:45:00	0	0	3418	92	29	0	0	0	125	1	2	0	0	0	0	0	0	0	2	0
18:00:00	0	0	3525	107	29	0	0	0	125	0	2	0	0	0	0	0	0	0	2	0
18:00:22	0	0	3526	1	29	0	0	0	125	0	2	0	0	0	0	0	0	0	2	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
9:00:17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:00:19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
18:00:22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	40	39	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	82	42	0	0	0	0	7	6	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	146	64	0	0	0	0	10	3	0	0	0	0	0	0	0	0	0	0
8:00:00	1	1	221	75	0	0	1	1	20	10	0	0	0	0	0	0	0	0	0	0
8:15:00	2	1	293	72	0	0	2	1	24	4	0	0	0	0	0	0	0	0	0	0
8:30:00	3	1	385	92	0	0	3	1	33	9	0	0	0	0	0	0	0	0	0	0
8:45:00	6	3	506	121	0	0	5	2	39	6	0	0	0	0	0	0	0	0	0	0
9:00:00	15	9	674	168	0	0	5	0	45	6	0	0	0	0	0	0	0	0	0	0
9:00:17	16	1	680	6	0	0	5	0	45	0	0	0	0	0	0	0	0	0	0	0
11:00:00	16	0	680	0	0	0	5	0	45	0	0	0	0	0	0	0	0	0	0	0
11:15:00	17	1	741	61	0	0	5	0	48	3	0	0	0	0	0	0	0	0	0	0
11:30:00	21	4	811	70	0	0	5	0	57	9	0	0	0	0	0	0	0	0	0	0
11:45:00	24	3	890	79	0	0	5	0	59	2	0	0	0	0	0	0	0	0	0	0
12:00:00	24	0	956	66	0	0	5	0	65	6	0	0	0	0	0	0	0	0	0	0
12:15:00	24	0	1025	69	0	0	5	0	69	4	0	0	0	0	0	0	0	0	0	0
12:30:00	27	3	1088	63	0	0	5	0	71	2	0	0	0	0	0	0	0	0	0	0
12:45:00	31	4	1149	61	0	0	5	0	76	5	0	0	0	0	0	0	0	0	0	0
13:00:00	33	2	1225	76	0	0	5	0	81	5	0	0	0	0	0	0	0	0	0	0
13:15:00	36	3	1274	49	0	0	5	0	85	4	0	0	0	0	0	0	0	0	0	0
13:30:00	39	3	1356	82	0	0	5	0	88	3	0	0	0	0	0	0	0	0	0	0
13:45:00	39	0	1421	65	0	0	5	0	89	1	0	0	0	0	0	0	0	0	0	0
14:00:00	39	0	1483	62	0	0	5	0	95	6	0	0	0	0	0	0	0	0	0	0
14:00:19	39	0	1485	2	0	0	5	0	95	0	0	0	0	0	0	0	0	0	0	0
15:00:00	39	0	1490	5	0	0	5	0	95	0	0	0	0	0	0	0	0	0	0	0
15:15:00	43	4	1623	133	0	0	5	0	102	7	0	0	0	0	0	0	0	0	0	0
15:30:00	56	13	1758	135	0	0	7	2	109	7	0	0	0	0	0	0	0	0	0	0
15:45:00	62	6	1908	150	0	0	7	0	114	5	0	0	0	0	0	0	0	0	0	0
16:00:00	64	2	2036	128	0	0	7	0	123	9	0	0	0	0	0	0	0	0	0	0
16:15:00	71	7	2176	140	0	0	8	1	135	12	0	0	0	0	0	0	0	0	0	0
16:30:00	74	3	2345	169	0	0	8	0	140	5	0	0	0	0	0	0	0	0	0	0
16:45:00	79	5	2528	183	0	0	8	0	147	7	0	0	0	0	0	0	0	0	0	0
17:00:00	81	2	2729	201	0	0	8	0	154	7	0	0	0	0	0	0	0	0	0	0
17:15:00	83	2	2935	206	0	0	8	0	163	9	0	0	0	0	0	0	0	0	0	0
17:30:00	88	5	3086	151	0	0	8	0	164	1	0	0	0	0	0	0	0	0	0	0
17:45:00	90	2	3257	171	0	0	8	0	166	2	0	0	0	0	0	0	0	0	0	0
18:00:00	95	5	3413	156	0	0	8	0	168	2	0	0	0	0	0	0	0	0	0	0
18:00:22	96	1	3416	3	0	0	8	0	168	0	0	0	0	0	0	0	0	0	0	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	0	0	3	3	1	1	0	0	1	1	0	0	0	0	0	0	1	1
7:30:00	4	2	0	0	6	3	1	0	0	0	2	1	0	0	0	0	0	0	2	1
7:45:00	5	1	0	0	10	4	1	0	0	0	3	1	0	0	0	0	0	0	5	3
8:00:00	5	0	0	0	12	2	1	0	0	0	4	1	0	0	0	0	0	0	7	2
8:15:00	5	0	0	0	15	3	1	0	0	0	4	0	0	0	0	0	0	0	12	5
8:30:00	5	0	0	0	20	5	1	0	0	0	5	1	0	0	0	0	0	0	15	3
8:45:00	5	0	0	0	29	9	1	0	0	0	6	1	0	0	0	0	0	0	18	3
9:00:00	5	0	0	0	39	10	1	0	0	0	6	0	0	0	0	0	0	0	40	22
9:00:17	5	0	0	0	39	0	1	0	0	0	6	0	0	0	0	0	0	0	40	0
11:00:00	5	0	0	0	39	0	1	0	0	0	6	0	0	0	0	0	0	0	40	0
11:15:00	5	0	0	0	41	2	1	0	0	0	7	1	0	0	0	0	0	0	41	1
11:30:00	5	0	0	0	43	2	1	0	0	0	7	0	0	0	0	0	0	0	42	1
11:45:00	5	0	0	0	47	4	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:00:00	5	0	0	0	51	4	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:15:00	5	0	0	0	55	4	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:30:00	6	1	0	0	56	1	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:45:00	7	1	0	0	56	0	1	0	0	0	7	0	0	0	0	0	0	0	42	0
13:00:00	7	0	0	0	56	0	1	0	0	0	7	0	0	0	0	0	0	0	44	2
13:15:00	8	1	0	0	60	4	1	0	0	0	7	0	0	0	0	0	0	0	46	2
13:30:00	11	3	0	0	64	4	1	0	0	0	7	0	0	0	0	0	0	0	46	0
13:45:00	11	0	0	0	67	3	1	0	0	0	7	0	0	0	0	0	0	0	47	1
14:00:00	12	1	0	0	67	0	1	0	0	0	7	0	0	0	0	0	0	0	47	0
14:00:19	12	0	0	0	67	0	1	0	0	0	7	0	0	0	0	0	0	0	47	0
15:00:00	12	0	0	0	67	0	1	0	0	0	7	0	0	0	0	0	0	0	47	0
15:15:00	12	0	0	0	68	1	1	0	0	0	8	1	0	0	0	0	0	0	52	5
15:30:00	13	1	0	0	70	2	1	0	0	0	8	0	0	0	0	0	0	0	53	1
15:45:00	13	0	0	0	76	6	1	0	0	0	9	1	0	0	0	0	0	0	99	46
16:00:00	14	1	0	0	82	6	2	1	0	0	9	0	0	0	0	0	0	0	122	23
16:15:00	17	3	0	0	83	1	2	0	0	0	9	0	0	0	0	0	0	0	126	4
16:30:00	17	0	0	0	84	1	2	0	0	0	9	0	0	0	0	0	0	0	132	6
16:45:00	18	1	0	0	87	3	2	0	0	0	9	0	0	0	0	0	0	0	134	2
17:00:00	19	1	0	0	88	1	2	0	0	0	9	0	0	0	0	0	0	0	136	2
17:15:00	20	1	0	0	92	4	2	0	0	0	9	0	0	0	0	0	0	0	138	2
17:30:00	20	0	0	0	94	2	2	0	0	0	9	0	0	0	0	0	0	0	138	0
17:45:00	20	0	0	0	95	1	2	0	0	0	9	0	0	0	0	0	0	0	138	0
18:00:00	20	0	0	0	96	1	2	0	0	0	9	0	0	0	0	0	0	0	139	1
18:00:22	20	0	0	0	96	0	2	0	0	0	9	0	0	0	0	0	0	0	139	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Fitzpatrick Dr
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

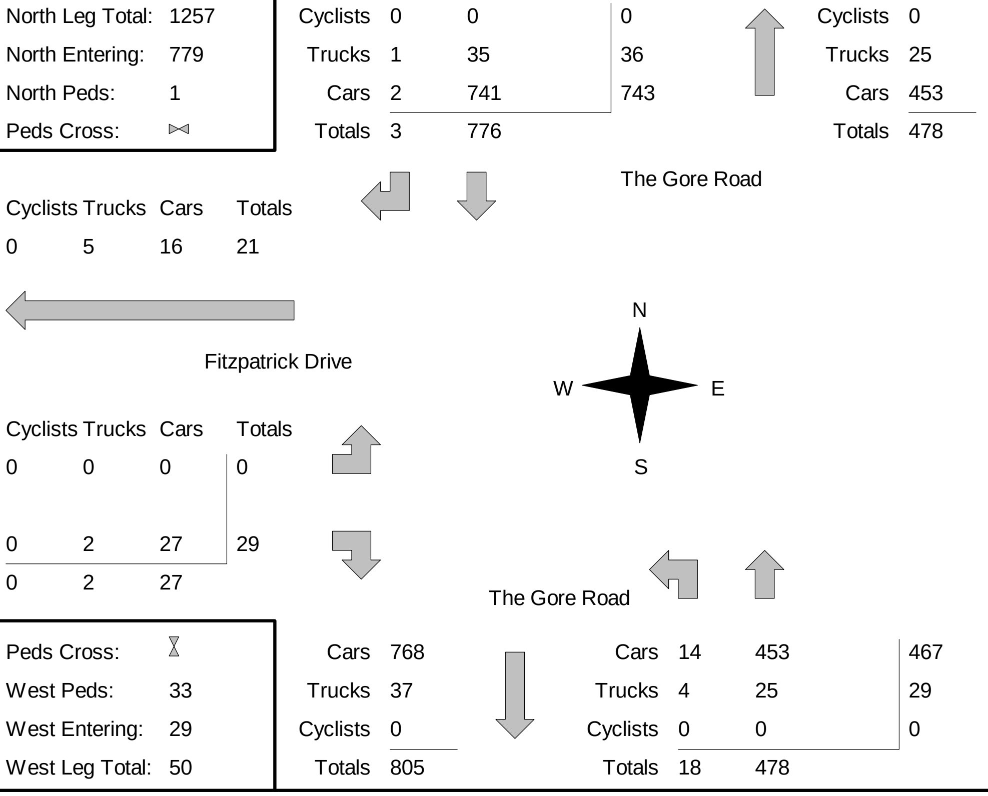
**** Non-Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total:	1257
North Entering:	779
North Peds:	1
Peds Cross:	⋈

Cyclists	0	0	0
Trucks	1	35	36
Cars	2	741	743
Totals	3	776	

Cyclists	0
Trucks	25
Cars	453
Totals	478



Cyclists	Trucks	Cars	Totals
0	5	16	21

Cyclists	Trucks	Cars	Totals
0	0	0	0
0	2	27	29
0	2	27	

Peds Cross:	⧖
West Peds:	33
West Entering:	29
West Leg Total:	50

Cars	768
Trucks	37
Cyclists	0
Totals	805

Cars	14	453	467
Trucks	4	25	29
Cyclists	0	0	0
Totals	18	478	

Peds Cross:	⋈
South Peds:	0
South Entering:	496
South Leg Total:	1301

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Fitzpatrick Dr
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

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

Major Road: The Gore Rd runs N/S

North Leg Total:	645
North Entering:	349
North Peds:	1
Peds Cross:	⋈

Cyclists	0	0	0
Trucks	0	11	11
Cars	3	335	338
Totals	3	346	

Cyclists	0
Trucks	20
Cars	276
Totals	296

The Gore Road

Cyclists	Trucks	Cars	Totals
0	0	11	11

Fitzpatrick Drive

N

W E

S

Cyclists	Trucks	Cars	Totals
0	0	0	0
0	1	12	13
0	1	12	

The Gore Road

Peds Cross:	⧗
West Peds:	2
West Entering:	13
West Leg Total:	24

Cars	347
Trucks	12
Cyclists	0
Totals	359

Cars	8	276	284
Trucks	0	20	20
Cyclists	0	0	0
Totals	8	296	

Peds Cross:	⋈
South Peds:	0
South Entering:	304
South Leg Total:	663

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

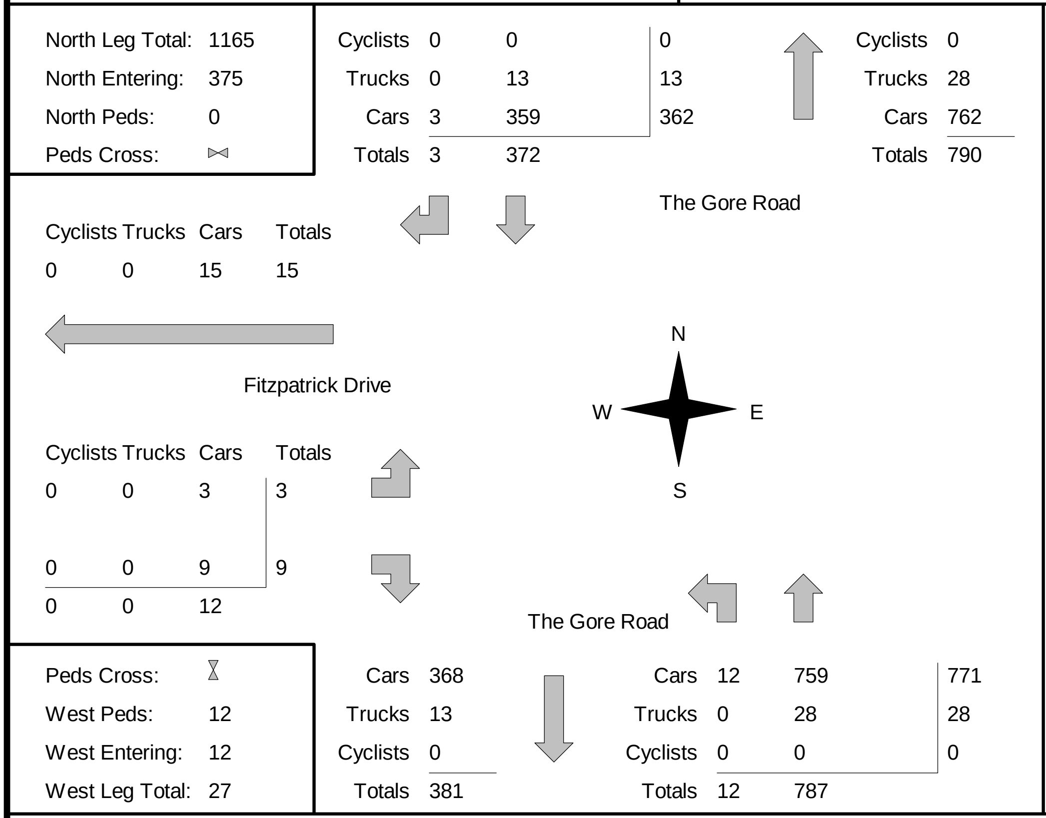
Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Fitzpatrick Dr
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

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

Major Road: The Gore Rd runs N/S



North Leg Total: 1165
North Entering: 375
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	13	13
Cars	3	359	362
Totals	3	372	

Cyclists	0
Trucks	28
Cars	762
Totals	790

The Gore Road

Cyclists	Trucks	Cars	Totals
0	0	15	15

Fitzpatrick Drive

Cyclists	Trucks	Cars	Totals
0	0	3	3
0	0	9	9
0	0	12	

The Gore Road

Peds Cross: ⧗
West Peds: 12
West Entering: 12
West Leg Total: 27

Cars	368
Trucks	13
Cyclists	0
Totals	381

Cars	12	759	771
Trucks	0	28	28
Cyclists	0	0	0
Totals	12	787	

Peds Cross: ⋈
South Peds: 0
South Entering: 799
South Leg Total: 1180

Comments

MG8 ENG

Total Count Diagram

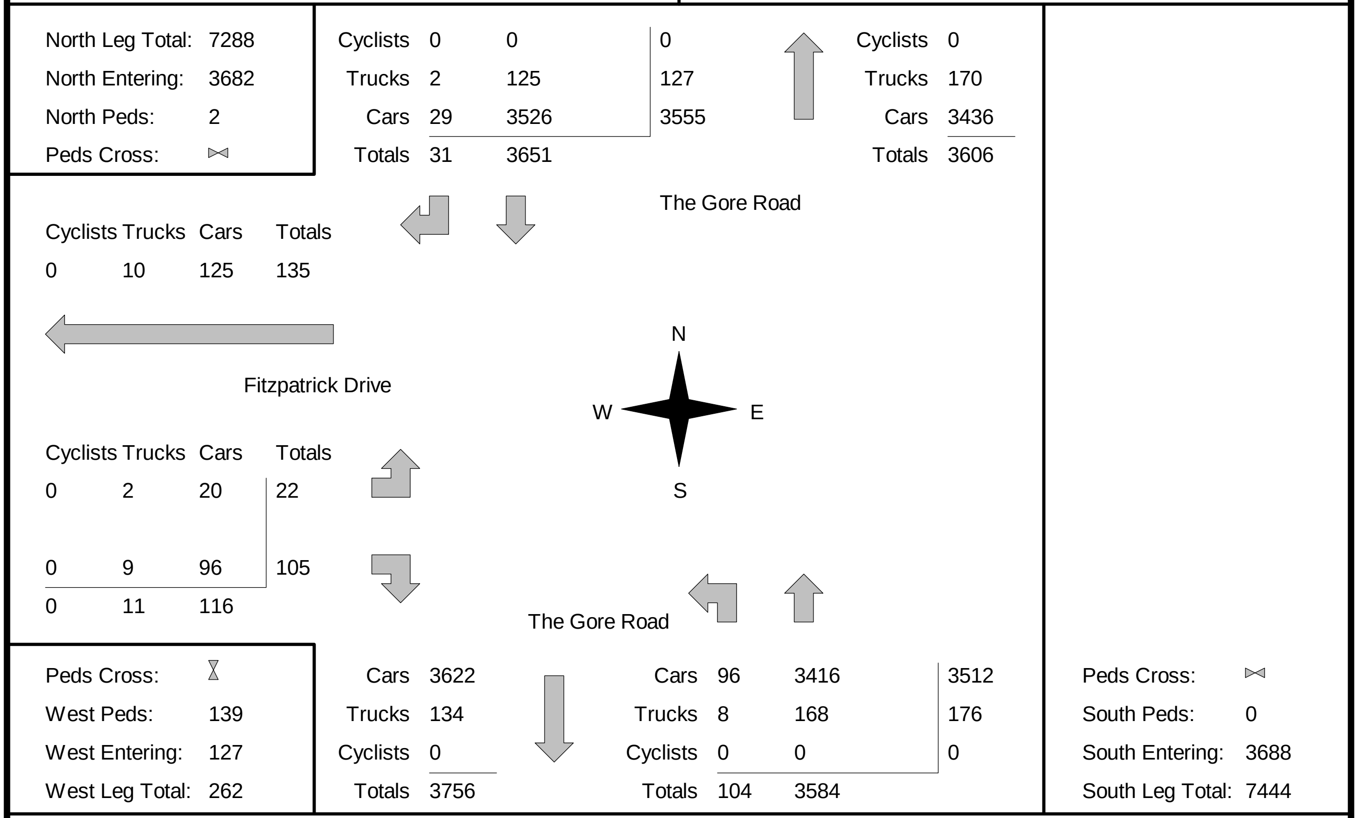
Municipality: Region of Peel
Site #: 0000804892
Intersection: The Gore Rd & Fitzpatrick Dr
TFR File #: 8
Count date: 25-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

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

Major Road: The Gore Rd runs N/S



North Leg Total: 7288
North Entering: 3682
North Peds: 2
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	2	125	127
Cars	29	3526	3555
Totals	31	3651	

Cyclists	0
Trucks	170
Cars	3436
Totals	3606

Cyclists	Trucks	Cars	Totals
0	10	125	135

Cyclists	Trucks	Cars	Totals
0	2	20	22
0	9	96	105
0	11	116	

Peds Cross: ⧗
West Peds: 139
West Entering: 127
West Leg Total: 262

Cars	3622
Trucks	134
Cyclists	0
Totals	3756

Cars	96	3416	3512
Trucks	8	168	176
Cyclists	0	0	0
Totals	104	3584	

Peds Cross: ⋈
South Peds: 0
South Entering: 3688
South Leg Total: 7444

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Rd & Fitzpatrick Dr | **Count Date:** 25-Apr-2013 | **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	5	0	5	0	6	7:00:00	0	1	0	1	0
8:00:00	0	771	2	773	0	1015	8:00:00	2	240	0	242	0
9:00:00	0	776	3	779	1	1275	9:00:00	18	478	0	496	0
11:00:00	0	2	0	2	0	9	11:00:00	1	6	0	7	0
12:00:00	0	346	3	349	1	653	12:00:00	8	296	0	304	0
13:00:00	0	289	1	290	0	584	13:00:00	9	285	0	294	0
14:00:00	0	258	4	262	0	540	14:00:00	6	272	0	278	0
15:00:00	0	3	1	4	0	11	15:00:00	0	7	0	7	0
16:00:00	0	463	11	474	0	1075	16:00:00	27	574	0	601	0
17:00:00	0	337	2	339	0	1081	17:00:00	18	724	0	742	0
18:00:00	0	400	4	404	0	1116	18:00:00	14	698	0	712	0
Totals:	0	3650	31	3681	2	7365		103	3581	0	3684	0

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	1	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	22	8:00:00	6	0	16	22	7
9:00:00	0	0	0	0	0	29	9:00:00	0	0	29	29	33
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0	13	12:00:00	0	0	13	13	2
13:00:00	0	0	0	0	0	7	13:00:00	2	0	5	7	2
14:00:00	0	0	0	0	0	16	14:00:00	5	0	11	16	3
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	20	16:00:00	3	0	17	20	75
17:00:00	0	0	0	0	0	11	17:00:00	5	0	6	11	14
18:00:00	0	0	0	0	0	9	18:00:00	1	0	8	9	3
Totals:	0	0	0	0	1	127		22	0	105	127	139

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	6	1	1	2	5	3	5	1

MG8 ENG

Count Date: 25-Apr-2013

Intersection: The Gore Rd & Fitzpatrick Dr **Municipality:** Region of Peel

Major Road: The Gore Rd **Major Road Runs:** N/S two lanes each way

Operating Speed of Major Road: 50 km/hr **Operating under restricted flow conditions**

Warrant #1: Minimum Vehicular Volumes.

A. All Approaches.

Not Satisfied

No. of Lanes	Minimum Requirements														
	1 Lane Each Way		2 Lanes Each Way		3 Lanes	Hours Ending								Percentage Warrant	
Flow Condition	1 Lane F. Flow (Code 1)	1 Lane R. Flow (Code 2)	2 Lane F. Flow (Code 3)	2 Lane R. Flow (Code 4)	or More R. Flow (Code 5)	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00		
100%	480	720	600	900	1125	1037	1304	666	591	556	1095	1092	1125	Yes:	100%
80%	385	575	480	720	900									No:	X
All Approa-ches	100% Fulfilled					100	100				100	100	100		500
	80% Fulfilled														0
	Actual % if Below 80%							74	66	62					201

Total:	701
Actual Average (Total/8):	88%

B. Minor Street Both Approaches.

100%	180	255	180	255	255	22	29	13	7	16	20	11	9	Yes:	100%
80%	143	203	143	203	203									No:	X
Minor Street Both Approa-ches	100% Fulfilled														0
	80% Fulfilled														0
	Actual % if Below 80%					9	11	5	3	6	8	4	4		50

Total:	50
Actual Average (Total/8):	6%

MG8 ENG

Count Date: 25-Apr-2013

Intersection: The Gore Rd & Fitzpatrick Dr **Municipality:** Region of Peel

Major Road: The Gore Rd **Major Road Runs:** N/S two lanes each way

Operating Speed of Major Road: 50 km/hr **Operating under restricted flow conditions**

Warrant #2: Delay to Cross Traffic.

A. Major Street Both Approaches. Not Satisfied

No. of Lanes	Minimum Requirements													
	1 Lane Each Way		2 Lanes Each Way		3 Lanes	Hours Ending								
Flow Condition	1 Lane F. Flow (Code 1)	1 Lane R. Flow (Code 2)	2 Lane F. Flow (Code 3)	2 Lane R. Flow (Code 4)	or More R. Flow (Code 5)	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00	Percentage Warrant
100%	480	720	600	900	1125	1015	1275	653	584	540	1075	1081	1116	100% Yes:
80%	385	575	480	720	900									No: X
All Approaches	100% Fulfilled					100	100				100	100	100	500
	80% Fulfilled													0
	Actual % if Below 80%							73	65	60				197
													Total:	697
													Actual Average (Total/8):	87%

B. Traffic Crossing Major Street.

100%	50	75	50	75	75	6	1	1	2	5	3	5	1	100% Yes:
80%	40	60	40	60	60									No: X
All Approaches	100% Fulfilled													0
	80% Fulfilled													0
	Actual % if Below 80%					8	1	1	3	7	4	7	1	32
													Total:	32
													Actual Average (Total/8):	4%

MG8 ENG

Count Date: 25-Apr-2013

Intersection: The Gore Rd & Fitzpatrick Dr

Municipality: Region of Peel

Major Road: The Gore Rd

Major Road Runs: N/S two lanes each way

Operating Speed of Major Road: 50 km/hr

Operating under restricted flow conditions

Warrant #3: Accident Experience.

Not Satisfied

A. Reportable accidents within a twelve month period averaged over 36 consequtive months susceptible to correction by a traffic signal.

Minimum Requirements	Actual Number of Accidents	Average Number of Accidents	Fulfilled
5	0 in 3 years	0 per year	0%

B. Adequate trial of less restrictive remedies has failed to reduce accident frequency.	No
C. Either Warrant 1 (Minimum Vehicular Volume) or Warrant 2 (Delay to Cross Traffic) satisfied 80% or more.	No

Warrant #4: Combination Warrant.

(Used if no warrant satisfied 100%)

Not Satisfied

Minimum Requirements	Warrant Satisfied 80% or More	Fulfilled
Two Warrants Satisfied 80%	Warrant 1 (Minimum Vehicular Volume) Warrant 2 (Delay to Cross Traffic) Warrant 3 (Accident Experience)	No No No

Conclusion: Traffic signal not warranted.

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	164	159	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	347	183	1	1	0	0	10	5	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	556	209	1	0	0	0	14	4	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	760	204	2	1	0	0	16	2	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	951	191	2	0	0	0	29	13	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	1162	211	3	1	0	0	43	14	1	1	0	0	0	0	0	0	0	0
8:45:00	0	0	1350	188	3	0	0	0	45	2	1	0	0	0	0	0	0	0	1	1
9:00:00	0	0	1501	151	4	1	0	0	51	6	1	0	0	0	0	0	0	0	1	0
9:00:17	0	0	1503	2	4	0	0	0	51	0	1	0	0	0	0	0	0	0	1	0
11:00:00	0	0	1503	0	4	0	0	0	51	0	1	0	0	0	0	0	0	0	1	0
11:15:00	0	0	1586	83	5	1	0	0	52	1	1	0	0	0	0	0	0	0	2	1
11:30:00	0	0	1660	74	5	0	0	0	55	3	1	0	0	0	0	0	0	0	2	0
11:45:00	0	0	1757	97	6	1	0	0	60	5	1	0	0	0	0	0	0	0	2	0
12:00:00	0	0	1838	81	7	1	0	0	62	2	1	0	0	0	0	0	0	0	2	0
12:15:00	0	0	1906	68	7	0	0	0	65	3	1	0	0	0	0	0	0	0	2	0
12:30:00	0	0	1964	58	7	0	0	0	67	2	1	0	0	0	0	0	0	0	2	0
12:45:00	0	0	2039	75	7	0	0	0	67	0	1	0	0	0	0	0	0	0	2	0
13:00:00	0	0	2120	81	8	1	0	0	69	2	1	0	0	0	0	0	0	0	2	0
13:15:00	0	0	2180	60	9	1	0	0	73	4	1	0	0	0	0	0	0	0	2	0
13:30:00	0	0	2246	66	11	2	0	0	75	2	1	0	0	0	0	0	0	0	2	0
13:45:00	0	0	2309	63	11	0	0	0	77	2	1	0	0	0	0	0	0	0	2	0
14:00:00	0	0	2368	59	12	1	0	0	79	2	1	0	0	0	0	0	0	0	2	0
14:00:19	0	0	2369	1	12	0	0	0	80	1	1	0	0	0	0	0	0	0	2	0
15:00:00	0	0	2370	1	13	1	0	0	80	0	1	0	0	0	0	0	0	0	2	0
15:15:00	0	0	2455	85	14	1	0	0	84	4	1	0	0	0	0	0	0	0	2	0
15:30:00	0	0	2532	77	16	2	0	0	87	3	2	1	0	0	0	0	0	0	2	0
15:45:00	0	0	2693	161	19	3	0	0	97	10	2	0	0	0	0	0	0	0	2	0
16:00:00	0	0	2808	115	23	4	0	0	105	8	2	0	0	0	0	0	0	0	2	0
16:15:00	0	0	2873	65	24	1	0	0	111	6	2	0	0	0	0	0	0	0	2	0
16:30:00	0	0	2963	90	25	1	0	0	116	5	2	0	0	0	0	0	0	0	2	0
16:45:00	0	0	3040	77	25	0	0	0	118	2	2	0	0	0	0	0	0	0	2	0
17:00:00	0	0	3129	89	25	0	0	0	121	3	2	0	0	0	0	0	0	0	2	0
17:15:00	0	0	3232	103	27	2	0	0	124	3	2	0	0	0	0	0	0	0	2	0
17:30:00	0	0	3326	94	29	2	0	0	124	0	2	0	0	0	0	0	0	0	2	0
17:45:00	0	0	3418	92	29	0	0	0	125	1	2	0	0	0	0	0	0	0	2	0
18:00:00	0	0	3525	107	29	0	0	0	125	0	2	0	0	0	0	0	0	0	2	0
18:00:22	0	0	3526	1	29	0	0	0	125	0	2	0	0	0	0	0	0	0	2	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
9:00:17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:00:19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
18:00:22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	40	39	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	82	42	0	0	0	0	7	6	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	146	64	0	0	0	0	10	3	0	0	0	0	0	0	0	0	0	0
8:00:00	1	1	221	75	0	0	1	1	20	10	0	0	0	0	0	0	0	0	0	0
8:15:00	2	1	293	72	0	0	2	1	24	4	0	0	0	0	0	0	0	0	0	0
8:30:00	3	1	385	92	0	0	3	1	33	9	0	0	0	0	0	0	0	0	0	0
8:45:00	6	3	506	121	0	0	5	2	39	6	0	0	0	0	0	0	0	0	0	0
9:00:00	15	9	674	168	0	0	5	0	45	6	0	0	0	0	0	0	0	0	0	0
9:00:17	16	1	680	6	0	0	5	0	45	0	0	0	0	0	0	0	0	0	0	0
11:00:00	16	0	680	0	0	0	5	0	45	0	0	0	0	0	0	0	0	0	0	0
11:15:00	17	1	741	61	0	0	5	0	48	3	0	0	0	0	0	0	0	0	0	0
11:30:00	21	4	811	70	0	0	5	0	57	9	0	0	0	0	0	0	0	0	0	0
11:45:00	24	3	890	79	0	0	5	0	59	2	0	0	0	0	0	0	0	0	0	0
12:00:00	24	0	956	66	0	0	5	0	65	6	0	0	0	0	0	0	0	0	0	0
12:15:00	24	0	1025	69	0	0	5	0	69	4	0	0	0	0	0	0	0	0	0	0
12:30:00	27	3	1088	63	0	0	5	0	71	2	0	0	0	0	0	0	0	0	0	0
12:45:00	31	4	1149	61	0	0	5	0	76	5	0	0	0	0	0	0	0	0	0	0
13:00:00	33	2	1225	76	0	0	5	0	81	5	0	0	0	0	0	0	0	0	0	0
13:15:00	36	3	1274	49	0	0	5	0	85	4	0	0	0	0	0	0	0	0	0	0
13:30:00	39	3	1356	82	0	0	5	0	88	3	0	0	0	0	0	0	0	0	0	0
13:45:00	39	0	1421	65	0	0	5	0	89	1	0	0	0	0	0	0	0	0	0	0
14:00:00	39	0	1483	62	0	0	5	0	95	6	0	0	0	0	0	0	0	0	0	0
14:00:19	39	0	1485	2	0	0	5	0	95	0	0	0	0	0	0	0	0	0	0	0
15:00:00	39	0	1490	5	0	0	5	0	95	0	0	0	0	0	0	0	0	0	0	0
15:15:00	43	4	1623	133	0	0	5	0	102	7	0	0	0	0	0	0	0	0	0	0
15:30:00	56	13	1758	135	0	0	7	2	109	7	0	0	0	0	0	0	0	0	0	0
15:45:00	62	6	1908	150	0	0	7	0	114	5	0	0	0	0	0	0	0	0	0	0
16:00:00	64	2	2036	128	0	0	7	0	123	9	0	0	0	0	0	0	0	0	0	0
16:15:00	71	7	2176	140	0	0	8	1	135	12	0	0	0	0	0	0	0	0	0	0
16:30:00	74	3	2345	169	0	0	8	0	140	5	0	0	0	0	0	0	0	0	0	0
16:45:00	79	5	2528	183	0	0	8	0	147	7	0	0	0	0	0	0	0	0	0	0
17:00:00	81	2	2729	201	0	0	8	0	154	7	0	0	0	0	0	0	0	0	0	0
17:15:00	83	2	2935	206	0	0	8	0	163	9	0	0	0	0	0	0	0	0	0	0
17:30:00	88	5	3086	151	0	0	8	0	164	1	0	0	0	0	0	0	0	0	0	0
17:45:00	90	2	3257	171	0	0	8	0	166	2	0	0	0	0	0	0	0	0	0	0
18:00:00	95	5	3413	156	0	0	8	0	168	2	0	0	0	0	0	0	0	0	0	0
18:00:22	96	1	3416	3	0	0	8	0	168	0	0	0	0	0	0	0	0	0	0	0

MG8 ENG

Count Date: 25-Apr-2013 Site #: 0000804892

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	0	0	3	3	1	1	0	0	1	1	0	0	0	0	0	0	1	1
7:30:00	4	2	0	0	6	3	1	0	0	0	2	1	0	0	0	0	0	0	2	1
7:45:00	5	1	0	0	10	4	1	0	0	0	3	1	0	0	0	0	0	0	5	3
8:00:00	5	0	0	0	12	2	1	0	0	0	4	1	0	0	0	0	0	0	7	2
8:15:00	5	0	0	0	15	3	1	0	0	0	4	0	0	0	0	0	0	0	12	5
8:30:00	5	0	0	0	20	5	1	0	0	0	5	1	0	0	0	0	0	0	15	3
8:45:00	5	0	0	0	29	9	1	0	0	0	6	1	0	0	0	0	0	0	18	3
9:00:00	5	0	0	0	39	10	1	0	0	0	6	0	0	0	0	0	0	0	40	22
9:00:17	5	0	0	0	39	0	1	0	0	0	6	0	0	0	0	0	0	0	40	0
11:00:00	5	0	0	0	39	0	1	0	0	0	6	0	0	0	0	0	0	0	40	0
11:15:00	5	0	0	0	41	2	1	0	0	0	7	1	0	0	0	0	0	0	41	1
11:30:00	5	0	0	0	43	2	1	0	0	0	7	0	0	0	0	0	0	0	42	1
11:45:00	5	0	0	0	47	4	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:00:00	5	0	0	0	51	4	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:15:00	5	0	0	0	55	4	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:30:00	6	1	0	0	56	1	1	0	0	0	7	0	0	0	0	0	0	0	42	0
12:45:00	7	1	0	0	56	0	1	0	0	0	7	0	0	0	0	0	0	0	42	0
13:00:00	7	0	0	0	56	0	1	0	0	0	7	0	0	0	0	0	0	0	44	2
13:15:00	8	1	0	0	60	4	1	0	0	0	7	0	0	0	0	0	0	0	46	2
13:30:00	11	3	0	0	64	4	1	0	0	0	7	0	0	0	0	0	0	0	46	0
13:45:00	11	0	0	0	67	3	1	0	0	0	7	0	0	0	0	0	0	0	47	1
14:00:00	12	1	0	0	67	0	1	0	0	0	7	0	0	0	0	0	0	0	47	0
14:00:19	12	0	0	0	67	0	1	0	0	0	7	0	0	0	0	0	0	0	47	0
15:00:00	12	0	0	0	67	0	1	0	0	0	7	0	0	0	0	0	0	0	47	0
15:15:00	12	0	0	0	68	1	1	0	0	0	8	1	0	0	0	0	0	0	52	5
15:30:00	13	1	0	0	70	2	1	0	0	0	8	0	0	0	0	0	0	0	53	1
15:45:00	13	0	0	0	76	6	1	0	0	0	9	1	0	0	0	0	0	0	99	46
16:00:00	14	1	0	0	82	6	2	1	0	0	9	0	0	0	0	0	0	0	122	23
16:15:00	17	3	0	0	83	1	2	0	0	0	9	0	0	0	0	0	0	0	126	4
16:30:00	17	0	0	0	84	1	2	0	0	0	9	0	0	0	0	0	0	0	132	6
16:45:00	18	1	0	0	87	3	2	0	0	0	9	0	0	0	0	0	0	0	134	2
17:00:00	19	1	0	0	88	1	2	0	0	0	9	0	0	0	0	0	0	0	136	2
17:15:00	20	1	0	0	92	4	2	0	0	0	9	0	0	0	0	0	0	0	138	2
17:30:00	20	0	0	0	94	2	2	0	0	0	9	0	0	0	0	0	0	0	138	0
17:45:00	20	0	0	0	95	1	2	0	0	0	9	0	0	0	0	0	0	0	138	0
18:00:00	20	0	0	0	96	1	2	0	0	0	9	0	0	0	0	0	0	0	139	1
18:00:22	20	0	0	0	96	0	2	0	0	0	9	0	0	0	0	0	0	0	139	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Region of Peel
Site #: 0000804614
Intersection: The Gore Rd & Castle Oaks Cros
TFR File #: 5
Count date: 24-Apr-2013

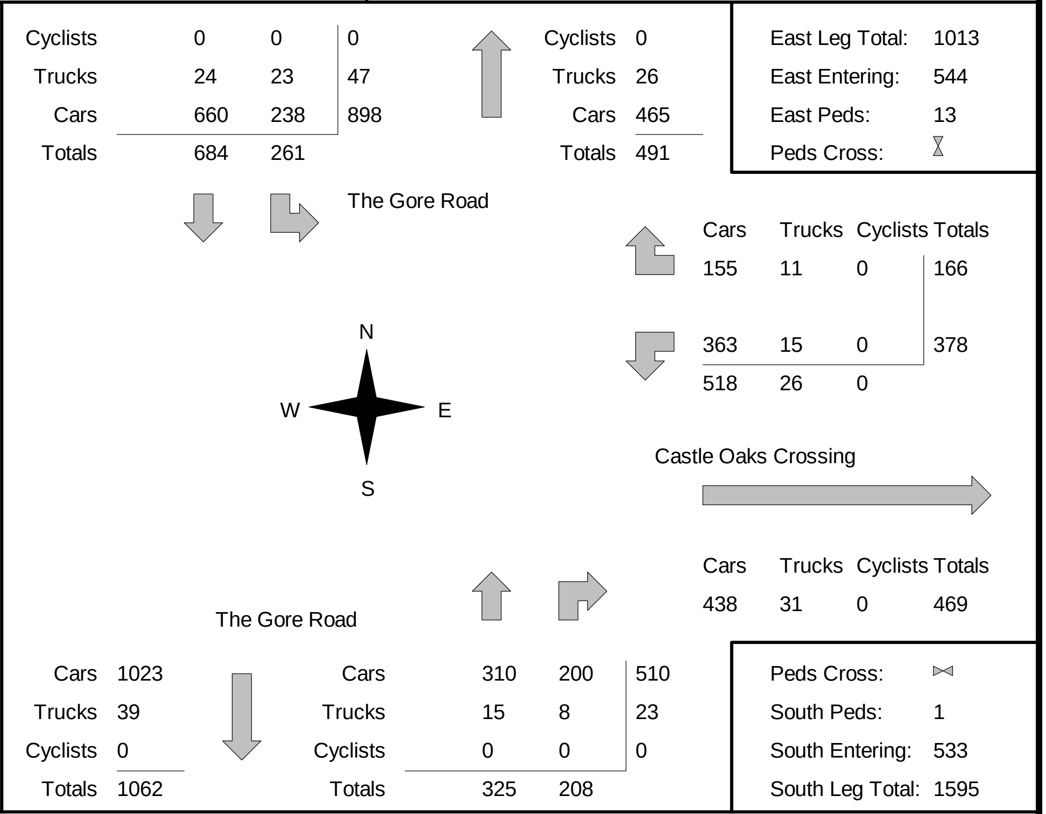
Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 1436
North Entering: 945
North Peds: 26
Peds Cross: ⋈



Cyclists	0	0	0
Trucks	24	23	47
Cars	660	238	898
Totals	684	261	

Cyclists	0
Trucks	26
Cars	465
Totals	491

East Leg Total: 1013
East Entering: 544
East Peds: 13
Peds Cross: ⧗

Cars	Trucks	Cyclists	Totals
155	11	0	166
363	15	0	378
518	26	0	

Cars	Trucks	Cyclists	Totals
438	31	0	469

Cars	1023
Trucks	39
Cyclists	0
Totals	1062

Cars	310	200	510
Trucks	15	8	23
Cyclists	0	0	0
Totals	325	208	

Peds Cross: ⋈
South Peds: 1
South Entering: 533
South Leg Total: 1595

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:15:00
To: 12:15:00

Municipality: Region of Peel
Site #: 0000804614
Intersection: The Gore Rd & Castle Oaks Cros
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 524
North Entering: 306
North Peds: 0
Peds Cross: ⋈

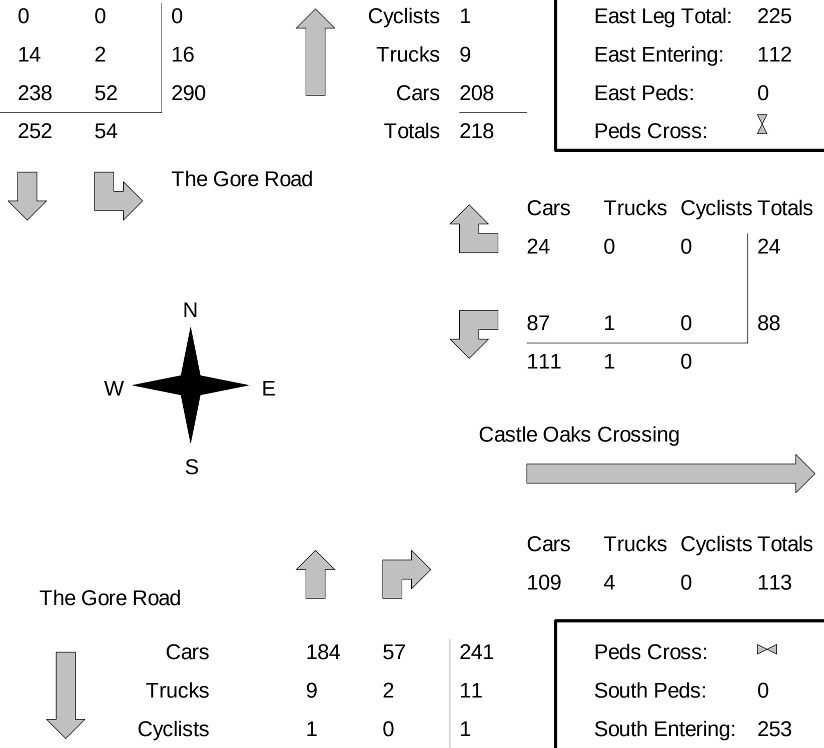
Cyclists	0	0	0
Trucks	14	2	16
Cars	238	52	290
Totals	252	54	

Cyclists	1
Trucks	9
Cars	208
Totals	218

East Leg Total: 225
East Entering: 112
East Peds: 0
Peds Cross: ⧗

The Gore Road

Cars	Trucks	Cyclists	Totals
24	0	0	24
87	1	0	88
111	1	0	



Castle Oaks Crossing

Cars	Trucks	Cyclists	Totals
109	4	0	113

The Gore Road

Cars	325
Trucks	15
Cyclists	0
Totals	340

Cars	184	57	241
Trucks	9	2	11
Cyclists	1	0	1
Totals	194	59	

Peds Cross: ⋈
South Peds: 0
South Entering: 253
South Leg Total: 593

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Region of Peel
Site #: 0000804614
Intersection: The Gore Rd & Castle Oaks Cros
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

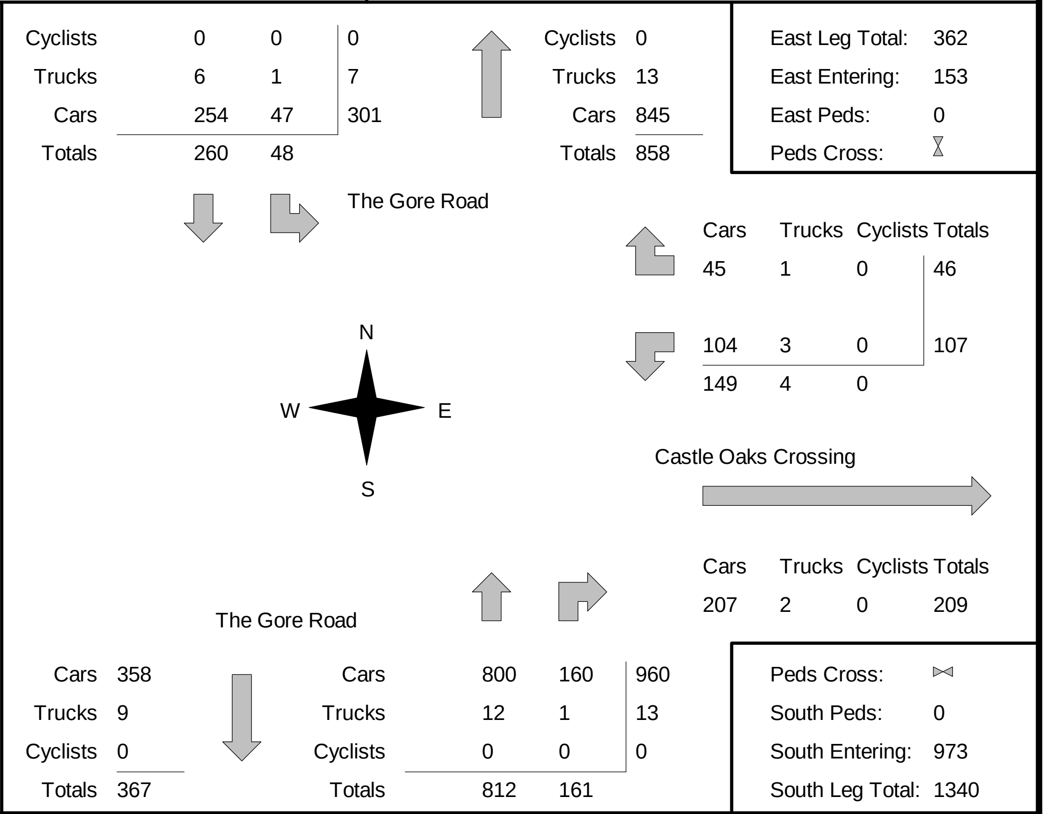
Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 1166
North Entering: 308
North Peds: 0
Peds Cross: ⋈

East Leg Total: 362
East Entering: 153
East Peds: 0
Peds Cross: ⧖



Cyclists	0	0	0
Trucks	6	1	7
Cars	254	47	301
Totals	260	48	

Cyclists	0
Trucks	13
Cars	845
Totals	858

Cars	Trucks	Cyclists	Totals
45	1	0	46
104	3	0	107
149	4	0	

Cars	Trucks	Cyclists	Totals
207	2	0	209

Cars	358
Trucks	9
Cyclists	0
Totals	367

Cars	800	160	960
Trucks	12	1	13
Cyclists	0	0	0
Totals	812	161	

Peds Cross: ⋈
South Peds: 0
South Entering: 973
South Leg Total: 1340

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000804614
Intersection: The Gore Rd & Castle Oaks Cros
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE

**** Signalized Intersection ****

Major Road: The Gore Rd runs N/S

North Leg Total: 7244
North Entering: 3792
North Peds: 36
Peds Cross: ⋈

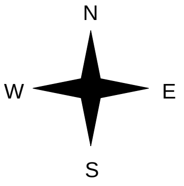
Cyclists	0	0	0
Trucks	135	35	170
Cars	2993	629	3622
Totals	3128	664	

Cyclists	1
Trucks	137
Cars	3314
Totals	3452

East Leg Total: 3262
East Entering: 1688
East Peds: 17
Peds Cross: ⧗

The Gore Road

Cars	Trucks	Cyclists	Totals
459	29	0	488
1147	52	1	1200
1606	81	1	



Castle Oaks Crossing

Cars	Trucks	Cyclists	Totals
1506	68	0	1574

The Gore Road

Cars	4140
Trucks	187
Cyclists	1
Totals	4328

Cars	2855	877	3732
Trucks	108	33	141
Cyclists	1	0	1
Totals	2964	910	

Peds Cross: ⋈
South Peds: 10
South Entering: 3874
South Leg Total: 8202

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Rd & Castle Oaks Cros **Count Date:** 24-Apr-2013 **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	1	20	0	21	0	21	7:00:00	0	0	0	0	0
8:00:00	48	729	0	777	4	992	8:00:00	0	152	63	215	0
9:00:00	261	684	0	945	26	1478	9:00:00	0	325	208	533	1
11:00:00	3	20	0	23	0	36	11:00:00	0	12	1	13	0
12:00:00	61	257	0	318	0	529	12:00:00	0	161	50	211	0
13:00:00	35	234	0	269	0	554	13:00:00	0	222	63	285	0
14:00:00	28	205	0	233	1	480	14:00:00	0	200	47	247	0
15:00:00	5	9	0	14	0	38	15:00:00	0	20	4	24	0
16:00:00	120	425	0	545	5	1127	16:00:00	0	468	114	582	8
17:00:00	58	265	0	323	0	1195	17:00:00	0	680	192	872	0
18:00:00	44	276	0	320	0	1203	18:00:00	0	718	165	883	1
Totals:	664	3124	0	3788	36	7653		0	2958	907	3865	10

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	4	0	0	4	0	4	7:00:00	0	0	0	0	0
8:00:00	178	0	41	219	3	219	8:00:00	0	0	0	0	0
9:00:00	378	0	166	544	13	544	9:00:00	0	0	0	0	0
11:00:00	4	0	3	7	0	7	11:00:00	0	0	0	0	0
12:00:00	82	0	36	118	0	118	12:00:00	0	0	0	0	0
13:00:00	59	0	22	81	0	81	13:00:00	0	0	0	0	0
14:00:00	69	0	22	91	0	91	14:00:00	0	0	0	0	0
15:00:00	14	0	7	21	0	21	15:00:00	0	0	0	0	0
16:00:00	176	0	99	275	1	275	16:00:00	0	0	0	0	0
17:00:00	130	0	55	185	0	185	17:00:00	0	0	0	0	0
18:00:00	106	0	37	143	0	143	18:00:00	0	0	0	0	0
Totals:	1200	0	488	1688	17	1688		0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	182	405	82	59	70	189	130	107

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000804614

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	1	1	19	19	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:15:00	7	6	162	143	0	0	1	1	3	2	0	0	0	0	0	0	0	0	0	0
7:30:00	16	9	333	171	0	0	1	0	14	11	0	0	0	0	0	0	0	0	1	1
7:45:00	32	16	546	213	0	0	1	0	22	8	0	0	0	0	0	0	0	0	3	2
8:00:00	48	16	715	169	0	0	1	0	34	12	0	0	0	0	0	0	0	0	4	1
8:15:00	83	35	876	161	0	0	7	6	44	10	0	0	0	0	0	0	0	0	5	1
8:30:00	159	76	1040	164	0	0	19	12	50	6	0	0	0	0	0	0	0	0	13	8
8:45:00	249	90	1215	175	0	0	22	3	54	4	0	0	0	0	0	0	0	0	27	14
9:00:00	286	37	1375	160	0	0	24	2	58	4	0	0	0	0	0	0	0	0	30	3
9:00:08	286	0	1382	7	0	0	24	0	58	0	0	0	0	0	0	0	0	0	30	0
11:00:00	289	3	1395	13	0	0	24	0	58	0	0	0	0	0	0	0	0	0	30	0
11:15:00	301	12	1461	66	0	0	24	0	62	4	0	0	0	0	0	0	0	0	30	0
11:30:00	319	18	1514	53	0	0	24	0	65	3	0	0	0	0	0	0	0	0	30	0
11:45:00	328	9	1577	63	0	0	24	0	69	4	0	0	0	0	0	0	0	0	30	0
12:00:00	349	21	1637	60	0	0	25	1	73	4	0	0	0	0	0	0	0	0	30	0
12:15:00	353	4	1699	62	0	0	26	1	76	3	0	0	0	0	0	0	0	0	30	0
12:30:00	360	7	1748	49	0	0	26	0	78	2	0	0	0	0	0	0	0	0	30	0
12:45:00	369	9	1798	50	0	0	26	0	81	3	0	0	0	0	0	0	0	0	30	0
13:00:00	382	13	1859	61	0	0	27	1	85	4	0	0	0	0	0	0	0	0	30	0
13:15:00	392	10	1907	48	0	0	27	0	86	1	0	0	0	0	0	0	0	0	30	0
13:30:00	396	4	1957	50	0	0	27	0	89	3	0	0	0	0	0	0	0	0	30	0
13:45:00	405	9	2013	56	0	0	27	0	93	4	0	0	0	0	0	0	0	0	30	0
14:00:00	409	4	2054	41	0	0	28	1	95	2	0	0	0	0	0	0	0	0	31	1
14:00:12	411	2	2057	3	0	0	28	0	95	0	0	0	0	0	0	0	0	0	31	0
15:00:00	414	3	2062	5	0	0	28	0	96	1	0	0	0	0	0	0	0	0	31	0
15:15:00	444	30	2133	71	0	0	28	0	102	6	0	0	0	0	0	0	0	0	36	5
15:30:00	458	14	2193	60	0	0	29	1	105	3	0	0	0	0	0	0	0	0	36	0
15:45:00	506	48	2355	162	0	0	30	1	113	8	0	0	0	0	0	0	0	0	36	0
16:00:00	529	23	2463	108	0	0	33	3	120	7	0	0	0	0	0	0	0	0	36	0
16:15:00	545	16	2523	60	0	0	33	0	124	4	0	0	0	0	0	0	0	0	36	0
16:30:00	553	8	2586	63	0	0	34	1	127	3	0	0	0	0	0	0	0	0	36	0
16:45:00	566	13	2652	66	0	0	34	0	127	0	0	0	0	0	0	0	0	0	36	0
17:00:00	586	20	2721	69	0	0	34	0	127	0	0	0	0	0	0	0	0	0	36	0
17:15:00	594	8	2783	62	0	0	34	0	128	1	0	0	0	0	0	0	0	0	36	0
17:30:00	600	6	2840	57	0	0	35	1	133	5	0	0	0	0	0	0	0	0	36	0
17:45:00	607	7	2901	61	0	0	35	0	134	1	0	0	0	0	0	0	0	0	36	0
18:00:00	629	22	2989	88	0	0	35	0	135	1	0	0	0	0	0	0	0	0	36	0
18:00:07	629	0	2993	4	0	0	35	0	135	0	0	0	0	0	0	0	0	0	36	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000804614

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	29	25	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	86	57	0	0	11	9	5	3	0	0	1	1	0	0	0	0	0	0	3	3
7:45:00	127	41	0	0	23	12	10	5	0	0	3	2	0	0	0	0	0	0	3	0
8:00:00	171	44	0	0	36	13	11	1	0	0	5	2	0	0	0	0	0	0	3	0
8:15:00	218	47	0	0	53	17	14	3	0	0	5	0	0	0	0	0	0	0	4	1
8:30:00	315	97	0	0	81	28	23	9	0	0	8	3	0	0	0	0	0	0	7	3
8:45:00	460	145	0	0	141	60	26	3	0	0	14	6	0	0	0	0	0	0	14	7
9:00:00	534	74	0	0	191	50	26	0	0	0	16	2	0	0	0	0	0	0	16	2
9:00:08	534	0	0	0	191	0	26	0	0	0	16	0	0	0	0	0	0	0	16	0
11:00:00	538	4	0	0	194	3	26	0	0	0	16	0	0	0	0	0	0	0	16	0
11:15:00	553	15	0	0	208	14	27	1	0	0	16	0	0	0	0	0	0	0	16	0
11:30:00	573	20	0	0	217	9	27	0	0	0	16	0	0	0	0	0	0	0	16	0
11:45:00	595	22	0	0	229	12	28	1	0	0	16	0	0	0	0	0	0	0	16	0
12:00:00	618	23	0	0	230	1	28	0	0	0	16	0	0	0	0	0	0	0	16	0
12:15:00	640	22	0	0	232	2	28	0	0	0	16	0	0	0	0	0	0	0	16	0
12:30:00	652	12	0	0	237	5	29	1	0	0	16	0	0	0	0	0	0	0	16	0
12:45:00	666	14	0	0	243	6	30	1	0	0	17	1	0	0	0	0	0	0	16	0
13:00:00	674	8	0	0	251	8	31	1	0	0	17	0	0	0	0	0	0	0	16	0
13:15:00	687	13	0	0	256	5	31	0	0	0	17	0	0	0	0	0	0	0	16	0
13:30:00	702	15	0	0	261	5	33	2	0	0	17	0	0	0	0	0	0	0	16	0
13:45:00	713	11	0	0	265	4	33	0	0	0	17	0	0	0	0	0	0	0	16	0
14:00:00	737	24	0	0	273	8	36	3	0	0	17	0	1	1	0	0	0	0	16	0
14:00:12	737	0	0	0	273	0	36	0	0	0	17	0	1	0	0	0	0	0	16	0
15:00:00	751	14	0	0	279	6	36	0	0	0	18	1	1	0	0	0	0	0	16	0
15:15:00	839	88	0	0	315	36	39	3	0	0	23	5	1	0	0	0	0	0	16	0
15:30:00	870	31	0	0	350	35	42	3	0	0	23	0	1	0	0	0	0	0	16	0
15:45:00	899	29	0	0	360	10	44	2	0	0	24	1	1	0	0	0	0	0	16	0
16:00:00	917	18	0	0	369	9	46	2	0	0	27	3	1	0	0	0	0	0	17	1
16:15:00	961	44	0	0	387	18	47	1	0	0	28	1	1	0	0	0	0	0	17	0
16:30:00	993	32	0	0	399	12	48	1	0	0	28	0	1	0	0	0	0	0	17	0
16:45:00	1022	29	0	0	407	8	48	0	0	0	28	0	1	0	0	0	0	0	17	0
17:00:00	1044	22	0	0	422	15	49	1	0	0	29	1	1	0	0	0	0	0	17	0
17:15:00	1065	21	0	0	433	11	50	1	0	0	29	0	1	0	0	0	0	0	17	0
17:30:00	1097	32	0	0	444	11	51	1	0	0	29	0	1	0	0	0	0	0	17	0
17:45:00	1122	25	0	0	455	11	51	0	0	0	29	0	1	0	0	0	0	0	17	0
18:00:00	1147	25	0	0	459	4	52	1	0	0	29	0	1	0	0	0	0	0	17	0
18:00:07	1147	0	0	0	459	0	52	0	0	0	29	0	1	0	0	0	0	0	17	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000804614

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	24	24	5	5	0	0	1	1	1	1	0	0	0	0	0	0	0	0
7:30:00	0	0	48	24	27	22	0	0	6	5	3	2	0	0	0	0	0	0	0	0
7:45:00	0	0	89	41	42	15	0	0	9	3	5	2	0	0	0	0	0	0	0	0
8:00:00	0	0	141	52	58	16	0	0	11	2	5	0	0	0	0	0	0	0	0	0
8:15:00	0	0	188	47	77	19	0	0	16	5	5	0	0	0	0	0	0	0	0	0
8:30:00	0	0	242	54	136	59	0	0	22	6	10	5	0	0	0	0	0	0	0	0
8:45:00	0	0	315	73	232	96	0	0	24	2	12	2	0	0	0	0	0	0	1	1
9:00:00	0	0	451	136	258	26	0	0	26	2	13	1	0	0	0	0	0	0	1	0
9:00:08	0	0	456	5	258	0	0	0	26	0	13	0	0	0	0	0	0	0	1	0
11:00:00	0	0	463	7	259	1	0	0	26	0	13	0	0	0	0	0	0	0	1	0
11:15:00	0	0	488	25	267	8	0	0	26	0	13	0	0	0	0	0	0	0	1	0
11:30:00	0	0	541	53	283	16	0	0	31	5	13	0	0	0	0	0	0	0	1	0
11:45:00	0	0	568	27	295	12	0	0	31	0	13	0	0	0	0	0	0	0	1	0
12:00:00	0	0	618	50	307	12	0	0	31	0	15	2	0	0	1	1	0	0	1	0
12:15:00	0	0	672	54	324	17	0	0	35	4	15	0	0	0	1	0	0	0	1	0
12:30:00	0	0	716	44	343	19	0	0	36	1	16	1	0	0	1	0	0	0	1	0
12:45:00	0	0	771	55	357	14	0	0	43	7	16	0	0	0	1	0	0	0	1	0
13:00:00	0	0	822	51	369	12	0	0	49	6	16	0	0	0	1	0	0	0	1	0
13:15:00	0	0	876	54	377	8	0	0	54	5	16	0	0	0	1	0	0	0	1	0
13:30:00	0	0	926	50	388	11	0	0	54	0	16	0	0	0	1	0	0	0	1	0
13:45:00	0	0	978	52	398	10	0	0	57	3	16	0	0	0	1	0	0	0	1	0
14:00:00	0	0	1014	36	415	17	0	0	57	0	17	1	0	0	1	0	0	0	1	0
14:00:12	0	0	1019	5	416	1	0	0	57	0	17	0	0	0	1	0	0	0	1	0
15:00:00	0	0	1034	15	419	3	0	0	57	0	17	0	0	0	1	0	0	0	1	0
15:15:00	0	0	1135	101	448	29	0	0	61	4	18	1	0	0	1	0	0	0	1	0
15:30:00	0	0	1227	92	472	24	0	0	63	2	21	3	0	0	1	0	0	0	1	0
15:45:00	0	0	1353	126	496	24	0	0	66	3	23	2	0	0	1	0	0	0	2	1
16:00:00	0	0	1488	135	525	29	0	0	71	5	25	2	0	0	1	0	0	0	9	7
16:15:00	0	0	1615	127	559	34	0	0	85	14	29	4	0	0	1	0	0	0	9	0
16:30:00	0	0	1734	119	633	74	0	0	92	7	32	3	0	0	1	0	0	0	9	0
16:45:00	0	0	1939	205	670	37	0	0	95	3	32	0	0	0	1	0	0	0	9	0
17:00:00	0	0	2139	200	709	39	0	0	100	5	33	1	0	0	1	0	0	0	9	0
17:15:00	0	0	2345	206	748	39	0	0	102	2	33	0	0	0	1	0	0	0	9	0
17:30:00	0	0	2534	189	793	45	0	0	104	2	33	0	0	0	1	0	0	0	9	0
17:45:00	0	0	2679	145	834	41	0	0	107	3	33	0	0	0	1	0	0	0	9	0
18:00:00	0	0	2849	170	874	40	0	0	108	1	33	0	0	0	1	0	0	0	10	1
18:00:07	0	0	2855	6	877	3	0	0	108	0	33	0	0	0	1	0	0	0	10	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000804614

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:00:00
To: 8:00:00

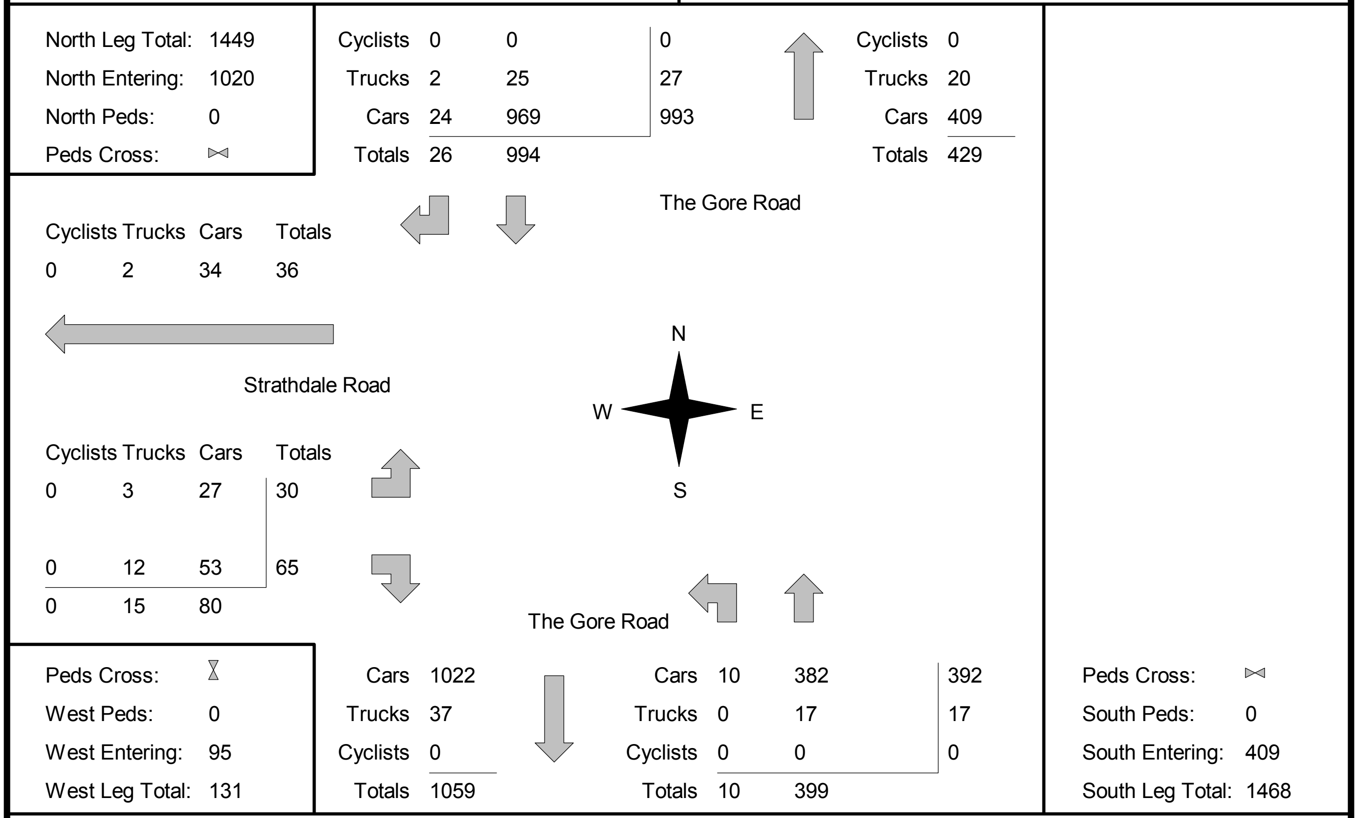
Municipality: Region of Peel
Site #: 0000804245
Intersection: The Gore Road & Strathdale Road
TFR File #: 1
Count date: 30-Apr-2013

Weather conditions:

Person(s) who counted:
LUKA

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

Major Road: The Gore Road runs N/S



North Leg Total: 1449
North Entering: 1020
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	2	25	27
Cars	24	969	993
Totals	26	994	

Cyclists	0
Trucks	20
Cars	409
Totals	429

The Gore Road

Cyclists	Trucks	Cars	Totals
0	2	34	36

Strathdale Road

Cyclists	Trucks	Cars	Totals
0	3	27	30
0	12	53	65
0	15	80	

The Gore Road

Peds Cross: ⧗
West Peds: 0
West Entering: 95
West Leg Total: 131

Cars	1022
Trucks	37
Cyclists	0
Totals	1059

Cars	10	382	392
Trucks	0	17	17
Cyclists	0	0	0
Totals	10	399	

Peds Cross: ⋈
South Peds: 0
South Entering: 409
South Leg Total: 1468

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

Municipality: Region of Peel
Site #: 0000804245
Intersection: The Gore Road & Strathdale Road
TFR File #: 1
Count date: 30-Apr-2013

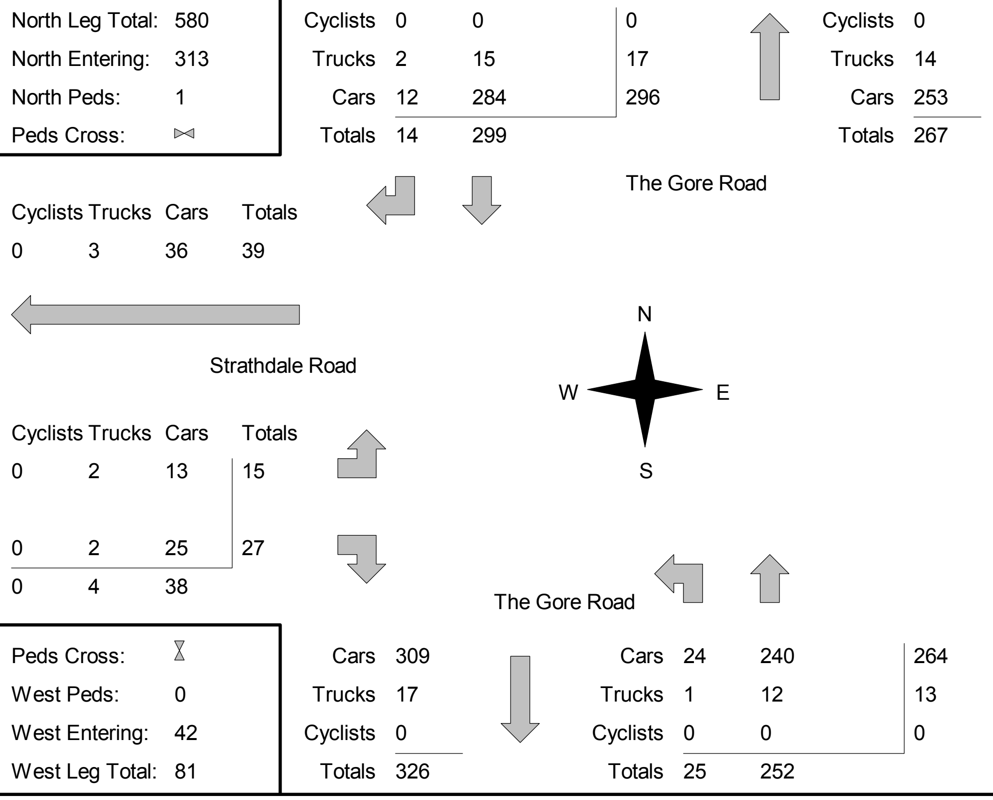
Weather conditions:

Person(s) who counted:
LUKA

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

Major Road: The Gore Road runs N/S

North Leg Total: 580
North Entering: 313
North Peds: 1
Peds Cross: ⋈



Cyclists	0	0	0
Trucks	2	15	17
Cars	12	284	296
Totals	14	299	

Cyclists	0
Trucks	14
Cars	253
Totals	267

Cyclists	Trucks	Cars	Totals
0	3	36	39

Cyclists	Trucks	Cars	Totals
0	2	13	15
0	2	25	27
0	4	38	

Peds Cross: ⧗
West Peds: 0
West Entering: 42
West Leg Total: 81

Cars	309
Trucks	17
Cyclists	0
Totals	326

Cars	24	240	264
Trucks	1	12	13
Cyclists	0	0	0
Totals	25	252	

Peds Cross: ⋈
South Peds: 0
South Entering: 277
South Leg Total: 603

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Region of Peel
Site #: 0000804245
Intersection: The Gore Road & Strathdale Road
TFR File #: 1
Count date: 30-Apr-2013

Weather conditions:

Person(s) who counted:
LUKA

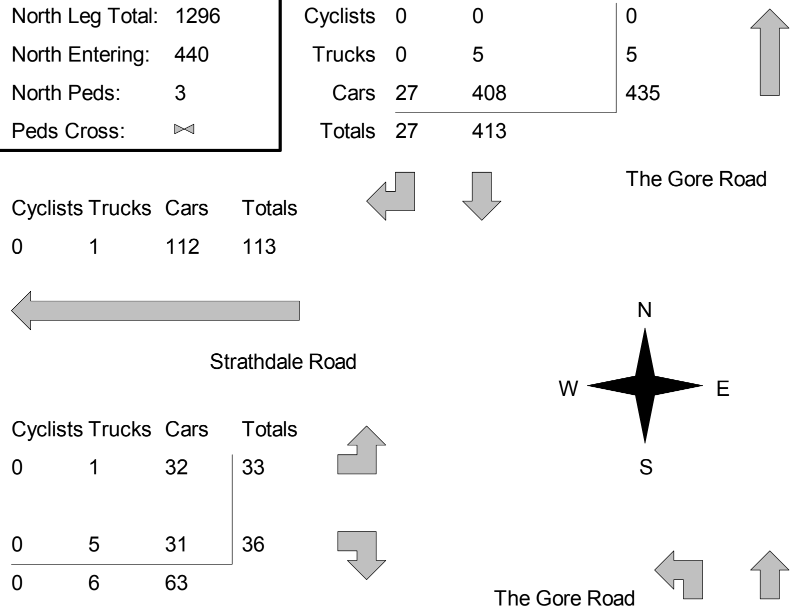
**** Non-Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 1296
North Entering: 440
North Peds: 3
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	5	5
Cars	27	408	435
Totals	27	413	

Cyclists	0
Trucks	14
Cars	842
Totals	856



Cyclists	Trucks	Cars	Totals
0	1	112	113

Cyclists	Trucks	Cars	Totals
0	1	32	33
0	5	31	36
0	6	63	

Peds Cross: ⧗
West Peds: 3
West Entering: 69
West Leg Total: 182

Cars	439
Trucks	10
Cyclists	0
Totals	449

Cars	85	810	895
Trucks	1	13	14
Cyclists	0	0	0
Totals	86	823	

Peds Cross: ⋈
South Peds: 0
South Entering: 909
South Leg Total: 1358

Comments

MG8 ENG

Total Count Diagram

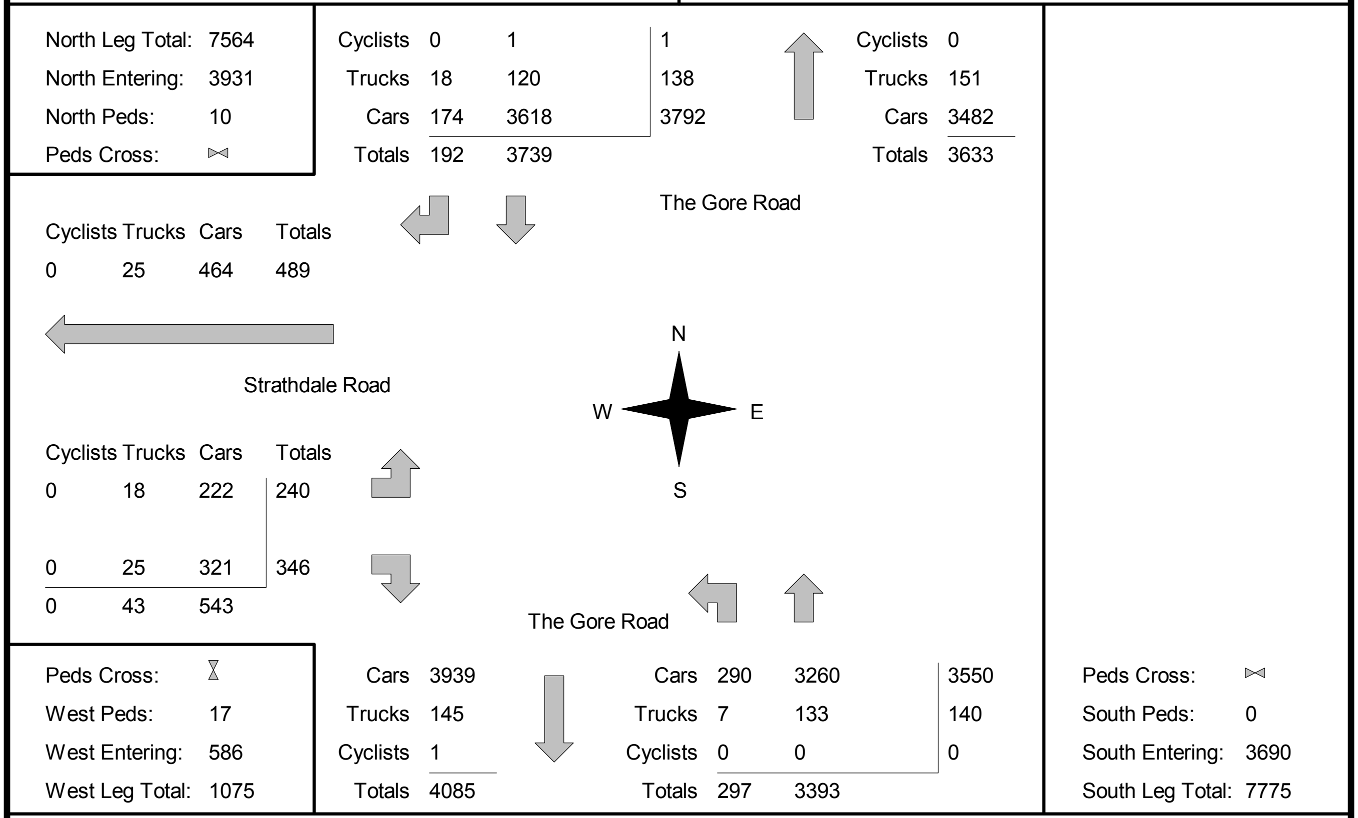
Municipality: Region of Peel
Site #: 0000804245
Intersection: The Gore Road & Strathdale Road
TFR File #: 1
Count date: 30-Apr-2013

Weather conditions:

Person(s) who counted:
LUKA

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

Major Road: The Gore Road runs N/S



North Leg Total: 7564
North Entering: 3931
North Peds: 10
Peds Cross: ⋈

Cyclists	0	1	1
Trucks	18	120	138
Cars	174	3618	3792
Totals	192	3739	

Cyclists	0
Trucks	151
Cars	3482
Totals	3633

The Gore Road

Cyclists	Trucks	Cars	Totals
0	25	464	489

Strathdale Road

Cyclists	Trucks	Cars	Totals
0	18	222	240
0	25	321	346
0	43	543	

The Gore Road

Peds Cross: ⧖
West Peds: 17
West Entering: 586
West Leg Total: 1075

Cars	3939
Trucks	145
Cyclists	1
Totals	4085

Cars	290	3260	3550
Trucks	7	133	140
Cyclists	0	0	0
Totals	297	3393	

Peds Cross: ⋈
South Peds: 0
South Entering: 3690
South Leg Total: 7775

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Road & Strathdale Road **Count Date:** 30-Apr-2013 **Municipality:** Region of Peel

North Approach Totals						North/South Total Approaches	South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	994	26	1020	0	1429	8:00:00	10	399	0	409	0
9:00:00	0	779	23	802	0	1124	9:00:00	13	309	0	322	0
11:00:00	0	13	0	13	0	18	11:00:00	0	5	0	5	0
12:00:00	0	298	16	314	0	521	12:00:00	17	190	0	207	0
13:00:00	0	299	14	313	1	590	13:00:00	25	252	0	277	0
14:00:00	0	248	9	257	0	476	14:00:00	12	207	0	219	0
15:00:00	0	3	0	3	0	8	15:00:00	0	5	0	5	0
16:00:00	0	407	48	455	4	1054	16:00:00	66	533	0	599	0
17:00:00	0	420	33	453	4	1238	17:00:00	58	727	0	785	0
18:00:00	0	276	23	299	1	1155	18:00:00	94	762	0	856	0
Totals:	0	3737	192	3929	10	7613		295	3389	0	3684	0

East Approach Totals						East/West Total Approaches	West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	95	8:00:00	30	0	65	95	0
9:00:00	0	0	0	0	0	131	9:00:00	54	0	77	131	0
11:00:00	0	0	0	0	0	2	11:00:00	0	0	2	2	0
12:00:00	0	0	0	0	0	60	12:00:00	21	0	39	60	1
13:00:00	0	0	0	0	0	42	13:00:00	15	0	27	42	0
14:00:00	0	0	0	0	0	41	14:00:00	15	0	26	41	1
15:00:00	0	0	0	0	0	2	15:00:00	0	0	2	2	0
16:00:00	0	0	0	0	0	79	16:00:00	45	0	34	79	10
17:00:00	0	0	0	0	0	68	17:00:00	25	0	43	68	1
18:00:00	0	0	0	0	0	64	18:00:00	35	0	29	64	4
Totals:	0	0	0	0	0	584		240	0	344	584	17

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	30	54	21	16	15	49	29	36

MG8 ENG

Count Date: 30-Apr-2013

Intersection: The Gore Road & Strathdale Road **Municipality:** Region of Peel

Major Road: The Gore Road **Major Road Runs:** N/S one lane each way

Operating Speed of Major Road: 50 km/hr **Operating under restricted flow conditions**

Warrant #1: Minimum Vehicular Volumes.

A. All Approaches.

Not Satisfied

No. of Lanes	Minimum Requirements														
	1 Lane Each Way		2 Lanes Each Way		3 Lanes	Hours Ending								Percentage Warrant	
Flow Condition	1 Lane F. Flow (Code 1)	1 Lane R. Flow (Code 2)	2 Lane F. Flow (Code 3)	2 Lane R. Flow (Code 4)	or More R. Flow (Code 5)	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00		
100%	480	720	600	900	1125	1524	1255	581	632	517	1133	1306	1219	Yes:	100%
80%	385	575	480	720	900									No:	X
All Approa-ches	100% Fulfilled					100	100				100	100	100		500
	80% Fulfilled							80	80						160
	Actual % if Below 80%									72					72
											Total:				732
											Actual Average (Total/8):				91%

B. Minor Street Both Approaches.

100%	180	255	180	255	255	95	131	60	42	41	79	68	64	Yes:	100%
80%	143	203	143	203	203									No:	X
Minor Street Both Approa-ches	100% Fulfilled														0
	80% Fulfilled														0
	Actual % if Below 80%					37	51	24	16	16	31	27	25		227
											Total:				227
											Actual Average (Total/8):				28%

MG8 ENG

Count Date: 30-Apr-2013

Intersection: The Gore Road & Strathdale Road **Municipality:** Region of Peel

Major Road: The Gore Road **Major Road Runs:** N/S one lane each way

Operating Speed of Major Road: 50 km/hr **Operating under restricted flow conditions**

Warrant #2: Delay to Cross Traffic.

A. Major Street Both Approaches.

Not Satisfied

No. of Lanes	Minimum Requirements														
	1 Lane Each Way		2 Lanes Each Way		3 Lanes	Hours Ending									
Flow Condition	1 Lane F. Flow (Code 1)	1 Lane R. Flow (Code 2)	2 Lane F. Flow (Code 3)	2 Lane R. Flow (Code 4)	or More R. Flow (Code 5)	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00	Percentage Warrant	
100%	480	720	600	900	1125	1429	1124	521	590	476	1054	1238	1155		100%
														Yes:	
80%	385	575	480	720	900									No:	X
All Approa-ches	100% Fulfilled					100	100				100	100	100		500
	80% Fulfilled								80						80
	Actual % if Below 80%							72		66					138

Total: 718

Actual Average (Total/8): 90%

B. Traffic Crossing Major Street.

Flow Condition	Code 1	Code 2	Code 3	Code 4	Code 5	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00		
100%	50	75	50	75	75	30	54	21	16	15	49	29	36		100%
														Yes:	
80%	40	60	40	60	60									No:	X
All Approa-ches	100% Fulfilled														0
	80% Fulfilled														0
	Actual % if Below 80%					40	72	28	21	20	65	39	48		333

Total: 333

Actual Average (Total/8): 42%

MG8 ENG

Count Date: 30-Apr-2013
Intersection: The Gore Road & Strathdale Road **Municipality:** Region of Peel
Major Road: The Gore Road **Major Road Runs:** N/S one lane each way
Operating Speed of Major Road: 50 km/hr **Operating under restricted flow conditions**

Warrant #3: Accident Experience.

Not Satisfied

A. Reportable accidents within a twelve month period averaged over 36 consequtive months susceptible to correction by a traffic signal.

Minimum Requirements	Actual Number of Accidents	Average Number of Accidents	Fulfilled
5	0 in 3 years	0 per year	0%

B. Adequate trial of less restrictive remedies has failed to reduce accident frequency.	No
C. Either Warrant 1 (Minimum Vehicular Volume) or Warrant 2 (Delay to Cross Traffic) satisfied 80% or more.	No

Warrant #4: Combination Warrant.

(Used if no warrant satisfied 100%)

Not Satisfied

Minimum Requirements	Warrant Satisfied 80% or More	Fulfilled
Two Warrants Satisfied 80%	Warrant 1 (Minimum Vehicular Volume) Warrant 2 (Delay to Cross Traffic) Warrant 3 (Accident Experience)	No No No

Conclusion: Traffic signal not warranted.

MG8 ENG

Count Date: 30-Apr-2013 Site #: 0000804245

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	214	214	5	5	0	0	9	9	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	505	291	15	10	0	0	18	9	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	736	231	20	5	0	0	23	5	2	2	0	0	0	0	0	0	0	0
8:00:00	0	0	969	233	24	4	0	0	25	2	2	0	0	0	0	0	0	0	0	0
8:15:00	0	0	1184	215	32	8	0	0	31	6	2	0	0	0	0	0	0	0	0	0
8:30:00	0	0	1377	193	33	1	0	0	40	9	4	2	0	0	0	0	0	0	0	0
8:45:00	0	0	1584	207	36	3	0	0	49	9	6	2	0	0	0	0	0	0	0	0
9:00:00	0	0	1722	138	43	7	0	0	51	2	6	0	0	0	0	0	0	0	0	0
9:00:06	0	0	1728	6	43	0	0	0	51	0	6	0	0	0	0	0	0	0	0	0
11:00:00	0	0	1734	6	43	0	0	0	52	1	6	0	0	0	0	0	0	0	0	0
11:15:00	0	0	1809	75	44	1	0	0	53	1	6	0	0	0	0	0	0	0	0	0
11:30:00	0	0	1864	55	48	4	0	0	56	3	6	0	0	0	0	0	0	0	0	0
11:45:00	0	0	1938	74	56	8	0	0	62	6	6	0	0	0	0	0	0	0	0	0
12:00:00	0	0	2019	81	58	2	0	0	65	3	7	1	0	0	0	0	0	0	0	0
12:15:00	0	0	2089	70	59	1	0	0	70	5	7	0	0	0	0	0	0	0	1	1
12:30:00	0	0	2157	68	62	3	0	0	74	4	8	1	0	0	0	0	0	0	1	0
12:45:00	0	0	2235	78	65	3	0	0	78	4	8	0	0	0	0	0	0	0	1	0
13:00:00	0	0	2303	68	70	5	0	0	80	2	9	1	0	0	0	0	0	0	1	0
13:15:00	0	0	2362	59	75	5	0	0	82	2	9	0	0	0	0	0	0	0	1	0
13:30:00	0	0	2401	39	75	0	0	0	85	3	10	1	0	0	0	0	0	0	1	0
13:45:00	0	0	2457	56	77	2	0	0	88	3	10	0	0	0	0	0	0	0	1	0
14:00:00	0	0	2541	84	78	1	0	0	90	2	10	0	0	0	0	0	0	0	1	0
14:00:04	0	0	2542	1	78	0	0	0	90	0	10	0	0	0	0	0	0	0	1	0
15:00:00	0	0	2544	2	78	0	0	0	90	0	10	0	0	0	0	0	0	0	1	0
15:15:00	0	0	2612	68	84	6	0	0	94	4	12	2	0	0	0	0	0	0	1	0
15:30:00	0	0	2678	66	85	1	0	0	97	3	12	0	0	0	0	0	0	0	1	0
15:45:00	0	0	2829	151	110	25	0	0	98	1	14	2	0	0	0	0	0	0	3	2
16:00:00	0	0	2937	108	121	11	0	0	103	5	15	1	0	0	1	1	0	0	5	2
16:15:00	0	0	3012	75	127	6	0	0	106	3	18	3	0	0	1	0	0	0	6	1
16:30:00	0	0	3121	109	136	9	0	0	110	4	18	0	0	0	1	0	0	0	6	0
16:45:00	0	0	3212	91	147	11	0	0	110	0	18	0	0	0	1	0	0	0	8	2
17:00:00	0	0	3349	137	151	4	0	0	111	1	18	0	0	0	1	0	0	0	9	1
17:15:00	0	0	3451	102	155	4	0	0	114	3	18	0	0	0	1	0	0	0	9	0
17:30:00	0	0	3529	78	163	8	0	0	115	1	18	0	0	0	1	0	0	0	9	0
17:45:00	0	0	3572	43	168	5	0	0	118	3	18	0	0	0	1	0	0	0	10	1
18:00:00	0	0	3616	44	174	6	0	0	120	2	18	0	0	0	1	0	0	0	10	0
18:00:48	0	0	3618	2	174	0	0	0	120	0	18	0	0	0	1	0	0	0	10	0

MG8 ENG

Count Date: 30-Apr-2013 Site #: 0000804245

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MG8 ENG

Count Date: 30-Apr-2013 Site #: 0000804245

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	164	164	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0
7:30:00	3	0	260	96	0	0	0	0	12	5	0	0	0	0	0	0	0	0	0	0
7:45:00	6	3	323	63	0	0	0	0	14	2	0	0	0	0	0	0	0	0	0	0
8:00:00	10	4	382	59	0	0	0	0	17	3	0	0	0	0	0	0	0	0	0	0
8:15:00	11	1	441	59	0	0	0	0	22	5	0	0	0	0	0	0	0	0	0	0
8:30:00	14	3	511	70	0	0	1	1	28	6	0	0	0	0	0	0	0	0	0	0
8:45:00	18	4	592	81	0	0	2	1	31	3	0	0	0	0	0	0	0	0	0	0
9:00:00	19	1	672	80	0	0	4	2	36	5	0	0	0	0	0	0	0	0	0	0
9:00:06	19	0	675	3	0	0	4	0	36	0	0	0	0	0	0	0	0	0	0	0
11:00:00	19	0	677	2	0	0	4	0	36	0	0	0	0	0	0	0	0	0	0	0
11:15:00	23	4	714	37	0	0	4	0	39	3	0	0	0	0	0	0	0	0	0	0
11:30:00	27	4	769	55	0	0	4	0	46	7	0	0	0	0	0	0	0	0	0	0
11:45:00	34	7	804	35	0	0	4	0	49	3	0	0	0	0	0	0	0	0	0	0
12:00:00	36	2	850	46	0	0	4	0	53	4	0	0	0	0	0	0	0	0	0	0
12:15:00	40	4	888	38	0	0	5	1	57	4	0	0	0	0	0	0	0	0	0	0
12:30:00	44	4	961	73	0	0	5	0	60	3	0	0	0	0	0	0	0	0	0	0
12:45:00	51	7	1032	71	0	0	5	0	63	3	0	0	0	0	0	0	0	0	0	0
13:00:00	60	9	1090	58	0	0	5	0	65	2	0	0	0	0	0	0	0	0	0	0
13:15:00	65	5	1131	41	0	0	5	0	68	3	0	0	0	0	0	0	0	0	0	0
13:30:00	67	2	1185	54	0	0	5	0	70	2	0	0	0	0	0	0	0	0	0	0
13:45:00	71	4	1234	49	0	0	5	0	72	2	0	0	0	0	0	0	0	0	0	0
14:00:00	72	1	1288	54	0	0	5	0	74	2	0	0	0	0	0	0	0	0	0	0
14:00:04	72	0	1288	0	0	0	5	0	74	0	0	0	0	0	0	0	0	0	0	0
15:00:00	72	0	1293	5	0	0	5	0	74	0	0	0	0	0	0	0	0	0	0	0
15:15:00	76	4	1411	118	0	0	5	0	78	4	0	0	0	0	0	0	0	0	0	0
15:30:00	89	13	1521	110	0	0	5	0	83	5	0	0	0	0	0	0	0	0	0	0
15:45:00	104	15	1658	137	0	0	6	1	84	1	0	0	0	0	0	0	0	0	0	0
16:00:00	137	33	1811	153	0	0	6	0	89	5	0	0	0	0	0	0	0	0	0	0
16:15:00	148	11	1960	149	0	0	6	0	97	8	0	0	0	0	0	0	0	0	0	0
16:30:00	157	9	2111	151	0	0	6	0	102	5	0	0	0	0	0	0	0	0	0	0
16:45:00	171	14	2302	191	0	0	6	0	109	7	0	0	0	0	0	0	0	0	0	0
17:00:00	195	24	2515	213	0	0	6	0	112	3	0	0	0	0	0	0	0	0	0	0
17:15:00	217	22	2713	198	0	0	7	1	114	2	0	0	0	0	0	0	0	0	0	0
17:30:00	242	25	2921	208	0	0	7	0	115	1	0	0	0	0	0	0	0	0	0	0
17:45:00	266	24	3096	175	0	0	7	0	123	8	0	0	0	0	0	0	0	0	0	0
18:00:00	288	22	3256	160	0	0	7	0	133	10	0	0	0	0	0	0	0	0	0	0
18:00:48	290	2	3260	4	0	0	7	0	133	0	0	0	0	0	0	0	0	0	0	0

MG8 ENG

Count Date: 30-Apr-2013 Site #: 0000804245

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	0	0	15	15	1	1	0	0	4	4	0	0	0	0	0	0	0	0
7:30:00	13	7	0	0	25	10	2	1	0	0	7	3	0	0	0	0	0	0	0	0
7:45:00	19	6	0	0	39	14	2	0	0	0	10	3	0	0	0	0	0	0	0	0
8:00:00	27	8	0	0	53	14	3	1	0	0	12	2	0	0	0	0	0	0	0	0
8:15:00	36	9	0	0	66	13	4	1	0	0	12	0	0	0	0	0	0	0	0	0
8:30:00	47	11	0	0	86	20	5	1	0	0	12	0	0	0	0	0	0	0	0	0
8:45:00	56	9	0	0	119	33	6	1	0	0	14	2	0	0	0	0	0	0	0	0
9:00:00	77	21	0	0	128	9	7	1	0	0	14	0	0	0	0	0	0	0	0	0
9:00:06	77	0	0	0	128	0	7	0	0	0	14	0	0	0	0	0	0	0	0	0
11:00:00	77	0	0	0	130	2	7	0	0	0	14	0	0	0	0	0	0	0	0	0
11:15:00	80	3	0	0	141	11	8	1	0	0	14	0	0	0	0	0	0	0	1	1
11:30:00	86	6	0	0	153	12	9	1	0	0	14	0	0	0	0	0	0	0	1	0
11:45:00	91	5	0	0	162	9	10	1	0	0	14	0	0	0	0	0	0	0	1	0
12:00:00	95	4	0	0	169	7	10	0	0	0	14	0	0	0	0	0	0	0	1	0
12:15:00	96	1	0	0	173	4	10	0	0	0	14	0	0	0	0	0	0	0	1	0
12:30:00	99	3	0	0	178	5	11	1	0	0	14	0	0	0	0	0	0	0	1	0
12:45:00	104	5	0	0	183	5	11	0	0	0	16	2	0	0	0	0	0	0	1	0
13:00:00	108	4	0	0	194	11	12	1	0	0	16	0	0	0	0	0	0	0	1	0
13:15:00	114	6	0	0	196	2	12	0	0	0	16	0	0	0	0	0	0	0	2	1
13:30:00	117	3	0	0	203	7	12	0	0	0	16	0	0	0	0	0	0	0	2	0
13:45:00	121	4	0	0	207	4	12	0	0	0	18	2	0	0	0	0	0	0	2	0
14:00:00	123	2	0	0	218	11	12	0	0	0	18	0	0	0	0	0	0	0	2	0
14:00:04	123	0	0	0	220	2	12	0	0	0	18	0	0	0	0	0	0	0	2	0
15:00:00	123	0	0	0	220	0	12	0	0	0	18	0	0	0	0	0	0	0	2	0
15:15:00	134	11	0	0	229	9	12	0	0	0	18	0	0	0	0	0	0	0	2	0
15:30:00	148	14	0	0	236	7	12	0	0	0	18	0	0	0	0	0	0	0	2	0
15:45:00	160	12	0	0	241	5	13	1	0	0	18	0	0	0	0	0	0	0	2	0
16:00:00	165	5	0	0	254	13	15	2	0	0	18	0	0	0	0	0	0	0	12	10
16:15:00	168	3	0	0	264	10	16	1	0	0	20	2	0	0	0	0	0	0	12	0
16:30:00	174	6	0	0	273	9	17	1	0	0	20	0	0	0	0	0	0	0	12	0
16:45:00	181	7	0	0	280	7	17	0	0	0	22	2	0	0	0	0	0	0	12	0
17:00:00	187	6	0	0	290	10	18	1	0	0	25	3	0	0	0	0	0	0	13	1
17:15:00	199	12	0	0	294	4	18	0	0	0	25	0	0	0	0	0	0	0	13	0
17:30:00	206	7	0	0	304	10	18	0	0	0	25	0	0	0	0	0	0	0	15	2
17:45:00	214	8	0	0	308	4	18	0	0	0	25	0	0	0	0	0	0	0	17	2
18:00:00	222	8	0	0	319	11	18	0	0	0	25	0	0	0	0	0	0	0	17	0
18:00:48	222	0	0	0	321	2	18	0	0	0	25	0	0	0	0	0	0	0	17	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Region of Peel
Site #: 0000803990
Intersection: The Gore Road & Pannahill Drive
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 1454
North Entering: 951
North Peds: 4
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	4	29	1	34
Cars	48	830	39	917
Totals	52	859	40	

Cyclists	0
Trucks	26
Cars	477
Totals	503

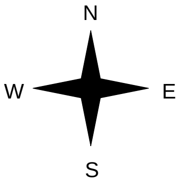
East Leg Total: 629
East Entering: 337
East Peds: 98
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	15	143	158

Cars	Trucks	Cyclists	Totals
35	1	0	36
45	1	0	46
252	3	0	255
332	5	0	

Pannahill Drive



Pannahill Drive

Cyclists	Trucks	Cars	Totals
0	4	64	68
0	0	35	35
0	4	108	112
0	8	207	

Cars	Trucks	Cyclists	Totals
282	10	0	292

The Gore Road

Peds Cross: ⧗
West Peds: 33
West Entering: 215
West Leg Total: 373

Cars	1190
Trucks	36
Cyclists	0
Totals	1226

Cars	50	378	208	636
Trucks	10	21	9	40
Cyclists	0	0	0	0
Totals	60	399	217	

Peds Cross: ⋈
South Peds: 12
South Entering: 676
South Leg Total: 1902

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

Municipality: Region of Peel
Site #: 0000803990
Intersection: The Gore Road & Pannahill Drive
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 637
North Entering: 309
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	2	9	0	11
Cars	23	260	15	298
Totals	25	269	15	

Cyclists	1
Trucks	18
Cars	309
Totals	328

East Leg Total: 208
East Entering: 108
East Peds: 5
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	5	73	78

Cars	Trucks	Cyclists	Totals
12	3	0	15
4	0	0	4
88	1	0	89
104	4	0	

Pannahill Drive

N
W
E
S

Pannahill Drive

Cyclists	Trucks	Cars	Totals
0	4	27	31
0	0	5	5
0	7	41	48
0	11	73	

Cars	Trucks	Cyclists	Totals
98	2	0	100

The Gore Road

Peds Cross: ⧗
West Peds: 0
West Entering: 84
West Leg Total: 162

Cars	389
Trucks	17
Cyclists	0
Totals	406

Cars	46	270	78	394
Trucks	3	11	2	16
Cyclists	0	1	0	1
Totals	49	282	80	

Peds Cross: ⋈
South Peds: 0
South Entering: 411
South Leg Total: 817

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

Municipality: Region of Peel
Site #: 0000803990
Intersection: The Gore Road & Pannahill Drive
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total:	1164
North Entering:	534
North Peds:	10
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	4	19	1	24
Cars	52	433	25	510
Totals	56	452	26	

Cyclists	0
Trucks	24
Cars	606
Totals	630

East Leg Total:	585
East Entering:	316
East Peds:	88
Peds Cross:	⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	5	173	178

Pannahill Drive

Cars	Trucks	Cyclists	Totals
28	0	0	28
64	1	0	65
219	4	0	223
311	5	0	

N

W E

S

Cyclists	Trucks	Cars	Totals
0	3	37	40
0	2	17	19
0	5	65	70
0	10	119	

Pannahill Drive

Cars	Trucks	Cyclists	Totals
258	11	0	269

The Gore Road

Peds Cross:	⧗
West Peds:	55
West Entering:	129
West Leg Total:	307

Cars	717
Trucks	28
Cyclists	0
Totals	745

Cars	57	541	216	814
Trucks	0	21	8	29
Cyclists	0	0	0	0
Totals	57	562	224	

Peds Cross:	⋈
South Peds:	5
South Entering:	843
South Leg Total:	1588

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000803990
Intersection: The Gore Road & Pannahill Drive
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
BARRY

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 7936
North Entering: 4074
North Peds: 15
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	20	126	8	154
Cars	230	3559	131	3920
Totals	250	3685	139	

Cyclists	1
Trucks	142
Cars	3719
Totals	3862

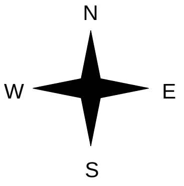
East Leg Total: 2645
East Entering: 1387
East Peds: 220
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	48	791	839

Cars	Trucks	Cyclists	Totals
133	9	0	142
164	5	0	169
1059	17	0	1076
1356	31	0	

Pannahill Drive



Cyclists	Trucks	Cars	Totals
0	20	255	275
0	2	96	98
0	27	474	501
0	49	825	

Pannahill Drive

Cars	Trucks	Cyclists	Totals
1214	44	0	1258

The Gore Road

Peds Cross: ⧗
West Peds: 106
West Entering: 874
West Leg Total: 1713

Cars	5092
Trucks	170
Cyclists	0
Totals	5262

Cars	397	3331	987	4715
Trucks	23	113	34	170
Cyclists	0	1	0	1
Totals	420	3445	1021	

Peds Cross: ⋈
South Peds: 21
South Entering: 4886
South Leg Total: 10148

Comments

MG8 ENG

Traffic Count Summary

Intersection: The Gore Road & Pannahill Drive **Count Date:** 24-Apr-2013 **Municipality:** Region of Peel

North Approach Totals						North/South Total Approaches	South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	2	0	2	0	2	7:00:00	0	0	0	0	0
8:00:00	13	863	37	913	0	1223	8:00:00	47	200	63	310	3
9:00:00	40	859	52	951	4	1627	9:00:00	60	399	217	676	12
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	7	291	22	320	0	681	12:00:00	37	259	65	361	0
13:00:00	13	266	21	300	0	678	13:00:00	41	263	74	378	0
14:00:00	10	270	16	296	0	633	14:00:00	33	248	56	337	0
15:00:00	0	1	0	1	0	3	15:00:00	0	1	1	2	0
16:00:00	26	452	56	534	10	1377	16:00:00	57	562	224	843	5
17:00:00	18	336	25	379	1	1321	17:00:00	70	729	143	942	1
18:00:00	12	344	21	377	0	1413	18:00:00	75	783	178	1036	0
Totals:	139	3684	250	4073	15	8958		420	3444	1021	4885	21

East Approach Totals						East/West Total Approaches	West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	4	0	0	4	0	4	7:00:00	0	0	0	0	0
8:00:00	182	13	14	209	1	300	8:00:00	21	6	64	91	4
9:00:00	255	46	36	337	98	552	9:00:00	68	35	112	215	33
11:00:00	2	0	0	2	0	2	11:00:00	0	0	0	0	0
12:00:00	86	5	6	97	13	191	12:00:00	33	10	51	94	2
13:00:00	81	3	16	100	2	185	13:00:00	30	3	52	85	0
14:00:00	55	3	9	67	7	133	14:00:00	17	3	46	66	2
15:00:00	1	0	0	1	1	4	15:00:00	1	0	2	3	0
16:00:00	223	65	28	316	88	445	16:00:00	40	19	70	129	55
17:00:00	97	21	22	140	8	222	17:00:00	29	11	42	82	5
18:00:00	90	13	11	114	2	222	18:00:00	36	11	61	108	5
Totals:	1076	169	142	1387	220	2260		275	98	500	873	106

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	219	385	129	114	75	343	149	139

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803990

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	179	177	3	3	0	0	7	7	0	0	0	0	0	0	0	0	0	0
7:30:00	3	2	397	218	11	8	0	0	18	11	1	1	0	0	0	0	0	0	0	0
7:45:00	7	4	625	228	22	11	0	0	22	4	5	4	0	0	0	0	0	0	0	0
8:00:00	10	3	838	213	31	9	3	3	27	5	6	1	0	0	0	0	0	0	0	0
8:15:00	15	5	1028	190	40	9	4	1	36	9	7	1	0	0	0	0	0	0	0	0
8:30:00	25	10	1238	210	49	9	4	0	46	10	9	2	0	0	0	0	0	0	0	0
8:45:00	41	16	1482	244	63	14	4	0	51	5	10	1	0	0	0	0	0	0	1	1
9:00:00	49	8	1668	186	79	16	4	0	56	5	10	0	0	0	0	0	0	0	4	3
9:00:05	49	0	1668	0	79	0	4	0	56	0	10	0	0	0	0	0	0	0	4	0
11:00:00	49	0	1668	0	79	0	4	0	56	0	10	0	0	0	0	0	0	0	4	0
11:15:00	49	0	1745	77	85	6	4	0	60	4	11	1	0	0	0	0	0	0	4	0
11:30:00	50	1	1814	69	86	1	4	0	60	0	13	2	0	0	0	0	0	0	4	0
11:45:00	53	3	1887	73	89	3	4	0	62	2	13	0	0	0	0	0	0	0	4	0
12:00:00	56	3	1951	64	98	9	4	0	64	2	13	0	0	0	0	0	0	0	4	0
12:15:00	59	3	2018	67	104	6	4	0	65	1	14	1	0	0	0	0	0	0	4	0
12:30:00	65	6	2083	65	108	4	4	0	67	2	14	0	0	0	0	0	0	0	4	0
12:45:00	68	3	2147	64	112	4	4	0	71	4	15	1	0	0	0	0	0	0	4	0
13:00:00	69	1	2205	58	117	5	4	0	76	5	15	0	0	0	0	0	0	0	4	0
13:15:00	70	1	2275	70	123	6	4	0	79	3	15	0	0	0	0	0	0	0	4	0
13:30:00	73	3	2336	61	126	3	4	0	80	1	16	1	0	0	0	0	0	0	4	0
13:45:00	74	1	2397	61	129	3	4	0	84	4	16	0	0	0	0	0	0	0	4	0
14:00:00	78	4	2463	66	132	3	5	1	88	4	16	0	0	0	0	0	0	0	4	0
14:00:17	78	0	2464	1	132	0	5	0	88	0	16	0	0	0	0	0	0	0	4	0
15:00:00	78	0	2464	0	132	0	5	0	88	0	16	0	0	0	0	0	0	0	4	0
15:15:00	88	10	2599	135	146	14	5	0	92	4	17	1	0	0	0	0	0	0	6	2
15:30:00	90	2	2700	101	149	3	5	0	97	5	17	0	0	0	0	0	0	0	14	8
15:45:00	98	8	2810	110	169	20	5	0	101	4	18	1	0	0	0	0	0	0	14	0
16:00:00	103	5	2897	87	184	15	6	1	107	6	20	2	0	0	0	0	0	0	14	0
16:15:00	110	7	2982	85	190	6	6	0	111	4	20	0	0	0	0	0	0	0	14	0
16:30:00	111	1	3073	91	193	3	7	1	115	4	20	0	0	0	0	0	0	0	14	0
16:45:00	116	5	3149	76	199	6	8	1	116	1	20	0	0	0	0	0	0	0	14	0
17:00:00	119	3	3223	74	209	10	8	0	117	1	20	0	0	0	0	0	0	0	15	1
17:15:00	121	2	3305	82	213	4	8	0	119	2	20	0	0	0	0	0	0	0	15	0
17:30:00	124	3	3396	91	218	5	8	0	124	5	20	0	0	0	0	0	0	0	15	0
17:45:00	127	3	3467	71	220	2	8	0	125	1	20	0	0	0	0	0	0	0	15	0
18:00:00	131	4	3558	91	230	10	8	0	126	1	20	0	0	0	0	0	0	0	15	0
18:00:09	131	0	3559	1	230	0	8	0	126	0	20	0	0	0	0	0	0	0	15	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803990

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	44	40	0	0	1	1	2	2	1	1	2	2	0	0	0	0	0	0	0	0
7:30:00	83	39	4	4	2	1	3	1	1	0	2	0	0	0	0	0	0	0	0	0
7:45:00	131	48	7	3	7	5	3	0	1	0	2	0	0	0	0	0	0	0	1	1
8:00:00	182	51	11	4	12	5	4	1	2	1	2	0	0	0	0	0	0	0	1	0
8:15:00	206	24	16	5	15	3	4	0	2	0	2	0	0	0	0	0	0	0	6	5
8:30:00	253	47	19	3	18	3	7	3	2	0	3	1	0	0	0	0	0	0	11	5
8:45:00	321	68	32	13	24	6	7	0	3	1	3	0	0	0	0	0	0	0	42	31
9:00:00	434	113	56	24	47	23	7	0	3	0	3	0	0	0	0	0	0	0	99	57
9:00:05	436	2	56	0	47	0	7	0	3	0	3	0	0	0	0	0	0	0	99	0
11:00:00	436	0	56	0	47	0	7	0	3	0	3	0	0	0	0	0	0	0	99	0
11:15:00	455	19	56	0	49	2	7	0	3	0	3	0	0	0	0	0	0	0	99	0
11:30:00	468	13	58	2	51	2	7	0	3	0	3	0	0	0	0	0	0	0	100	1
11:45:00	498	30	60	2	52	1	7	0	3	0	3	0	0	0	0	0	0	0	109	9
12:00:00	522	24	61	1	53	1	7	0	3	0	3	0	0	0	0	0	0	0	112	3
12:15:00	550	28	62	1	57	4	8	1	3	0	5	2	0	0	0	0	0	0	112	0
12:30:00	566	16	63	1	59	2	8	0	3	0	5	0	0	0	0	0	0	0	112	0
12:45:00	586	20	64	1	64	5	8	0	3	0	6	1	0	0	0	0	0	0	114	2
13:00:00	601	15	64	0	66	2	9	1	3	0	6	0	0	0	0	0	0	0	114	0
13:15:00	612	11	64	0	68	2	9	0	3	0	6	0	0	0	0	0	0	0	114	0
13:30:00	627	15	64	0	68	0	9	0	3	0	6	0	0	0	0	0	0	0	114	0
13:45:00	641	14	66	2	70	2	9	0	3	0	8	2	0	0	0	0	0	0	117	3
14:00:00	656	15	67	1	73	3	9	0	3	0	8	0	0	0	0	0	0	0	121	4
14:00:17	656	0	67	0	73	0	9	0	3	0	8	0	0	0	0	0	0	0	121	0
15:00:00	657	1	67	0	73	0	9	0	3	0	8	0	0	0	0	0	0	0	122	1
15:15:00	681	24	70	3	74	1	9	0	4	1	8	0	0	0	0	0	0	0	127	5
15:30:00	796	115	112	42	85	11	9	0	4	0	8	0	0	0	0	0	0	0	192	65
15:45:00	851	55	126	14	94	9	11	2	4	0	8	0	0	0	0	0	0	0	209	17
16:00:00	876	25	131	5	101	7	13	2	4	0	8	0	0	0	0	0	0	0	210	1
16:15:00	896	20	137	6	106	5	15	2	5	1	8	0	0	0	0	0	0	0	213	3
16:30:00	912	16	144	7	111	5	15	0	5	0	8	0	0	0	0	0	0	0	213	0
16:45:00	940	28	149	5	120	9	15	0	5	0	8	0	0	0	0	0	0	0	217	4
17:00:00	970	30	151	2	123	3	16	1	5	0	8	0	0	0	0	0	0	0	218	1
17:15:00	999	29	155	4	127	4	17	1	5	0	8	0	0	0	0	0	0	0	219	1
17:30:00	1019	20	158	3	127	0	17	0	5	0	8	0	0	0	0	0	0	0	219	0
17:45:00	1039	20	161	3	127	0	17	0	5	0	9	1	0	0	0	0	0	0	219	0
18:00:00	1059	20	164	3	133	6	17	0	5	0	9	0	0	0	0	0	0	0	220	1
18:00:09	1059	0	164	0	133	0	17	0	5	0	9	0	0	0	0	0	0	0	220	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803990

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	14	14	29	29	10	10	1	1	2	2	1	1	0	0	0	0	0	0	0	0
7:30:00	25	11	84	55	21	11	2	1	7	5	2	1	0	0	0	0	0	0	3	3
7:45:00	37	12	136	52	46	25	2	0	12	5	4	2	0	0	0	0	0	0	3	0
8:00:00	44	7	187	51	56	10	3	1	13	1	7	3	0	0	0	0	0	0	3	0
8:15:00	54	10	242	55	76	20	5	2	17	4	9	2	0	0	0	0	0	0	3	0
8:30:00	59	5	345	103	112	36	8	3	25	8	14	5	0	0	0	0	0	0	3	0
8:45:00	72	13	480	135	175	63	11	3	28	3	14	0	0	0	0	0	0	0	7	4
9:00:00	94	22	565	85	264	89	13	2	34	6	16	2	0	0	0	0	0	0	15	8
9:00:05	94	0	565	0	264	0	13	0	34	0	16	0	0	0	0	0	0	0	15	0
11:00:00	94	0	565	0	264	0	13	0	34	0	16	0	0	0	0	0	0	0	15	0
11:15:00	101	7	622	57	274	10	13	0	35	1	16	0	0	0	0	0	0	0	15	0
11:30:00	110	9	684	62	285	11	13	0	39	4	16	0	0	0	0	0	0	0	15	0
11:45:00	118	8	739	55	303	18	14	1	39	0	17	1	0	0	0	0	0	0	15	0
12:00:00	130	12	817	78	328	25	14	0	40	1	17	0	0	0	1	1	0	0	15	0
12:15:00	143	13	881	64	342	14	14	0	42	2	18	1	0	0	1	0	0	0	15	0
12:30:00	153	10	947	66	360	18	15	1	43	1	18	0	0	0	1	0	0	0	15	0
12:45:00	164	11	1009	62	381	21	17	2	50	7	19	1	0	0	1	0	0	0	15	0
13:00:00	168	4	1067	58	400	19	17	0	53	3	19	0	0	0	1	0	0	0	15	0
13:15:00	176	8	1130	63	413	13	17	0	58	5	19	0	0	0	1	0	0	0	15	0
13:30:00	187	11	1185	55	425	12	17	0	58	0	20	1	0	0	1	0	0	0	15	0
13:45:00	195	8	1239	54	439	14	18	1	60	2	22	2	0	0	1	0	0	0	15	0
14:00:00	200	5	1308	69	453	14	18	0	60	0	22	0	0	0	1	0	0	0	15	0
14:00:17	200	0	1309	1	453	0	18	0	60	0	22	0	0	0	1	0	0	0	15	0
15:00:00	200	0	1309	0	454	1	18	0	60	0	22	0	0	0	1	0	0	0	15	0
15:15:00	220	20	1426	117	500	46	18	0	65	5	23	1	0	0	1	0	0	0	15	0
15:30:00	229	9	1560	134	574	74	18	0	71	6	24	1	0	0	1	0	0	0	20	5
15:45:00	242	13	1689	129	635	61	18	0	75	4	27	3	0	0	1	0	0	0	20	0
16:00:00	257	15	1850	161	670	35	18	0	81	6	30	3	0	0	1	0	0	0	20	0
16:15:00	275	18	1999	149	702	32	19	1	94	13	30	0	0	0	1	0	0	0	20	0
16:30:00	286	11	2178	179	736	34	22	3	100	6	31	1	0	0	1	0	0	0	20	0
16:45:00	305	19	2370	192	775	39	23	1	102	2	32	1	0	0	1	0	0	0	20	0
17:00:00	322	17	2553	183	811	36	23	0	107	5	32	0	0	0	1	0	0	0	21	1
17:15:00	342	20	2750	197	848	37	23	0	109	2	32	0	0	0	1	0	0	0	21	0
17:30:00	368	26	2959	209	891	43	23	0	111	2	32	0	0	0	1	0	0	0	21	0
17:45:00	384	16	3130	171	930	39	23	0	112	1	34	2	0	0	1	0	0	0	21	0
18:00:00	397	13	3330	200	987	57	23	0	113	1	34	0	0	0	1	0	0	0	21	0
18:00:09	397	0	3331	1	987	0	23	0	113	0	34	0	0	0	1	0	0	0	21	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803990

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	5	4	2	2	22	12	1	1	0	0	0	0	0	0	0	0	0	0	3	2
7:45:00	11	6	3	1	41	19	1	0	0	0	3	3	0	0	0	0	0	0	3	0
8:00:00	20	9	6	3	61	20	1	0	0	0	3	0	0	0	0	0	0	0	4	1
8:15:00	32	12	6	0	73	12	1	0	0	0	4	1	0	0	0	0	0	0	4	0
8:30:00	40	8	11	5	92	19	2	1	0	0	5	1	0	0	0	0	0	0	8	4
8:45:00	52	12	20	9	122	30	4	2	0	0	5	0	0	0	0	0	0	0	20	12
9:00:00	84	32	41	21	169	47	5	1	0	0	7	2	0	0	0	0	0	0	37	17
9:00:05	84	0	41	0	169	0	5	0	0	0	7	0	0	0	0	0	0	0	37	0
11:00:00	84	0	41	0	169	0	5	0	0	0	7	0	0	0	0	0	0	0	37	0
11:15:00	93	9	43	2	185	16	5	0	0	0	8	1	0	0	0	0	0	0	37	0
11:30:00	100	7	46	3	197	12	5	0	0	0	8	0	0	0	0	0	0	0	38	1
11:45:00	107	7	47	1	209	12	5	0	0	0	8	0	0	0	0	0	0	0	39	1
12:00:00	116	9	51	4	216	7	6	1	0	0	11	3	0	0	0	0	0	0	39	0
12:15:00	121	5	51	0	230	14	9	3	0	0	14	3	0	0	0	0	0	0	39	0
12:30:00	126	5	52	1	241	11	9	0	0	0	14	0	0	0	0	0	0	0	39	0
12:45:00	134	8	52	0	250	9	9	0	0	0	15	1	0	0	0	0	0	0	39	0
13:00:00	142	8	54	2	263	13	10	1	0	0	16	1	0	0	0	0	0	0	39	0
13:15:00	147	5	54	0	272	9	10	0	0	0	17	1	0	0	0	0	0	0	39	0
13:30:00	152	5	56	2	282	10	10	0	0	0	18	1	0	0	0	0	0	0	39	0
13:45:00	156	4	56	0	292	10	10	0	0	0	19	1	0	0	0	0	0	0	39	0
14:00:00	159	3	57	1	306	14	10	0	0	0	19	0	0	0	0	0	0	0	41	2
14:00:17	159	0	57	0	308	2	10	0	0	0	19	0	0	0	0	0	0	0	41	0
15:00:00	160	1	57	0	308	0	10	0	0	0	19	0	0	0	0	0	0	0	41	0
15:15:00	166	6	63	6	317	9	10	0	0	0	19	0	0	0	0	0	0	0	43	2
15:30:00	181	15	69	6	346	29	11	1	1	1	20	1	0	0	0	0	0	0	82	39
15:45:00	190	9	72	3	362	16	13	2	1	0	22	2	0	0	0	0	0	0	92	10
16:00:00	197	7	74	2	373	11	13	0	2	1	24	2	0	0	0	0	0	0	96	4
16:15:00	208	11	75	1	381	8	14	1	2	0	24	0	0	0	0	0	0	0	98	2
16:30:00	211	3	76	1	392	11	15	1	2	0	24	0	0	0	0	0	0	0	100	2
16:45:00	219	8	80	4	405	13	16	1	2	0	25	1	0	0	0	0	0	0	100	0
17:00:00	222	3	85	5	414	9	17	1	2	0	25	0	0	0	0	0	0	0	101	1
17:15:00	225	3	90	5	430	16	18	1	2	0	26	1	0	0	0	0	0	0	102	1
17:30:00	240	15	90	0	437	7	19	1	2	0	27	1	0	0	0	0	0	0	104	2
17:45:00	250	10	94	4	456	19	20	1	2	0	27	0	0	0	0	0	0	0	104	0
18:00:00	255	5	96	2	473	17	20	0	2	0	27	0	0	0	0	0	0	0	106	2
18:00:09	255	0	96	0	474	1	20	0	2	0	27	0	0	0	0	0	0	0	106	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

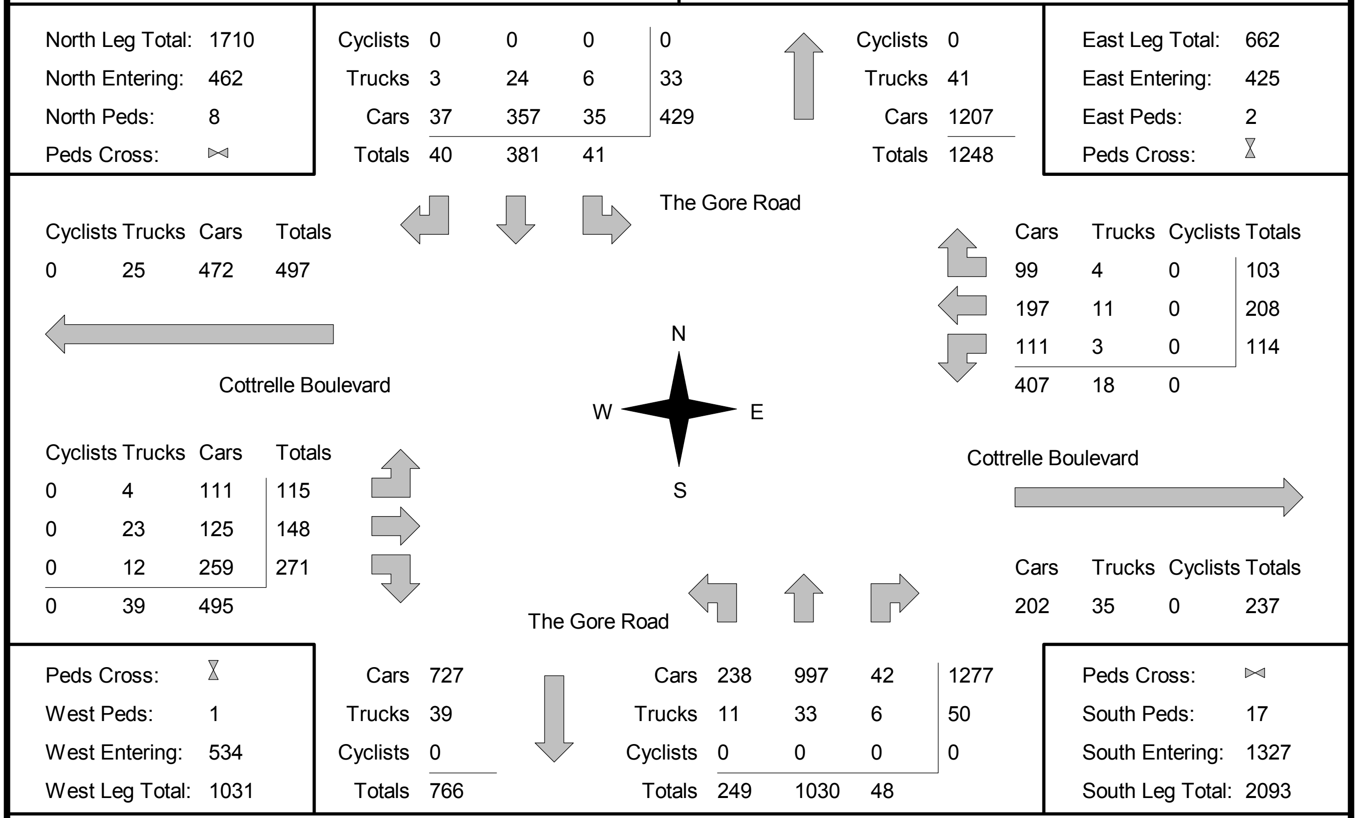
Municipality: Region of Peel
Site #: 0000803530
Intersection: The Gore Rd & Cottrelle Boulevard
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total:	1710
North Entering:	462
North Peds:	8
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	3	24	6	33
Cars	37	357	35	429
Totals	40	381	41	

Cyclists	0
Trucks	41
Cars	1207
Totals	1248

East Leg Total:	662
East Entering:	425
East Peds:	2
Peds Cross:	⧖

Cyclists	Trucks	Cars	Totals
0	25	472	497

Cars	Trucks	Cyclists	Totals
99	4	0	103
197	11	0	208
111	3	0	114
407	18	0	

Cyclists	Trucks	Cars	Totals
0	4	111	115
0	23	125	148
0	12	259	271
0	39	495	

Cars	Trucks	Cyclists	Totals
202	35	0	237

Peds Cross:	⧖
West Peds:	1
West Entering:	534
West Leg Total:	1031

Cars	727
Trucks	39
Cyclists	0
Totals	766

Cars	238	997	42	1277
Trucks	11	33	6	50
Cyclists	0	0	0	0
Totals	249	1030	48	

Peds Cross:	⋈
South Peds:	17
South Entering:	1327
South Leg Total:	2093

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:30:00
To: 12:30:00

Municipality: Region of Peel
Site #: 0000803530
Intersection: The Gore Rd & Cottrelle Boulevard
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 887
North Entering: 468
North Peds: 2
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	0	12	2	14
Cars	19	347	88	454
Totals	19	359	90	

Cyclists	1
Trucks	10
Cars	408
Totals	419

East Leg Total: 544
East Entering: 278
East Peds: 0
Peds Cross: ⧖

The Gore Road

Cyclists	Trucks	Cars	Totals
0	7	168	175

Cottrelle Boulevard

Cars	Trucks	Cyclists	Totals
98	0	0	98
113	5	0	118
61	1	0	62
272	6	0	

N
W
E
S

Cyclists	Trucks	Cars	Totals
0	2	19	21
0	6	111	117
0	4	56	60
0	12	186	

Cottrelle Boulevard

Cars	Trucks	Cyclists	Totals
257	9	0	266

The Gore Road

Peds Cross: ⧖
West Peds: 1
West Entering: 198
West Leg Total: 373

Cars	464
Trucks	17
Cyclists	0
Totals	481

Cars	36	291	58	385
Trucks	2	8	1	11
Cyclists	0	1	0	1
Totals	38	300	59	

Peds Cross: ⋈
South Peds: 8
South Entering: 397
South Leg Total: 878

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Region of Peel
Site #: 0000803530
Intersection: The Gore Rd & Cottrelle Boulevard
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total:	1608
North Entering:	533
North Peds:	9
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	0	15	1	16
Cars	27	376	114	517
Totals	27	391	115	

Cyclists	0
Trucks	14
Cars	1061
Totals	1075

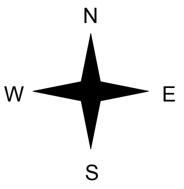
East Leg Total:	971
East Entering:	590
East Peds:	2
Peds Cross:	⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	10	433	443

Cottrelle Boulevard

Cars	Trucks	Cyclists	Totals
228	2	0	230
283	7	0	290
69	1	0	70
580	10	0	



Cyclists	Trucks	Cars	Totals
0	0	33	33
0	6	157	163
0	4	44	48
0	10	234	

Cottrelle Boulevard

Cars	Trucks	Cyclists	Totals
372	9	0	381

The Gore Road

Peds Cross:	⧗
West Peds:	1
West Entering:	244
West Leg Total:	687

Cars	489
Trucks	20
Cyclists	0
Totals	509

Cars	123	800	101	1024
Trucks	3	12	2	17
Cyclists	0	0	0	0
Totals	126	812	103	

Peds Cross:	⋈
South Peds:	5
South Entering:	1041
South Leg Total:	1550

Comments

MG8 ENG

Total Count Diagram

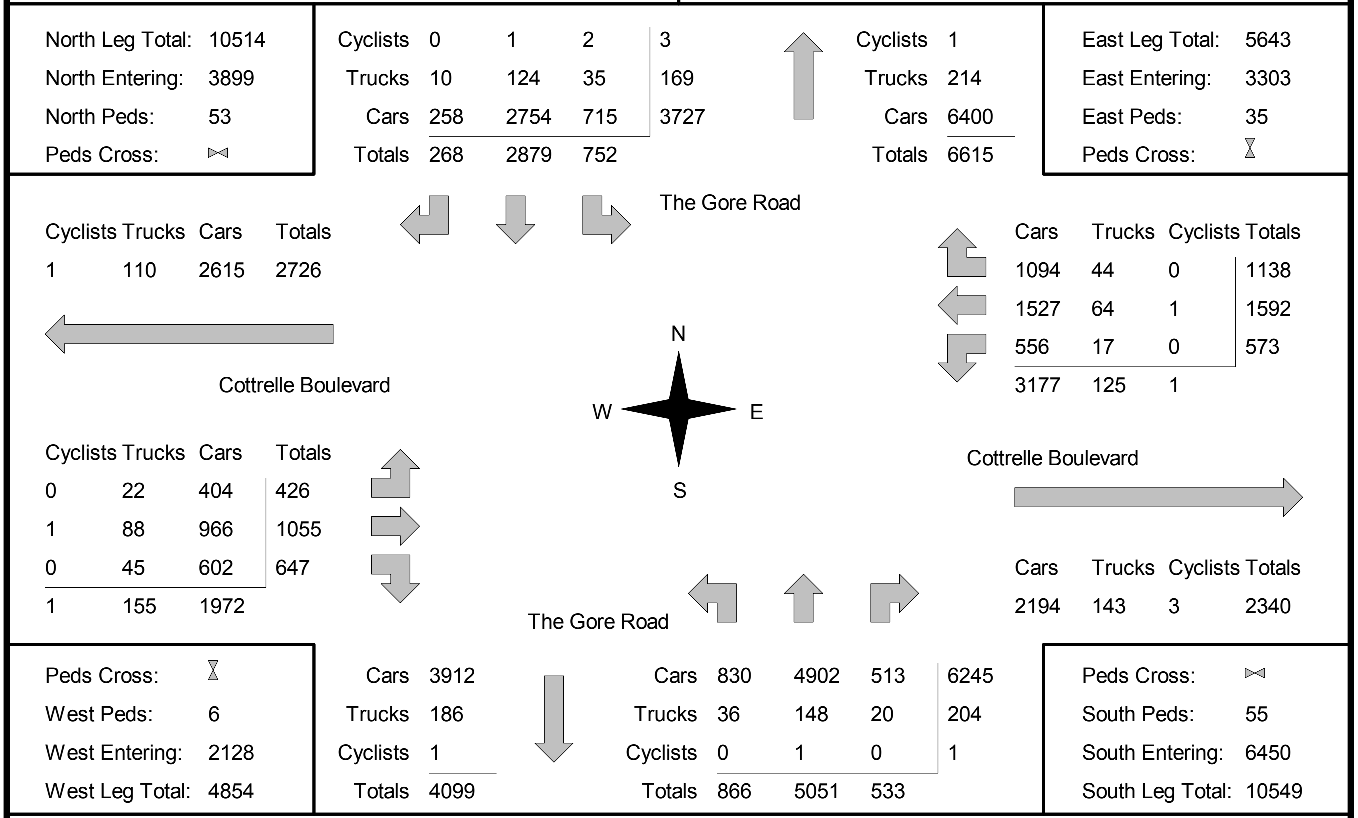
Municipality: Region of Peel
Site #: 0000803530
Intersection: The Gore Rd & Cottrelle Boulevard
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total: 10514
North Entering: 3899
North Peds: 53
Peds Cross: ⋈

Cyclists	0	1	2	3
Trucks	10	124	35	169
Cars	258	2754	715	3727
Totals	268	2879	752	

Cyclists	1
Trucks	214
Cars	6400
Totals	6615

East Leg Total: 5643
East Entering: 3303
East Peds: 35
Peds Cross: ⧖

The Gore Road

Cyclists	Trucks	Cars	Totals
1	110	2615	2726

Cottrelle Boulevard

Cars	Trucks	Cyclists	Totals
1094	44	0	1138
1527	64	1	1592
556	17	0	573
3177	125	1	

N
W
E
S

Cyclists	Trucks	Cars	Totals
0	22	404	426
1	88	966	1055
0	45	602	647
1	155	1972	

Cottrelle Boulevard

Cars	Trucks	Cyclists	Totals
2194	143	3	2340

The Gore Road

Peds Cross: ⧖
West Peds: 6
West Entering: 2128
West Leg Total: 4854

Cars	3912
Trucks	186
Cyclists	1
Totals	4099

Cars	830	4902	513	6245
Trucks	36	148	20	204
Cyclists	0	1	0	1
Totals	866	5051	533	

Peds Cross: ⋈
South Peds: 55
South Entering: 6450
South Leg Total: 10549

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Rd & Cottrelle Boulevard **Count Date:** 24-Apr-2013 **Municipality:** Region of Peel

North Approach Totals						North/South Total Approaches	South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	1	0	1	0	4	7:00:00	1	2	0	3	0
8:00:00	31	234	52	317	12	1503	8:00:00	157	1015	14	1186	6
9:00:00	41	381	40	462	8	1789	9:00:00	249	1030	48	1327	17
11:00:00	1	6	1	8	0	41	11:00:00	7	25	1	33	0
12:00:00	86	363	11	460	8	818	12:00:00	37	261	60	358	9
13:00:00	75	332	21	428	3	816	13:00:00	41	290	57	388	2
14:00:00	65	314	13	392	2	769	14:00:00	53	269	55	377	3
15:00:00	0	2	0	2	0	2	15:00:00	0	0	0	0	0
16:00:00	205	473	74	752	10	1537	16:00:00	80	611	94	785	11
17:00:00	130	380	28	538	5	1528	17:00:00	114	759	117	990	4
18:00:00	118	393	28	539	5	1539	18:00:00	125	788	87	1000	3
Totals:	752	2879	268	3899	53	10346		864	5050	533	6447	55

East Approach Totals						East/West Total Approaches	West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	2	2	4	0	8	7:00:00	2	2	0	4	0
8:00:00	27	223	102	352	1	650	8:00:00	105	113	80	298	1
9:00:00	114	208	103	425	2	959	9:00:00	115	148	271	534	1
11:00:00	0	0	0	0	0	4	11:00:00	3	0	1	4	0
12:00:00	50	114	100	264	0	429	12:00:00	22	98	45	165	1
13:00:00	59	125	89	273	0	480	13:00:00	30	120	57	207	1
14:00:00	54	106	75	235	0	390	14:00:00	20	87	48	155	0
15:00:00	0	2	1	3	0	4	15:00:00	0	1	0	1	0
16:00:00	109	245	223	577	29	855	16:00:00	60	173	45	278	0
17:00:00	69	276	246	591	2	819	17:00:00	31	141	56	228	0
18:00:00	91	291	197	579	1	831	18:00:00	37	172	43	252	2
Totals:	573	1592	1138	3303	35	5429		425	1055	646	2126	6

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	373	462	203	219	185	435	385	427

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803530

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	8	8	56	55	9	9	0	0	1	1	2	2	0	0	0	0	0	0	5	5
7:30:00	17	9	108	52	24	15	0	0	6	5	3	1	0	0	0	0	0	0	9	4
7:45:00	22	5	174	66	39	15	0	0	10	4	3	0	0	0	0	0	0	0	10	1
8:00:00	30	8	222	48	48	9	1	1	13	3	4	1	0	0	0	0	0	0	12	2
8:15:00	41	11	276	54	65	17	3	2	21	8	5	1	0	0	0	0	0	0	12	0
8:30:00	48	7	361	85	76	11	4	1	27	6	6	1	0	0	0	0	0	0	16	4
8:45:00	55	7	472	111	78	2	7	3	33	6	6	0	0	0	0	0	0	0	19	3
9:00:00	65	10	579	107	85	7	7	0	37	4	7	1	0	0	0	0	0	0	20	1
9:01:18	65	0	584	5	85	0	7	0	37	0	7	0	0	0	0	0	0	0	20	0
11:00:00	66	1	585	1	86	1	7	0	37	0	7	0	0	0	0	0	0	0	20	0
11:15:00	92	26	677	92	88	2	9	2	39	2	7	0	0	0	0	0	0	0	25	5
11:30:00	109	17	753	76	92	4	9	0	41	2	7	0	0	0	0	0	0	0	28	3
11:45:00	132	23	849	96	94	2	9	0	43	2	7	0	0	0	0	0	0	0	28	0
12:00:00	150	18	938	89	97	3	9	0	47	4	7	0	0	0	0	0	0	0	28	0
12:15:00	174	24	1032	94	103	6	11	2	51	4	7	0	0	0	0	0	0	0	30	2
12:30:00	197	23	1100	68	111	8	11	0	53	2	7	0	0	0	0	0	0	0	30	0
12:45:00	216	19	1176	76	117	6	12	1	57	4	7	0	0	0	0	0	0	0	30	0
13:00:00	222	6	1254	78	118	1	12	0	63	6	7	0	0	0	0	0	0	0	31	1
13:15:00	234	12	1324	70	119	1	14	2	69	6	7	0	0	0	0	0	0	0	31	0
13:30:00	245	11	1398	74	125	6	14	0	72	3	7	0	0	0	0	0	0	0	31	0
13:45:00	258	13	1476	78	128	3	17	3	73	1	7	0	0	0	0	0	0	0	33	2
14:00:00	282	24	1549	73	131	3	17	0	82	9	7	0	0	0	0	0	0	0	33	0
14:00:12	282	0	1549	0	131	0	17	0	82	0	7	0	0	0	0	0	0	0	33	0
15:00:00	282	0	1551	2	131	0	17	0	82	0	7	0	0	0	0	0	0	0	33	0
15:15:00	322	40	1668	117	145	14	19	2	86	4	7	0	0	0	0	0	0	0	35	2
15:30:00	385	63	1802	134	173	28	20	1	89	3	7	0	0	0	0	0	0	0	39	4
15:45:00	438	53	1929	127	194	21	24	4	94	5	8	1	0	0	0	0	0	0	42	3
16:00:00	472	34	2009	80	203	9	31	7	97	3	9	1	1	1	0	0	0	0	43	1
16:15:00	503	31	2097	88	211	8	34	3	100	3	10	1	2	1	0	0	0	0	44	1
16:30:00	539	36	2186	89	222	11	34	0	104	4	10	0	2	0	1	1	0	0	44	0
16:45:00	569	30	2280	94	227	5	34	0	106	2	10	0	2	0	1	0	0	0	44	0
17:00:00	598	29	2374	94	230	3	34	0	111	5	10	0	2	0	1	0	0	0	48	4
17:15:00	628	30	2471	97	234	4	34	0	112	1	10	0	2	0	1	0	0	0	50	2
17:30:00	653	25	2562	91	249	15	35	1	119	7	10	0	2	0	1	0	0	0	53	3
17:45:00	680	27	2645	83	252	3	35	0	120	1	10	0	2	0	1	0	0	0	53	0
18:00:00	715	35	2754	109	258	6	35	0	124	4	10	0	2	0	1	0	0	0	53	0
18:00:35	715	0	2754	0	258	0	35	0	124	0	10	0	2	0	1	0	0	0	53	0

MG8 ENG

Count Date: 24-Apr-2013   Site #: 0000803530

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	40	38	32	30	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	10	8	104	64	59	27	0	0	2	0	1	1	0	0	0	0	0	0	1	1
7:45:00	20	10	161	57	80	21	0	0	3	1	3	2	0	0	0	0	0	0	1	0
8:00:00	27	7	218	57	100	20	0	0	7	4	4	1	0	0	0	0	0	0	1	0
8:15:00	32	5	286	68	125	25	3	3	8	1	5	1	0	0	0	0	0	0	1	0
8:30:00	58	26	332	46	160	35	3	0	12	4	6	1	0	0	0	0	0	0	1	0
8:45:00	97	39	368	36	182	22	3	0	15	3	7	1	0	0	0	0	0	0	1	0
9:00:00	138	41	415	47	199	17	3	0	18	3	8	1	0	0	0	0	0	0	3	2
9:01:18	138	0	415	0	199	0	3	0	18	0	8	0	0	0	0	0	0	0	3	0
11:00:00	138	0	415	0	199	0	3	0	18	0	8	0	0	0	0	0	0	0	3	0
11:15:00	146	8	429	14	221	22	4	1	18	0	9	1	0	0	0	0	0	0	3	0
11:30:00	158	12	465	36	241	20	4	0	20	2	10	1	0	0	0	0	0	0	3	0
11:45:00	176	18	495	30	261	20	4	0	22	2	10	0	0	0	0	0	0	0	3	0
12:00:00	187	11	524	29	297	36	4	0	23	1	10	0	0	0	0	0	0	0	3	0
12:15:00	201	14	554	30	314	17	5	1	24	1	10	0	0	0	0	0	0	0	3	0
12:30:00	219	18	578	24	339	25	5	0	25	1	10	0	0	0	0	0	0	0	3	0
12:45:00	226	7	607	29	363	24	5	0	27	2	12	2	0	0	0	0	0	0	3	0
13:00:00	245	19	643	36	383	20	5	0	29	2	13	1	0	0	0	0	0	0	3	0
13:15:00	255	10	670	27	393	10	6	1	29	0	13	0	0	0	0	0	0	0	3	0
13:30:00	270	15	696	26	410	17	7	1	30	1	13	0	0	0	0	0	0	0	3	0
13:45:00	283	13	724	28	434	24	7	0	30	0	15	2	0	0	1	1	0	0	3	0
14:00:00	297	14	746	22	455	21	7	0	31	1	16	1	0	0	1	0	0	0	3	0
14:00:12	297	0	748	2	455	0	7	0	31	0	16	0	0	0	1	0	0	0	3	0
15:00:00	297	0	748	0	456	1	7	0	31	0	16	0	0	0	1	0	0	0	3	0
15:15:00	319	22	798	50	508	52	11	4	36	5	18	2	0	0	1	0	0	0	3	0
15:30:00	347	28	846	48	587	79	11	0	41	5	18	0	0	0	1	0	0	0	24	21
15:45:00	376	29	909	63	617	30	14	3	45	4	28	10	0	0	1	0	0	0	32	8
16:00:00	399	23	974	65	665	48	14	0	50	5	30	2	0	0	1	0	0	0	32	0
16:15:00	417	18	1028	54	719	54	15	1	53	3	38	8	0	0	1	0	0	0	32	0
16:30:00	437	20	1091	63	775	56	16	1	55	2	41	3	0	0	1	0	0	0	33	1
16:45:00	451	14	1170	79	838	63	17	1	57	2	42	1	0	0	1	0	0	0	33	0
17:00:00	465	14	1242	72	898	60	17	0	58	1	43	1	0	0	1	0	0	0	34	1
17:15:00	488	23	1310	68	949	51	17	0	59	1	43	0	0	0	1	0	0	0	35	1
17:30:00	506	18	1374	64	1003	54	17	0	62	3	43	0	0	0	1	0	0	0	35	0
17:45:00	539	33	1459	85	1044	41	17	0	63	1	44	1	0	0	1	0	0	0	35	0
18:00:00	556	17	1527	68	1094	50	17	0	64	1	44	0	0	0	1	0	0	0	35	0
18:00:35	556	0	1527	0	1094	0	17	0	64	0	44	0	0	0	1	0	0	0	35	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803530

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	25	24	208	206	1	1	3	3	5	5	1	1	0	0	0	0	0	0	1	1
7:30:00	61	36	449	241	6	5	7	4	13	8	1	0	0	0	0	0	0	0	2	1
7:45:00	102	41	704	255	11	5	11	4	31	18	1	0	0	0	0	0	0	0	3	1
8:00:00	143	41	981	277	13	2	15	4	36	5	1	0	0	0	0	0	0	0	6	3
8:15:00	182	39	1198	217	17	4	21	6	39	3	2	1	0	0	0	0	0	0	7	1
8:30:00	223	41	1426	228	26	9	25	4	60	21	6	4	0	0	0	0	0	0	10	3
8:45:00	298	75	1697	271	43	17	25	0	64	4	7	1	0	0	0	0	0	0	15	5
9:00:00	381	83	1978	281	55	12	26	1	69	5	7	0	0	0	0	0	0	0	23	8
9:01:18	388	7	2001	23	56	1	26	0	70	1	7	0	0	0	0	0	0	0	23	0
11:00:00	388	0	2002	1	56	0	26	0	70	0	7	0	0	0	0	0	0	0	23	0
11:15:00	400	12	2048	46	71	15	26	0	70	0	7	0	0	0	0	0	0	0	23	0
11:30:00	406	6	2105	57	87	16	26	0	73	3	8	1	0	0	0	0	0	0	24	1
11:45:00	414	8	2171	66	100	13	27	1	75	2	8	0	0	0	0	0	0	0	25	1
12:00:00	423	9	2255	84	114	14	28	1	77	2	9	1	0	0	1	1	0	0	32	7
12:15:00	434	11	2325	70	127	13	28	0	79	2	9	0	0	0	1	0	0	0	32	0
12:30:00	442	8	2396	71	145	18	28	0	81	2	9	0	0	0	1	0	0	0	32	0
12:45:00	451	9	2469	73	158	13	28	0	90	9	10	1	0	0	1	0	0	0	34	2
13:00:00	464	13	2528	59	170	12	28	0	94	4	10	0	0	0	1	0	0	0	34	0
13:15:00	477	13	2592	64	181	11	28	0	99	5	10	0	0	0	1	0	0	0	34	0
13:30:00	484	7	2666	74	197	16	28	0	99	0	11	1	0	0	1	0	0	0	35	1
13:45:00	498	14	2725	59	208	11	29	1	101	2	11	0	0	0	1	0	0	0	37	2
14:00:00	516	18	2790	65	224	16	29	0	101	0	11	0	0	0	1	0	0	0	37	0
14:00:12	516	0	2790	0	224	0	29	0	101	0	11	0	0	0	1	0	0	0	37	0
15:00:00	516	0	2790	0	224	0	29	0	101	0	11	0	0	0	1	0	0	0	37	0
15:15:00	531	15	2916	126	241	17	29	0	107	6	14	3	0	0	1	0	0	0	45	8
15:30:00	552	21	3069	153	254	13	30	1	111	4	16	2	0	0	1	0	0	0	45	0
15:45:00	571	19	3209	140	278	24	30	0	111	0	16	0	0	0	1	0	0	0	45	0
16:00:00	595	24	3384	175	313	35	30	0	118	7	16	0	0	0	1	0	0	0	48	3
16:15:00	628	33	3538	154	345	32	33	3	125	7	17	1	0	0	1	0	0	0	49	1
16:30:00	645	17	3730	192	365	20	33	0	133	8	18	1	0	0	1	0	0	0	49	0
16:45:00	678	33	3929	199	394	29	33	0	136	3	18	0	0	0	1	0	0	0	52	3
17:00:00	704	26	4121	192	426	32	35	2	140	4	20	2	0	0	1	0	0	0	52	0
17:15:00	732	28	4304	183	444	18	35	0	144	4	20	0	0	0	1	0	0	0	53	1
17:30:00	768	36	4530	226	466	22	36	1	145	1	20	0	0	0	1	0	0	0	54	1
17:45:00	801	33	4710	180	500	34	36	0	146	1	20	0	0	0	1	0	0	0	54	0
18:00:00	828	27	4901	191	513	13	36	0	148	2	20	0	0	0	1	0	0	0	55	1
18:00:35	830	2	4902	1	513	0	36	0	148	0	20	0	0	0	1	0	0	0	55	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803530

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	1	1	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	28	27	20	18	12	12	4	3	5	5	2	2	0	0	0	0	0	0	0	0
7:30:00	58	30	45	25	31	19	5	1	8	3	5	3	0	0	0	0	0	0	1	1
7:45:00	81	23	70	25	47	16	5	0	11	3	8	3	0	0	0	0	0	0	1	0
8:00:00	99	18	96	26	68	21	8	3	18	7	12	4	0	0	1	1	0	0	1	0
8:15:00	126	27	121	25	90	22	10	2	22	4	12	0	0	0	1	0	0	0	1	0
8:30:00	162	36	153	32	144	54	10	0	26	4	20	8	0	0	1	0	0	0	1	0
8:45:00	184	22	195	42	255	111	11	1	31	5	21	1	0	0	1	0	0	0	1	0
9:00:00	210	26	221	26	327	72	12	1	41	10	24	3	0	0	1	0	0	0	2	1
9:01:18	213	3	221	0	328	1	12	0	41	0	24	0	0	0	1	0	0	0	2	0
11:00:00	213	0	221	0	328	0	12	0	41	0	24	0	0	0	1	0	0	0	2	0
11:15:00	219	6	247	26	339	11	12	0	42	1	24	0	0	0	1	0	0	0	2	0
11:30:00	230	11	266	19	348	9	12	0	45	3	25	1	0	0	1	0	0	0	3	1
11:45:00	232	2	293	27	357	9	12	0	46	1	25	0	0	0	1	0	0	0	3	0
12:00:00	235	3	313	20	369	12	12	0	47	1	28	3	0	0	1	0	0	0	3	0
12:15:00	242	7	337	24	389	20	13	1	51	4	28	0	0	0	1	0	0	0	3	0
12:30:00	249	7	377	40	404	15	14	1	51	0	29	1	0	0	1	0	0	0	4	1
12:45:00	255	6	400	23	411	7	14	0	56	5	29	0	0	0	1	0	0	0	4	0
13:00:00	263	8	424	24	425	14	14	0	56	0	29	0	0	0	1	0	0	0	4	0
13:15:00	269	6	443	19	441	16	14	0	58	2	29	0	0	0	1	0	0	0	4	0
13:30:00	270	1	464	21	450	9	15	1	58	0	30	1	0	0	1	0	0	0	4	0
13:45:00	276	6	489	25	462	12	15	0	59	1	30	0	0	0	1	0	0	0	4	0
14:00:00	282	6	507	18	472	10	15	0	60	1	30	0	0	0	1	0	0	0	4	0
14:00:12	282	0	508	1	472	0	15	0	60	0	30	0	0	0	1	0	0	0	4	0
15:00:00	282	0	508	0	472	0	15	0	60	0	30	0	0	0	1	0	0	0	4	0
15:15:00	302	20	545	37	481	9	15	0	65	5	33	3	0	0	1	0	0	0	4	0
15:30:00	321	19	585	40	487	6	19	4	68	3	34	1	0	0	1	0	0	0	4	0
15:45:00	331	10	624	39	500	13	21	2	75	7	34	0	0	0	1	0	0	0	4	0
16:00:00	336	5	664	40	510	10	21	0	77	2	37	3	0	0	1	0	0	0	4	0
16:15:00	345	9	692	28	521	11	22	1	79	2	39	2	0	0	1	0	0	0	4	0
16:30:00	352	7	724	32	534	13	22	0	80	1	40	1	0	0	1	0	0	0	4	0
16:45:00	361	9	772	48	543	9	22	0	81	1	41	1	0	0	1	0	0	0	4	0
17:00:00	366	5	800	28	560	17	22	0	82	1	43	2	0	0	1	0	0	0	4	0
17:15:00	378	12	834	34	574	14	22	0	85	3	43	0	0	0	1	0	0	0	5	1
17:30:00	385	7	881	47	578	4	22	0	86	1	44	1	0	0	1	0	0	0	5	0
17:45:00	397	12	925	44	592	14	22	0	87	1	44	0	0	0	1	0	0	0	5	0
18:00:00	403	6	966	41	602	10	22	0	88	1	44	0	0	0	1	0	0	0	6	1
18:00:35	404	1	966	0	602	0	22	0	88	0	45	1	0	0	1	0	0	0	6	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

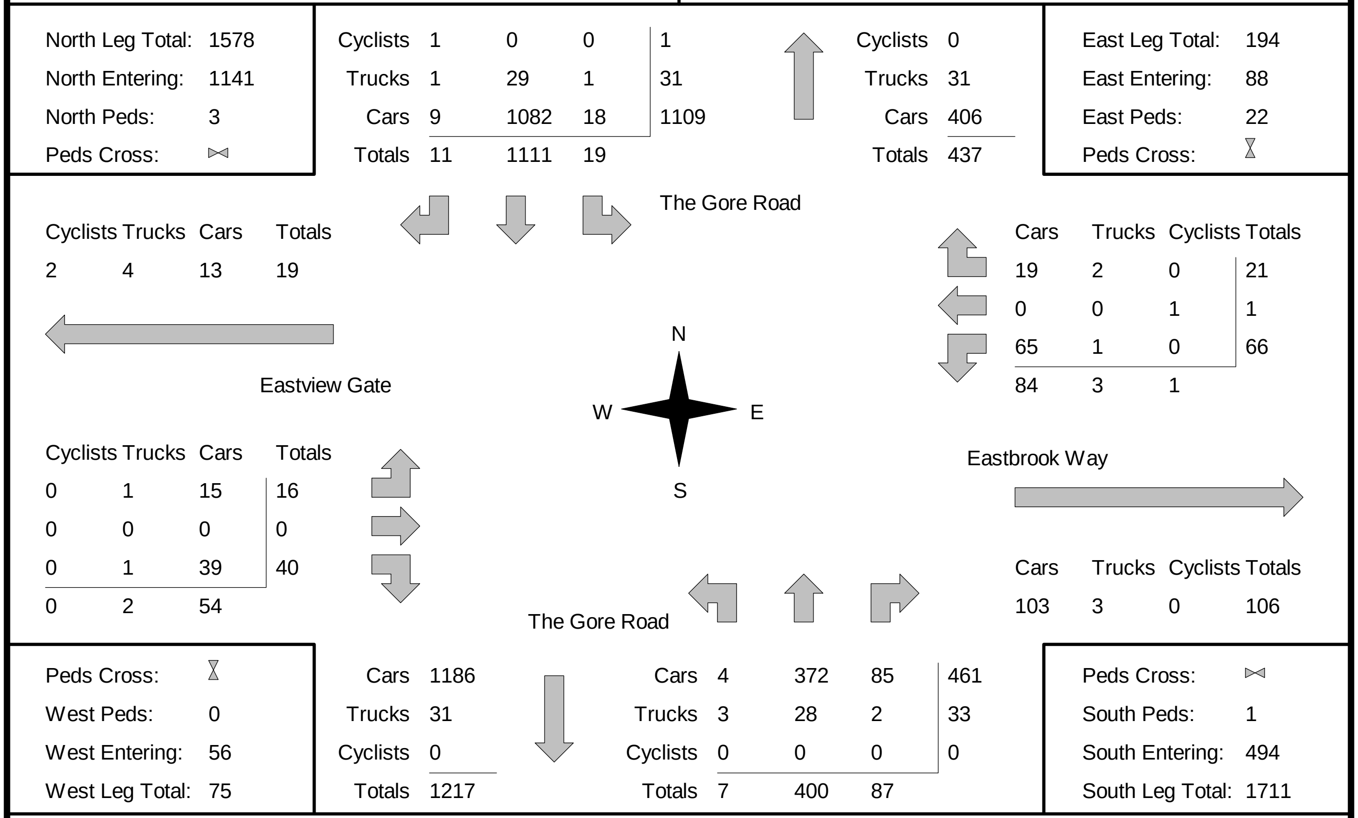
Municipality: Region of Peel
Site #: 0000803202
Intersection: The Gore Road & Eastbrook Way
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
MILAN

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total:	1578
North Entering:	1141
North Peds:	3
Peds Cross:	⋈

Cyclists	1	0	0	1
Trucks	1	29	1	31
Cars	9	1082	18	1109
Totals	11	1111	19	

Cyclists	0
Trucks	31
Cars	406
Totals	437

East Leg Total:	194
East Entering:	88
East Peds:	22
Peds Cross:	⧗

Cyclists	Trucks	Cars	Totals
2	4	13	19

Cars	Trucks	Cyclists	Totals
19	2	0	21
0	0	1	1
65	1	0	66
84	3	1	

Cyclists	Trucks	Cars	Totals
0	1	15	16
0	0	0	0
0	1	39	40
0	2	54	

Cars	Trucks	Cyclists	Totals
103	3	0	106

Peds Cross:	⧗
West Peds:	0
West Entering:	56
West Leg Total:	75

Cars	1186
Trucks	31
Cyclists	0
Totals	1217

Cars	4	372	85	461
Trucks	3	28	2	33
Cyclists	0	0	0	0
Totals	7	400	87	

Peds Cross:	⋈
South Peds:	1
South Entering:	494
South Leg Total:	1711

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:30:00
To: 12:30:00

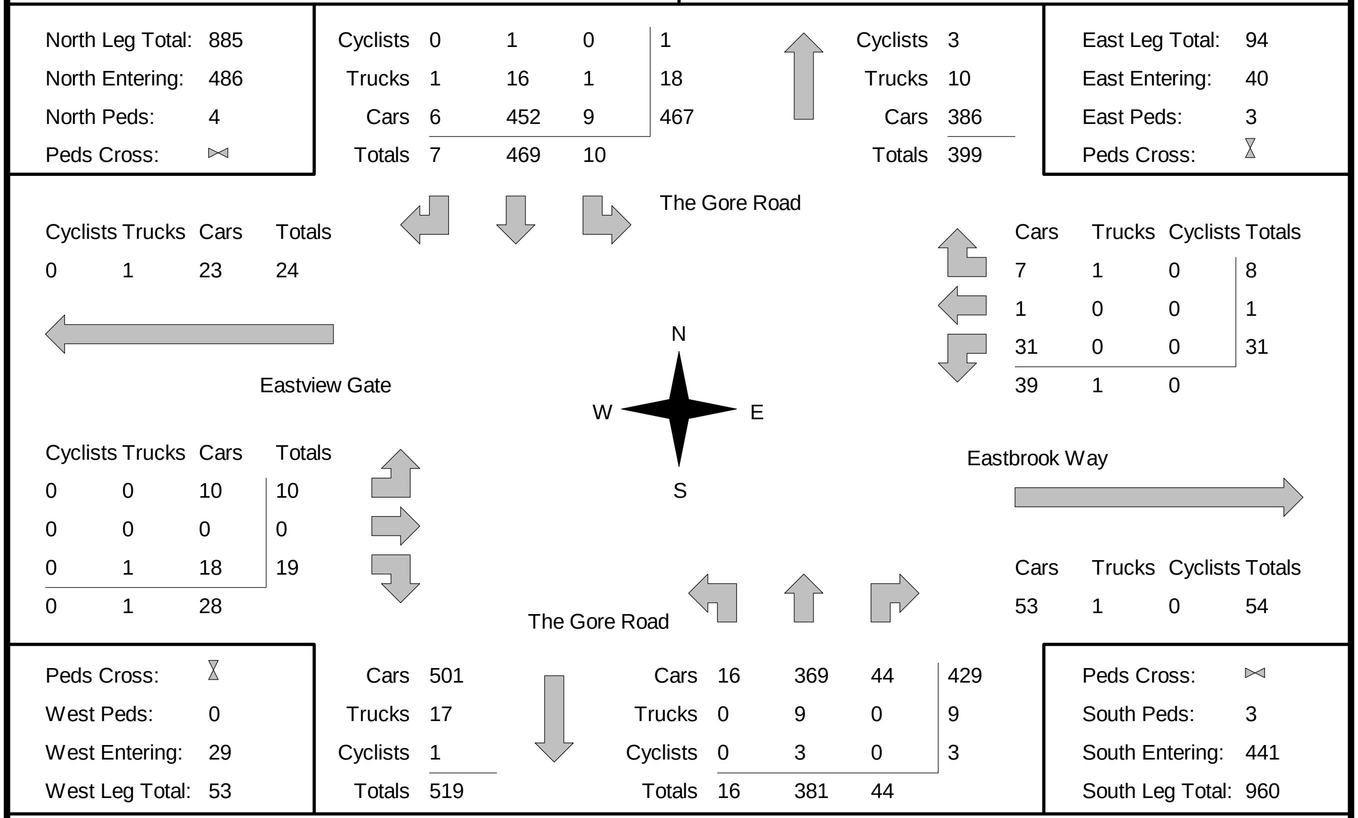
Municipality: Region of Peel
Site #: 0000803202
Intersection: The Gore Road & Eastbrook Way
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
MILAN

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total:	885
North Entering:	486
North Peds:	4
Peds Cross:	⋈

Cyclists	0	1	0	1
Trucks	1	16	1	18
Cars	6	452	9	467
Totals	7	469	10	

Cyclists	3
Trucks	10
Cars	386
Totals	399

East Leg Total:	94
East Entering:	40
East Peds:	3
Peds Cross:	⧗

Cyclists	Trucks	Cars	Totals
0	1	23	24

Cars	Trucks	Cyclists	Totals
7	1	0	8
1	0	0	1
31	0	0	31
39	1	0	

Cyclists	Trucks	Cars	Totals
0	0	10	10
0	0	0	0
0	1	18	19
0	1	28	

Cars	Trucks	Cyclists	Totals
53	1	0	54

Peds Cross:	⧗
West Peds:	0
West Entering:	29
West Leg Total:	53

Cars	501
Trucks	17
Cyclists	1
Totals	519

Cars	16	369	44	429
Trucks	0	9	0	9
Cyclists	0	3	0	3
Totals	16	381	44	

Peds Cross:	⋈
South Peds:	3
South Entering:	441
South Leg Total:	960

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Region of Peel
Site #: 0000803202
Intersection: The Gore Road & Eastbrook Way
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
MILAN

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 1523
North Entering: 510
North Peds: 3
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	0	23	0	23
Cars	15	459	13	487
Totals	15	482	13	

Cyclists	0
Trucks	17
Cars	996
Totals	1013

East Leg Total: 158
East Entering: 58
East Peds: 5
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	0	57	57

Eastview Gate

Cars	Trucks	Cyclists	Totals
15	0	0	15
0	0	0	0
43	0	0	43
58	0	0	

N
W E
S

Cyclists	Trucks	Cars	Totals
0	2	21	23
0	0	0	0
0	0	11	11
0	2	32	

Eastbrook Way

Cars	Trucks	Cyclists	Totals
100	0	0	100

The Gore Road

Peds Cross: ⧗
West Peds: 0
West Entering: 34
West Leg Total: 91

Cars	513
Trucks	23
Cyclists	0
Totals	536

Cars	42	960	87	1089
Trucks	0	15	0	15
Cyclists	0	0	0	0
Totals	42	975	87	

Peds Cross: ⋈
South Peds: 6
South Entering: 1104
South Leg Total: 1640

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000803202
Intersection: The Gore Road & Eastbrook Way
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
MILAN

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total:	9903
North Entering:	5323
North Peds:	20
Peds Cross:	⋈

Cyclists	1	2	0	3
Trucks	9	180	4	193
Cars	95	4941	91	5127
Totals	105	5123	95	

Cyclists	3
Trucks	156
Cars	4421
Totals	4580

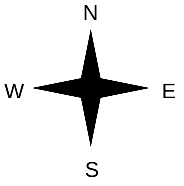
East Leg Total:	1161
East Entering:	549
East Peds:	54
Peds Cross:	⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
3	19	272	294

Eastview Gate

Cars	Trucks	Cyclists	Totals
98	8	0	106
7	2	1	10
421	12	0	433
526	22	1	



Cyclists	Trucks	Cars	Totals
0	6	116	122
0	0	0	0
0	6	156	162
0	12	272	

Eastbrook Way

Cars	Trucks	Cyclists	Totals
599	13	0	612

The Gore Road

Peds Cross:	⧗
West Peds:	0
West Entering:	284
West Leg Total:	578

Cars	5518
Trucks	198
Cyclists	2
Totals	5718

Cars	170	4207	508	4885
Trucks	8	142	9	159
Cyclists	1	3	0	4
Totals	179	4352	517	

Peds Cross:	⋈
South Peds:	19
South Entering:	5048
South Leg Total:	10766

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Road & Eastbrook Way | **Count Date:** 24-Apr-2013 | **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	1	22	0	23	0	23	7:00:00	0	0	0	0	0
8:00:00	5	1163	14	1182	4	1496	8:00:00	8	275	31	314	2
9:00:00	19	1111	11	1141	3	1635	9:00:00	7	400	87	494	1
11:00:00	0	52	0	52	0	69	11:00:00	1	14	2	17	0
12:00:00	10	444	8	462	6	870	12:00:00	13	350	45	408	2
13:00:00	7	428	5	440	0	860	13:00:00	17	365	38	420	1
14:00:00	9	407	7	423	0	828	14:00:00	18	355	32	405	0
15:00:00	0	9	0	9	0	21	15:00:00	0	10	2	12	0
16:00:00	20	538	26	584	2	1432	16:00:00	35	713	100	848	5
17:00:00	16	458	13	487	0	1505	17:00:00	43	886	89	1018	4
18:00:00	8	489	21	518	5	1621	18:00:00	37	975	91	1103	4
Totals:	95	5121	105	5321	20	10360		179	4343	517	5039	19

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	96	1	9	106	1	167	8:00:00	19	0	42	61	0
9:00:00	66	1	21	88	22	144	9:00:00	16	0	40	56	0
11:00:00	1	0	1	2	0	2	11:00:00	0	0	0	0	0
12:00:00	35	1	5	41	3	64	12:00:00	8	0	15	23	0
13:00:00	29	0	9	38	3	70	13:00:00	14	0	18	32	0
14:00:00	26	0	9	35	1	59	14:00:00	9	0	15	24	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	83	3	20	106	19	130	16:00:00	14	0	10	24	0
17:00:00	55	3	18	76	2	116	17:00:00	25	0	15	40	0
18:00:00	39	1	14	54	3	78	18:00:00	17	0	7	24	0
Totals:	430	10	106	546	54	830		122	0	162	284	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	122	87	52	44	35	107	87	66

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803202

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	1	1	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	0	270	248	1	1	0	0	10	10	1	1	0	0	0	0	0	0	1	1
7:30:00	2	1	544	274	6	5	0	0	22	12	1	0	0	0	0	0	0	0	4	3
7:45:00	5	3	832	288	9	3	0	0	27	5	3	2	0	0	0	0	0	0	4	0
8:00:00	6	1	1151	319	11	2	0	0	34	7	3	0	0	0	0	0	0	0	4	0
8:15:00	7	1	1400	249	16	5	0	0	39	5	3	0	0	0	0	0	0	0	4	0
8:30:00	9	2	1685	285	20	4	0	0	48	9	3	0	0	0	0	0	0	0	4	0
8:45:00	15	6	1962	277	20	0	1	1	55	7	4	1	0	0	0	0	1	1	5	1
9:00:00	24	9	2233	271	20	0	1	0	63	8	4	0	0	0	0	0	1	0	7	2
9:01:56	24	0	2269	36	20	0	1	0	65	2	4	0	0	0	0	0	1	0	7	0
11:00:00	24	0	2283	14	20	0	1	0	65	0	4	0	0	0	0	0	1	0	7	0
11:15:00	26	2	2389	106	23	3	1	0	68	3	4	0	0	0	0	0	1	0	8	1
11:30:00	26	0	2484	95	24	1	1	0	71	3	4	0	0	0	0	0	1	0	9	1
11:45:00	31	5	2609	125	26	2	1	0	74	3	4	0	0	0	1	1	1	0	13	4
12:00:00	33	2	2712	103	27	1	2	1	79	5	5	1	0	0	1	0	1	0	13	0
12:15:00	35	2	2833	121	29	2	2	0	83	4	5	0	0	0	1	0	1	0	13	0
12:30:00	35	0	2936	103	30	1	2	0	87	4	5	0	0	0	1	0	1	0	13	0
12:45:00	38	3	3017	81	32	2	2	0	91	4	5	0	0	0	1	0	1	0	13	0
13:00:00	40	2	3122	105	32	0	2	0	97	6	5	0	0	0	1	0	1	0	13	0
13:15:00	40	0	3225	103	33	1	2	0	102	5	5	0	0	0	1	0	1	0	13	0
13:30:00	40	0	3329	104	34	1	2	0	106	4	5	0	0	0	1	0	1	0	13	0
13:45:00	44	4	3423	94	37	3	2	0	108	2	5	0	0	0	2	1	1	0	13	0
14:00:00	49	5	3511	88	39	2	2	0	114	6	5	0	0	0	2	0	1	0	13	0
14:00:39	49	0	3514	3	39	0	2	0	114	0	5	0	0	0	2	0	1	0	13	0
15:00:00	49	0	3520	6	39	0	2	0	114	0	5	0	0	0	2	0	1	0	13	0
15:15:00	53	4	3645	125	44	5	2	0	124	10	6	1	0	0	2	0	1	0	13	0
15:30:00	62	9	3790	145	48	4	2	0	129	5	7	1	0	0	2	0	1	0	13	0
15:45:00	68	6	3923	133	53	5	2	0	138	9	7	0	0	0	2	0	1	0	14	1
16:00:00	69	1	4030	107	61	8	2	0	142	4	9	2	0	0	2	0	1	0	15	1
16:15:00	71	2	4139	109	63	2	4	2	147	5	9	0	0	0	2	0	1	0	15	0
16:30:00	75	4	4244	105	66	3	4	0	152	5	9	0	0	0	2	0	1	0	15	0
16:45:00	81	6	4347	103	68	2	4	0	162	10	9	0	0	0	2	0	1	0	15	0
17:00:00	83	2	4463	116	74	6	4	0	167	5	9	0	0	0	2	0	1	0	15	0
17:15:00	85	2	4592	129	77	3	4	0	169	2	9	0	0	0	2	0	1	0	15	0
17:30:00	88	3	4703	111	81	4	4	0	175	6	9	0	0	0	2	0	1	0	18	3
17:45:00	88	0	4818	115	91	10	4	0	178	3	9	0	0	0	2	0	1	0	18	0
18:00:00	91	3	4939	121	95	4	4	0	180	2	9	0	0	0	2	0	1	0	20	2
18:00:46	91	0	4941	2	95	0	4	0	180	0	9	0	0	0	2	0	1	0	20	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803202

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	23	23	0	0	1	1	2	2	1	1	0	0	0	0	0	0	0	0	1	1
7:30:00	47	24	0	0	5	4	3	1	1	0	1	1	0	0	0	0	0	0	1	0
7:45:00	70	23	0	0	5	0	4	1	1	0	1	0	0	0	0	0	0	0	1	0
8:00:00	91	21	0	0	7	2	5	1	1	0	2	1	0	0	0	0	0	0	1	0
8:15:00	104	13	0	0	9	2	5	0	1	0	2	0	0	0	0	0	0	0	3	2
8:30:00	119	15	0	0	12	3	6	1	1	0	3	1	0	0	0	0	0	0	5	2
8:45:00	138	19	0	0	20	8	6	0	1	0	4	1	0	0	1	1	0	0	20	15
9:00:00	156	18	0	0	26	6	6	0	1	0	4	0	0	0	1	0	0	0	23	3
9:01:56	157	1	0	0	27	1	6	0	1	0	4	0	0	0	1	0	0	0	23	0
11:00:00	157	0	0	0	27	0	6	0	1	0	4	0	0	0	1	0	0	0	23	0
11:15:00	168	11	0	0	28	1	6	0	1	0	4	0	0	0	1	0	0	0	24	1
11:30:00	176	8	0	0	29	1	6	0	1	0	4	0	0	0	1	0	0	0	24	0
11:45:00	187	11	0	0	30	1	6	0	1	0	4	0	0	0	1	0	0	0	26	2
12:00:00	192	5	1	1	31	1	6	0	1	0	5	1	0	0	1	0	0	0	26	0
12:15:00	199	7	1	0	34	3	6	0	1	0	5	0	0	0	1	0	0	0	26	0
12:30:00	207	8	1	0	36	2	6	0	1	0	5	0	0	0	1	0	0	0	27	1
12:45:00	213	6	1	0	37	1	6	0	1	0	6	1	0	0	1	0	0	0	29	2
13:00:00	221	8	1	0	39	2	6	0	1	0	6	0	0	0	1	0	0	0	29	0
13:15:00	231	10	1	0	41	2	6	0	1	0	6	0	0	0	1	0	0	0	29	0
13:30:00	234	3	1	0	43	2	6	0	1	0	6	0	0	0	1	0	0	0	29	0
13:45:00	238	4	1	0	43	0	7	1	1	0	6	0	0	0	1	0	0	0	29	0
14:00:00	246	8	1	0	48	5	7	0	1	0	6	0	0	0	1	0	0	0	30	1
14:00:39	246	0	1	0	48	0	7	0	1	0	6	0	0	0	1	0	0	0	30	0
15:00:00	246	0	1	0	48	0	7	0	1	0	6	0	0	0	1	0	0	0	30	0
15:15:00	255	9	2	1	53	5	7	0	1	0	6	0	0	0	1	0	0	0	30	0
15:30:00	279	24	3	1	61	8	8	1	1	0	7	1	0	0	1	0	0	0	41	11
15:45:00	308	29	4	1	64	3	10	2	1	0	7	0	0	0	1	0	0	0	46	5
16:00:00	326	18	4	0	67	3	10	0	1	0	7	0	0	0	1	0	0	0	49	3
16:15:00	336	10	6	2	69	2	11	1	2	1	7	0	0	0	1	0	0	0	49	0
16:30:00	354	18	6	0	76	7	12	1	2	0	8	1	0	0	1	0	0	0	49	0
16:45:00	367	13	6	0	81	5	12	0	2	0	8	0	0	0	1	0	0	0	51	2
17:00:00	379	12	6	0	84	3	12	0	2	0	8	0	0	0	1	0	0	0	51	0
17:15:00	385	6	6	0	86	2	12	0	2	0	8	0	0	0	1	0	0	0	51	0
17:30:00	397	12	6	0	91	5	12	0	2	0	8	0	0	0	1	0	0	0	54	3
17:45:00	408	11	7	1	94	3	12	0	2	0	8	0	0	0	1	0	0	0	54	0
18:00:00	418	10	7	0	98	4	12	0	2	0	8	0	0	0	1	0	0	0	54	0
18:00:46	421	3	7	0	98	0	12	0	2	0	8	0	0	0	1	0	0	0	54	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803202

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	73	73	5	5	0	0	2	2	1	1	0	0	0	0	0	0	0	0
7:30:00	3	1	128	55	10	5	0	0	7	5	1	0	0	0	0	0	0	0	1	1
7:45:00	6	3	203	75	20	10	0	0	9	2	3	2	0	0	0	0	0	0	2	1
8:00:00	7	1	261	58	28	8	1	1	14	5	3	0	0	0	0	0	0	0	2	0
8:15:00	7	0	335	74	35	7	3	2	23	9	3	0	0	0	0	0	0	0	2	0
8:30:00	8	1	423	88	49	14	4	1	29	6	3	0	0	0	0	0	0	0	2	0
8:45:00	10	2	537	114	75	26	4	0	39	10	5	2	0	0	0	0	0	0	2	0
9:00:00	11	1	633	96	113	38	4	0	42	3	5	0	0	0	0	0	0	0	3	1
9:01:56	12	1	640	7	115	2	4	0	44	2	5	0	0	0	0	0	0	0	3	0
11:00:00	12	0	645	5	115	0	4	0	44	0	5	0	0	0	0	0	0	0	3	0
11:15:00	14	2	715	70	124	9	4	0	45	1	5	0	0	0	0	0	0	0	3	0
11:30:00	19	5	789	74	129	5	4	0	49	4	5	0	0	0	0	0	0	0	3	0
11:45:00	22	3	889	100	146	17	4	0	51	2	5	0	0	0	2	2	0	0	3	0
12:00:00	25	3	982	93	160	14	4	0	54	3	5	0	0	0	3	1	0	0	5	2
12:15:00	29	4	1075	93	167	7	4	0	56	2	5	0	0	0	3	0	0	0	5	0
12:30:00	35	6	1158	83	173	6	4	0	58	2	5	0	0	0	3	0	0	0	6	1
12:45:00	37	2	1252	94	184	11	4	0	68	10	5	0	0	0	3	0	0	0	6	0
13:00:00	42	5	1326	74	198	14	4	0	75	7	5	0	0	0	3	0	0	0	6	0
13:15:00	47	5	1407	81	209	11	4	0	81	6	5	0	0	0	3	0	0	0	6	0
13:30:00	54	7	1499	92	216	7	4	0	82	1	5	0	0	0	3	0	0	0	6	0
13:45:00	58	4	1585	86	225	9	4	0	85	3	5	0	1	1	3	0	0	0	6	0
14:00:00	59	1	1670	85	230	5	4	0	86	1	5	0	1	0	3	0	0	0	6	0
14:00:39	59	0	1670	0	230	0	4	0	86	0	5	0	1	0	3	0	0	0	6	0
15:00:00	59	0	1679	9	232	2	4	0	87	1	5	0	1	0	3	0	0	0	6	0
15:15:00	64	5	1833	154	255	23	4	0	93	6	7	2	1	0	3	0	0	0	8	2
15:30:00	73	9	2006	173	292	37	4	0	98	5	7	0	1	0	3	0	0	0	9	1
15:45:00	85	12	2191	185	313	21	4	0	101	3	7	0	1	0	3	0	0	0	9	0
16:00:00	93	8	2374	183	329	16	5	1	105	4	8	1	1	0	3	0	0	0	11	2
16:15:00	102	9	2572	198	356	27	6	1	114	9	9	1	1	0	3	0	0	0	11	0
16:30:00	109	7	2769	197	376	20	7	1	121	7	9	0	1	0	3	0	0	0	11	0
16:45:00	118	9	3003	234	397	21	7	0	125	4	9	0	1	0	3	0	0	0	11	0
17:00:00	134	16	3236	233	417	20	7	0	129	4	9	0	1	0	3	0	0	0	15	4
17:15:00	142	8	3468	232	437	20	7	0	133	4	9	0	1	0	3	0	0	0	16	1
17:30:00	151	9	3729	261	463	26	7	0	136	3	9	0	1	0	3	0	0	0	17	1
17:45:00	160	9	3957	228	487	24	8	1	139	3	9	0	1	0	3	0	0	0	18	1
18:00:00	170	10	4198	241	508	21	8	0	142	3	9	0	1	0	3	0	0	0	19	1
18:00:46	170	0	4207	9	508	0	8	0	142	0	9	0	1	0	3	0	0	0	19	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000803202

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	8	3	0	0	21	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	14	6	0	0	29	8	1	1	0	0	1	1	0	0	0	0	0	0	0	0
8:00:00	18	4	0	0	41	12	1	0	0	0	1	0	0	0	0	0	0	0	0	0
8:15:00	20	2	0	0	50	9	2	1	0	0	2	1	0	0	0	0	0	0	0	0
8:30:00	26	6	0	0	57	7	2	0	0	0	2	0	0	0	0	0	0	0	0	0
8:45:00	30	4	0	0	68	11	2	0	0	0	2	0	0	0	0	0	0	0	0	0
9:00:00	33	3	0	0	80	12	2	0	0	0	2	0	0	0	0	0	0	0	0	0
9:01:56	33	0	0	0	80	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:00:00	33	0	0	0	80	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:15:00	36	3	0	0	84	4	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:30:00	38	2	0	0	87	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:45:00	40	2	0	0	92	5	2	0	0	0	2	0	0	0	0	0	0	0	0	0
12:00:00	41	1	0	0	95	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0
12:15:00	44	3	0	0	101	6	2	0	0	0	3	1	0	0	0	0	0	0	0	0
12:30:00	48	4	0	0	105	4	2	0	0	0	3	0	0	0	0	0	0	0	0	0
12:45:00	50	2	0	0	108	3	2	0	0	0	3	0	0	0	0	0	0	0	0	0
13:00:00	54	4	0	0	112	4	3	1	0	0	3	0	0	0	0	0	0	0	0	0
13:15:00	56	2	0	0	117	5	3	0	0	0	3	0	0	0	0	0	0	0	0	0
13:30:00	59	3	0	0	120	3	4	1	0	0	3	0	0	0	0	0	0	0	0	0
13:45:00	61	2	0	0	122	2	4	0	0	0	4	1	0	0	0	0	0	0	0	0
14:00:00	62	1	0	0	126	4	4	0	0	0	4	0	0	0	0	0	0	0	0	0
14:00:39	62	0	0	0	126	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
15:00:00	62	0	0	0	126	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
15:15:00	67	5	0	0	128	2	4	0	0	0	4	0	0	0	0	0	0	0	0	0
15:30:00	71	4	0	0	131	3	4	0	0	0	5	1	0	0	0	0	0	0	0	0
15:45:00	73	2	0	0	132	1	4	0	0	0	5	0	0	0	0	0	0	0	0	0
16:00:00	76	3	0	0	135	3	4	0	0	0	5	0	0	0	0	0	0	0	0	0
16:15:00	82	6	0	0	137	2	4	0	0	0	5	0	0	0	0	0	0	0	0	0
16:30:00	87	5	0	0	141	4	4	0	0	0	6	1	0	0	0	0	0	0	0	0
16:45:00	94	7	0	0	146	5	5	1	0	0	6	0	0	0	0	0	0	0	0	0
17:00:00	100	6	0	0	149	3	5	0	0	0	6	0	0	0	0	0	0	0	0	0
17:15:00	104	4	0	0	151	2	6	1	0	0	6	0	0	0	0	0	0	0	0	0
17:30:00	108	4	0	0	152	1	6	0	0	0	6	0	0	0	0	0	0	0	0	0
17:45:00	113	5	0	0	155	3	6	0	0	0	6	0	0	0	0	0	0	0	0	0
18:00:00	116	3	0	0	156	1	6	0	0	0	6	0	0	0	0	0	0	0	0	0
18:00:46	116	0	0	0	156	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

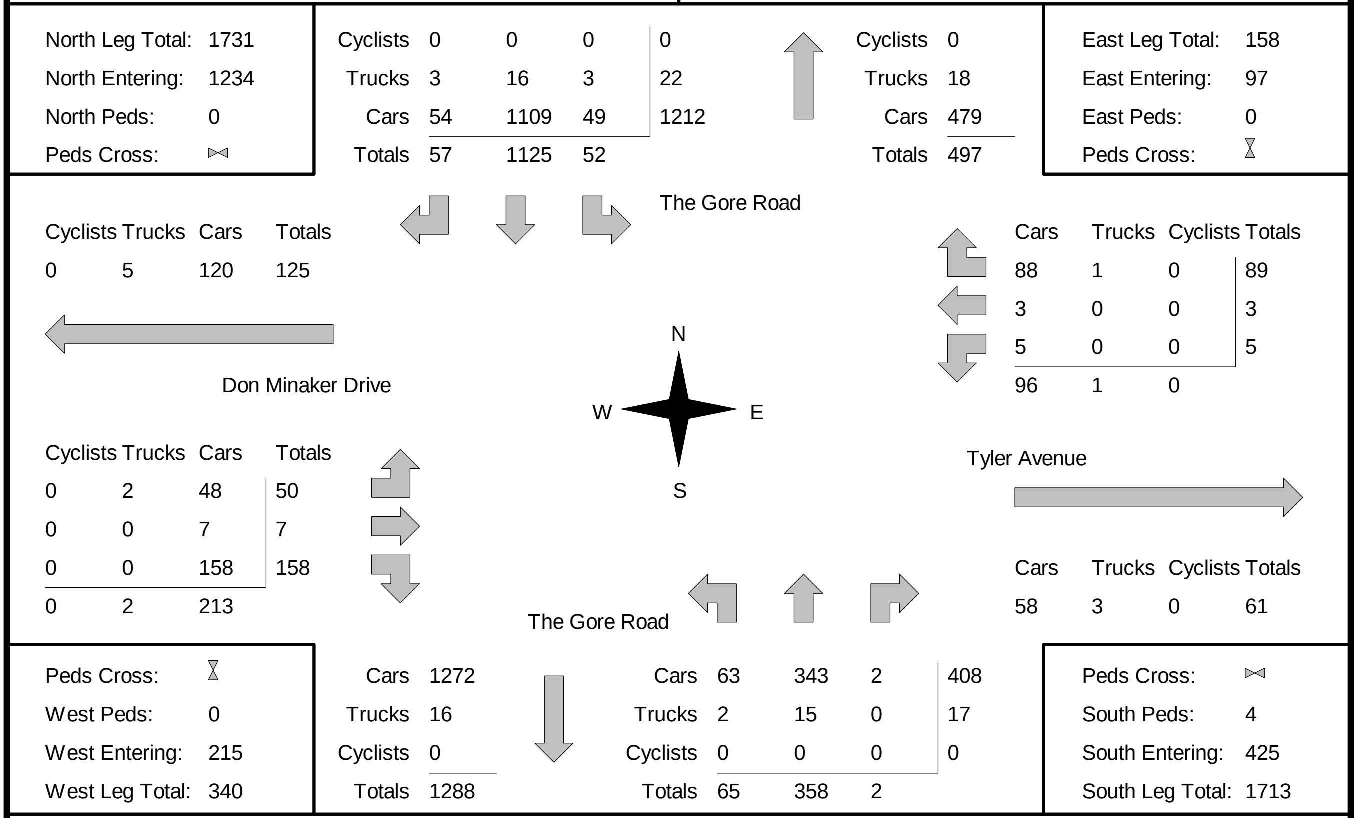
Municipality: Region of Peel
Site #: 0000802891
Intersection: The Gore Road & Don Minaker Driv
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
VELE

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total: 1731
North Entering: 1234
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	3	16	3	22
Cars	54	1109	49	1212
Totals	57	1125	52	

Cyclists	0
Trucks	18
Cars	479
Totals	497

East Leg Total: 158
East Entering: 97
East Peds: 0
Peds Cross: ⧗

Cyclists	Trucks	Cars	Totals
0	5	120	125

Cars	Trucks	Cyclists	Totals
88	1	0	89
3	0	0	3
5	0	0	5
96	1	0	

Cyclists	Trucks	Cars	Totals
0	2	48	50
0	0	7	7
0	0	158	158
0	2	213	

Cars	Trucks	Cyclists	Totals
58	3	0	61

Peds Cross: ⧗
West Peds: 0
West Entering: 215
West Leg Total: 340

Cars	1272
Trucks	16
Cyclists	0
Totals	1288

Cars	63	343	2	408
Trucks	2	15	0	17
Cyclists	0	0	0	0
Totals	65	358	2	

Peds Cross: ⋈
South Peds: 4
South Entering: 425
South Leg Total: 1713

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:30:00
To: 12:30:00

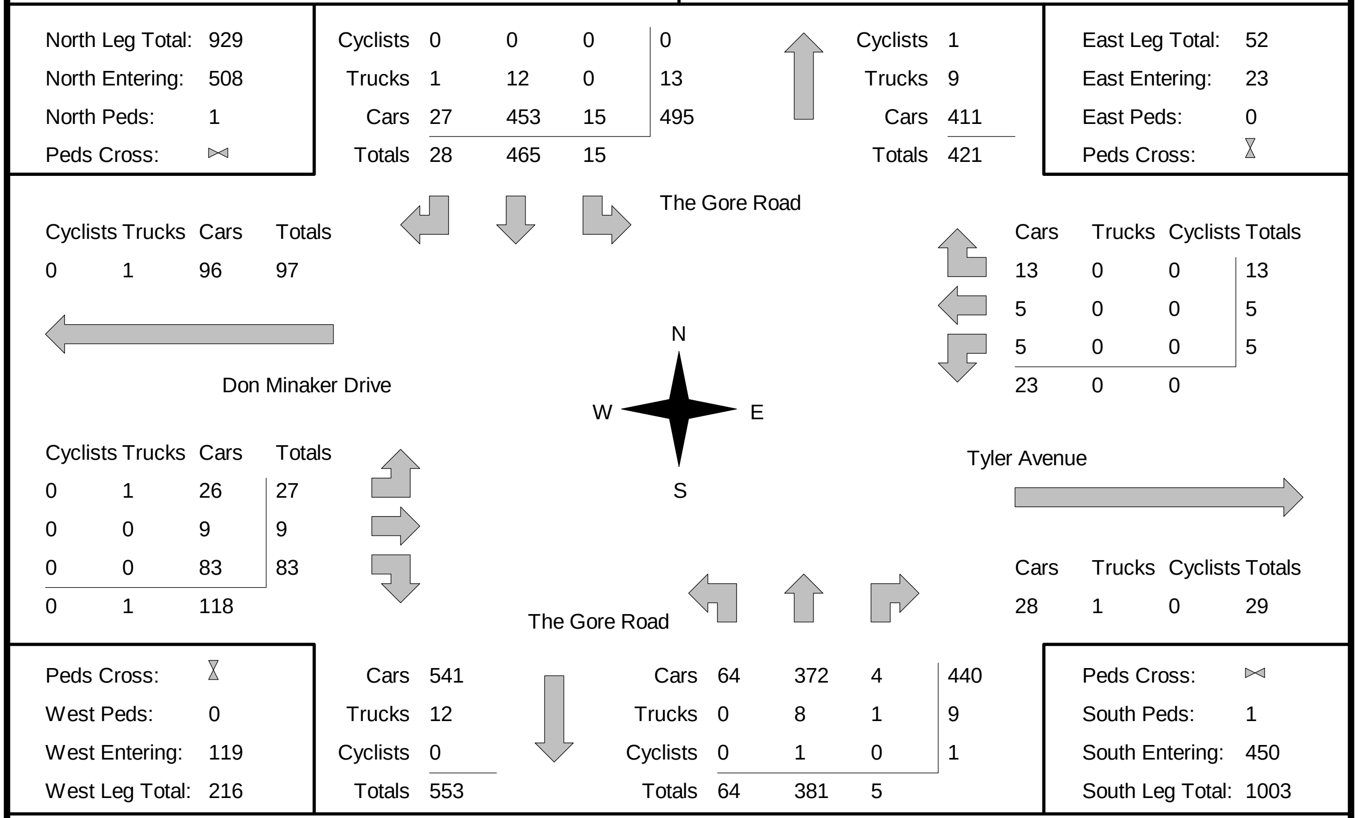
Municipality: Region of Peel
Site #: 0000802891
Intersection: The Gore Road & Don Minaker Driv
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
VELE

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total: 929
North Entering: 508
North Peds: 1
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	1	12	0	13
Cars	27	453	15	495
Totals	28	465	15	

Cyclists	1
Trucks	9
Cars	411
Totals	421

East Leg Total: 52
East Entering: 23
East Peds: 0
Peds Cross: ⧗

Cyclists	Trucks	Cars	Totals
0	1	96	97

Cars	Trucks	Cyclists	Totals
13	0	0	13
5	0	0	5
5	0	0	5
23	0	0	

Cyclists	Trucks	Cars	Totals
0	1	26	27
0	0	9	9
0	0	83	83
0	1	118	

Cars	Trucks	Cyclists	Totals
28	1	0	29

Peds Cross: ⧗
West Peds: 0
West Entering: 119
West Leg Total: 216

Cars	541
Trucks	12
Cyclists	0
Totals	553

Cars	64	372	4	440
Trucks	0	8	1	9
Cyclists	0	1	0	1
Totals	64	381	5	

Peds Cross: ⋈
South Peds: 1
South Entering: 450
South Leg Total: 1003

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Region of Peel
Site #: 0000802891
Intersection: The Gore Road & Don Minaker Driv
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
VELE

**** Signalized Intersection ****

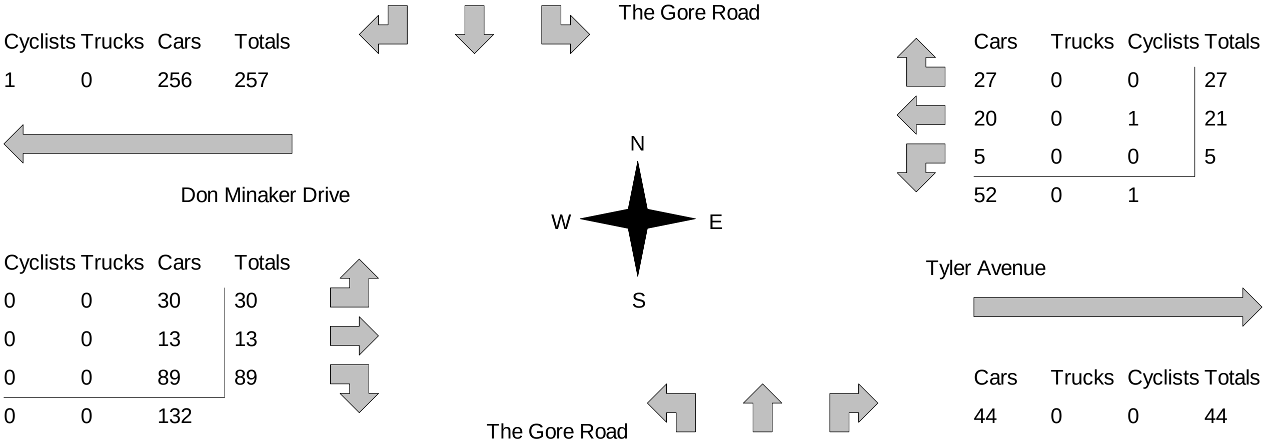
Major Road: The Gore Road runs N/S

North Leg Total:	1648
North Entering:	535
North Peds:	0
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	0	15	0	15
Cars	37	464	19	520
Totals	37	479	19	

Cyclists	0
Trucks	8
Cars	1105
Totals	1113

East Leg Total:	97
East Entering:	53
East Peds:	0
Peds Cross:	⧗



Cyclists	Trucks	Cars	Totals
1	0	256	257

Cars	Trucks	Cyclists	Totals
27	0	0	27
20	0	1	21
5	0	0	5
52	0	1	

Cyclists	Trucks	Cars	Totals
0	0	30	30
0	0	13	13
0	0	89	89
0	0	132	

Cars	Trucks	Cyclists	Totals
44	0	0	44

Peds Cross:	⧗
West Peds:	0
West Entering:	132
West Leg Total:	389

Cars	558
Trucks	15
Cyclists	0
Totals	573

Cars	199	1048	12	1259
Trucks	0	8	0	8
Cyclists	0	0	0	0
Totals	199	1056	12	

Peds Cross:	⋈
South Peds:	1
South Entering:	1267
South Leg Total:	1840

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000802891
Intersection: The Gore Road & Don Minaker Driv
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
VELE

**** Signalized Intersection ****

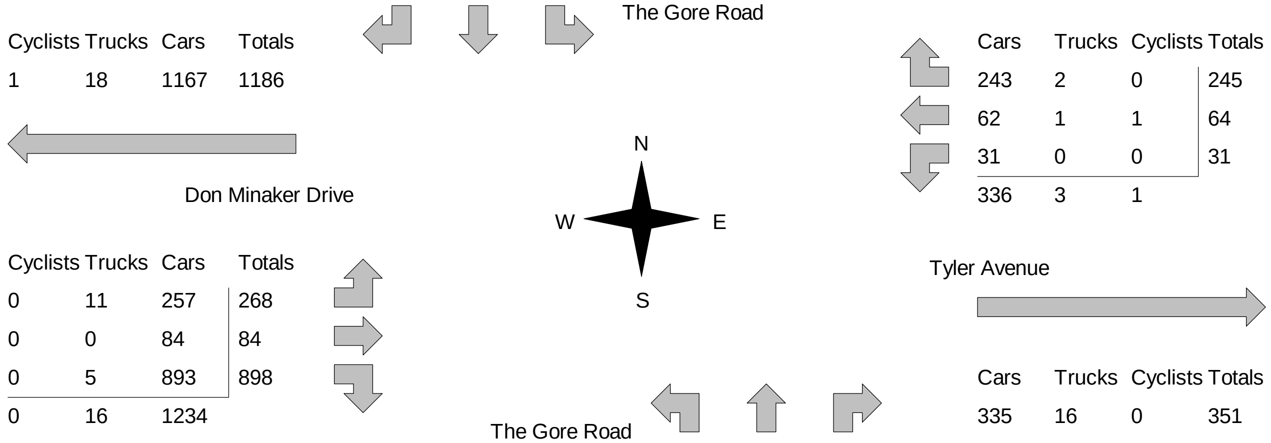
Major Road: The Gore Road runs N/S

North Leg Total: 10686
North Entering: 5659
North Peds: 4
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	12	122	12	146
Cars	250	5062	201	5513
Totals	262	5184	213	

Cyclists	1
Trucks	103
Cars	4923
Totals	5027

East Leg Total: 691
East Entering: 340
East Peds: 1
Peds Cross: ⧗



Cyclists	Trucks	Cars	Totals
1	18	1167	1186

Cars	Trucks	Cyclists	Totals
243	2	0	245
62	1	1	64
31	0	0	31
336	3	1	

Cyclists	Trucks	Cars	Totals
0	11	257	268
0	0	84	84
0	5	893	898
0	16	1234	

Cars	Trucks	Cyclists	Totals
335	16	0	351

Peds Cross: ⧗
West Peds: 0
West Entering: 1250
West Leg Total: 2436

Cars	5986
Trucks	127
Cyclists	0
Totals	6113

Cars	855	4423	50	5328
Trucks	5	90	4	99
Cyclists	0	1	0	1
Totals	860	4514	54	

Peds Cross: ⋈
South Peds: 11
South Entering: 5428
South Leg Total: 11541

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Road & Don Minaker Dri
Count Date: 24-Apr-2013
Municipality: Region of Peel

North Approach Totals / South Approach Totals

	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, & Cyclists					North/South		Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	28	0	28	0	33	7:00:00	0	5	0	5	0
8:00:00	17	1258	14	1289	0	1617	8:00:00	44	280	4	328	0
9:00:00	52	1125	57	1234	0	1659	9:00:00	65	358	2	425	4
11:00:00	1	14	0	15	0	21	11:00:00	0	6	0	6	0
12:00:00	14	441	20	475	0	882	12:00:00	67	336	4	407	0
13:00:00	13	450	23	486	1	944	13:00:00	72	381	5	458	1
14:00:00	11	407	18	436	0	893	14:00:00	79	370	8	457	0
15:00:00	1	1	0	2	0	23	15:00:00	2	19	0	21	0
16:00:00	60	530	57	647	1	1543	16:00:00	153	736	7	896	4
17:00:00	25	454	34	513	2	1670	17:00:00	184	963	10	1157	1
18:00:00	19	476	39	534	0	1800	18:00:00	194	1058	14	1266	1
Totals:	213	5184	262	5659	4	11085		860	4512	54	5426	11

East Approach Totals / West Approach Totals

	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, & Cyclists					East/West		Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	2	7:00:00	0	0	2	2	0
8:00:00	9	2	14	25	0	245	8:00:00	25	7	188	220	0
9:00:00	5	3	89	97	0	312	9:00:00	50	7	158	215	0
11:00:00	0	0	0	0	0	1	11:00:00	0	0	1	1	0
12:00:00	8	5	15	28	0	168	12:00:00	32	12	96	140	0
13:00:00	0	4	9	13	0	115	13:00:00	20	6	76	102	0
14:00:00	3	8	13	24	0	128	14:00:00	16	6	82	104	0
15:00:00	0	0	2	2	0	7	15:00:00	1	1	3	5	0
16:00:00	1	16	48	65	0	243	16:00:00	56	16	106	178	0
17:00:00	1	12	28	41	1	187	17:00:00	38	18	90	146	0
18:00:00	4	14	27	45	0	182	18:00:00	30	11	96	137	0
Totals:	31	64	245	340	1	1590		268	84	898	1250	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	41	66	52	28	27	78	60	49

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802891

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	306	278	2	2	0	0	7	7	2	2	0	0	0	0	0	0	0	0
7:30:00	7	4	614	308	5	3	0	0	16	9	2	0	0	0	0	0	0	0	0	0
7:45:00	11	4	936	322	9	4	1	1	19	3	3	1	0	0	0	0	0	0	0	0
8:00:00	14	3	1263	327	11	2	3	2	23	4	3	0	0	0	0	0	0	0	0	0
8:15:00	19	5	1523	260	15	4	4	1	24	1	4	1	0	0	0	0	0	0	0	0
8:30:00	27	8	1815	292	24	9	6	2	28	4	5	1	0	0	0	0	0	0	0	0
8:45:00	39	12	2105	290	39	15	6	0	34	6	6	1	0	0	0	0	0	0	0	0
9:00:00	63	24	2372	267	65	26	6	0	39	5	6	0	0	0	0	0	0	0	0	0
9:00:06	63	0	2373	1	65	0	6	0	40	1	6	0	0	0	0	0	0	0	0	0
11:00:00	64	1	2385	12	65	0	6	0	40	0	6	0	0	0	0	0	0	0	0	0
11:15:00	68	4	2493	108	69	4	6	0	43	3	6	0	0	0	0	0	0	0	0	0
11:30:00	71	3	2594	101	72	3	6	0	46	3	6	0	0	0	0	0	0	0	0	0
11:45:00	72	1	2716	122	81	9	6	0	48	2	6	0	0	0	0	0	0	0	0	0
12:00:00	78	6	2815	99	84	3	6	0	51	3	7	1	0	0	0	0	0	0	0	0
12:15:00	83	5	2945	130	89	5	6	0	54	3	7	0	0	0	0	0	0	0	0	0
12:30:00	86	3	3047	102	99	10	6	0	58	4	7	0	0	0	0	0	0	0	1	1
12:45:00	86	0	3141	94	101	2	6	0	62	4	7	0	0	0	0	0	0	0	1	0
13:00:00	91	5	3251	110	107	6	6	0	65	3	7	0	0	0	0	0	0	0	1	0
13:15:00	95	4	3347	96	113	6	6	0	69	4	7	0	0	0	0	0	0	0	1	0
13:30:00	98	3	3448	101	119	6	6	0	73	4	7	0	0	0	0	0	0	0	1	0
13:45:00	100	2	3550	102	122	3	6	0	74	1	7	0	0	0	0	0	0	0	1	0
14:00:00	102	2	3647	97	125	3	6	0	76	2	7	0	0	0	0	0	0	0	1	0
14:00:14	102	0	3647	0	125	0	6	0	76	0	7	0	0	0	0	0	0	0	1	0
15:00:00	103	1	3648	1	125	0	6	0	76	0	7	0	0	0	0	0	0	0	1	0
15:15:00	112	9	3768	120	137	12	6	0	82	6	8	1	0	0	0	0	0	0	1	0
15:30:00	137	25	3883	115	155	18	7	1	83	1	10	2	0	0	0	0	0	0	2	1
15:45:00	155	18	4037	154	168	13	8	1	92	9	10	0	0	0	0	0	0	0	2	0
16:00:00	160	5	4158	121	178	10	9	1	96	4	11	1	0	0	0	0	0	0	2	0
16:15:00	165	5	4263	105	187	9	10	1	100	4	11	0	0	0	0	0	0	0	2	0
16:30:00	173	8	4366	103	194	7	12	2	102	2	12	1	0	0	0	0	0	0	2	0
16:45:00	177	4	4476	110	203	9	12	0	105	3	12	0	0	0	0	0	0	0	4	2
17:00:00	182	5	4599	123	211	8	12	0	109	4	12	0	0	0	0	0	0	0	4	0
17:15:00	189	7	4717	118	216	5	12	0	111	2	12	0	0	0	0	0	0	0	4	0
17:30:00	191	2	4830	113	223	7	12	0	117	6	12	0	0	0	0	0	0	0	4	0
17:45:00	196	5	4940	110	240	17	12	0	120	3	12	0	0	0	0	0	0	0	4	0
18:00:00	201	5	5062	122	250	10	12	0	122	2	12	0	0	0	0	0	0	0	4	0
18:00:05	201	0	5062	0	250	0	12	0	122	0	12	0	0	0	0	0	0	0	4	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802891

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	1	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	4	2	1	0	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	5	1	1	0	12	6	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00:00	9	4	1	0	14	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:15:00	9	0	2	1	29	15	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:30:00	12	3	4	2	37	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:45:00	13	1	4	0	69	32	0	0	1	0	1	1	0	0	0	0	0	0	0	0
9:00:00	14	1	4	0	102	33	0	0	1	0	1	0	0	0	0	0	0	0	0	0
9:00:06	14	0	4	0	102	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
11:00:00	14	0	4	0	102	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
11:15:00	15	1	5	1	104	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0
11:30:00	17	2	7	2	109	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0
11:45:00	21	4	8	1	115	6	0	0	1	0	1	0	0	0	0	0	0	0	0	0
12:00:00	22	1	9	1	117	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0
12:15:00	22	0	11	2	121	4	0	0	1	0	1	0	0	0	0	0	0	0	0	0
12:30:00	22	0	12	1	122	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0
12:45:00	22	0	13	1	123	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0
13:00:00	22	0	13	0	126	3	0	0	1	0	1	0	0	0	0	0	0	0	0	0
13:15:00	22	0	15	2	131	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0
13:30:00	23	1	17	2	136	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0
13:45:00	25	2	19	2	137	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0
14:00:00	25	0	21	2	139	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0
14:00:14	25	0	21	0	139	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
15:00:00	25	0	21	0	141	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0
15:15:00	25	0	26	5	157	16	0	0	1	0	2	1	0	0	0	0	0	0	0	0
15:30:00	26	1	28	2	174	17	0	0	1	0	2	0	0	0	0	0	0	0	0	0
15:45:00	26	0	33	5	181	7	0	0	1	0	2	0	0	0	0	0	0	0	0	0
16:00:00	26	0	37	4	188	7	0	0	1	0	2	0	0	0	0	0	0	0	0	0
16:15:00	26	0	38	1	192	4	0	0	1	0	2	0	0	0	0	0	0	0	0	0
16:30:00	26	0	41	3	200	8	0	0	1	0	2	0	0	0	0	0	0	0	0	0
16:45:00	26	0	41	0	208	8	0	0	1	0	2	0	0	0	0	0	0	0	1	1
17:00:00	27	1	49	8	216	8	0	0	1	0	2	0	0	0	0	0	0	0	1	0
17:15:00	27	0	54	5	221	5	0	0	1	0	2	0	0	0	0	0	0	0	1	0
17:30:00	29	2	57	3	227	6	0	0	1	0	2	0	0	0	1	1	0	0	1	0
17:45:00	31	2	61	4	235	8	0	0	1	0	2	0	0	0	1	0	0	0	1	0
18:00:00	31	0	62	1	243	8	0	0	1	0	2	0	0	0	1	0	0	0	1	0
18:00:05	31	0	62	0	243	0	0	0	1	0	2	0	0	0	1	0	0	0	1	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802891

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	9	9	79	74	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0	0
7:30:00	21	12	136	57	0	0	0	0	6	4	1	0	0	0	0	0	0	0	0	0
7:45:00	35	14	214	78	1	1	1	1	8	2	1	0	0	0	0	0	0	0	0	0
8:00:00	43	8	272	58	2	1	1	0	13	5	2	1	0	0	0	0	0	0	0	0
8:15:00	57	14	344	72	2	0	1	0	16	3	2	0	0	0	0	0	0	0	0	0
8:30:00	74	17	432	88	3	1	1	0	20	4	2	0	0	0	0	0	0	0	2	2
8:45:00	89	15	535	103	3	0	1	0	26	6	2	0	0	0	0	0	0	0	4	2
9:00:00	106	17	615	80	4	1	3	2	28	2	2	0	0	0	0	0	0	0	4	0
9:00:06	106	0	616	1	4	0	3	0	28	0	2	0	0	0	0	0	0	0	4	0
11:00:00	106	0	621	5	4	0	3	0	28	0	2	0	0	0	0	0	0	0	4	0
11:15:00	124	18	697	76	5	1	3	0	28	0	2	0	0	0	0	0	0	0	4	0
11:30:00	141	17	766	69	7	2	3	0	31	3	2	0	0	0	0	0	0	0	4	0
11:45:00	159	18	852	86	8	1	3	0	33	2	2	0	0	0	0	0	0	0	4	0
12:00:00	173	14	948	96	8	0	3	0	36	3	2	0	0	0	1	1	0	0	4	0
12:15:00	190	17	1045	97	11	3	3	0	37	1	2	0	0	0	1	0	0	0	4	0
12:30:00	205	15	1138	93	11	0	3	0	39	2	3	1	0	0	1	0	0	0	5	1
12:45:00	220	15	1229	91	11	0	4	1	46	7	3	0	0	0	1	0	0	0	5	0
13:00:00	244	24	1318	89	12	1	4	0	47	1	3	0	0	0	1	0	0	0	5	0
13:15:00	255	11	1406	88	13	1	4	0	52	5	3	0	0	0	1	0	0	0	5	0
13:30:00	280	25	1510	104	13	0	4	0	52	0	3	0	0	0	1	0	0	0	5	0
13:45:00	297	17	1590	80	17	4	4	0	55	3	3	0	0	0	1	0	0	0	5	0
14:00:00	323	26	1679	89	20	3	4	0	56	1	3	0	0	0	1	0	0	0	5	0
14:00:14	323	0	1679	0	20	0	4	0	56	0	3	0	0	0	1	0	0	0	5	0
15:00:00	325	2	1697	18	20	0	4	0	57	1	3	0	0	0	1	0	0	0	5	0
15:15:00	358	33	1859	162	22	2	4	0	62	5	4	1	0	0	1	0	0	0	5	0
15:30:00	405	47	2042	183	22	0	4	0	65	3	4	0	0	0	1	0	0	0	9	4
15:45:00	434	29	2237	195	24	2	4	0	65	0	4	0	0	0	1	0	0	0	9	0
16:00:00	478	44	2423	186	26	2	4	0	67	2	4	0	0	0	1	0	0	0	9	0
16:15:00	522	44	2646	223	31	5	5	1	73	6	4	0	0	0	1	0	0	0	10	1
16:30:00	567	45	2854	208	32	1	5	0	78	5	4	0	0	0	1	0	0	0	10	0
16:45:00	613	46	3113	259	33	1	5	0	80	2	4	0	0	0	1	0	0	0	10	0
17:00:00	661	48	3371	258	36	3	5	0	82	2	4	0	0	0	1	0	0	0	10	0
17:15:00	717	56	3623	252	39	3	5	0	86	4	4	0	0	0	1	0	0	0	11	1
17:30:00	762	45	3906	283	42	3	5	0	87	1	4	0	0	0	1	0	0	0	11	0
17:45:00	812	50	4161	255	45	3	5	0	88	1	4	0	0	0	1	0	0	0	11	0
18:00:00	855	43	4421	260	50	5	5	0	90	2	4	0	0	0	1	0	0	0	11	0
18:00:05	855	0	4423	2	50	0	5	0	90	0	4	0	0	0	1	0	0	0	11	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802891

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	1	1	40	38	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	8	3	4	3	99	59	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	18	10	6	2	148	49	2	1	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	23	5	7	1	189	41	2	0	0	0	1	1	0	0	0	0	0	0	0	0
8:15:00	28	5	11	4	228	39	4	2	0	0	1	0	0	0	0	0	0	0	0	0
8:30:00	36	8	11	0	278	50	4	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45:00	54	18	14	3	312	34	4	0	0	0	1	0	0	0	0	0	0	0	0	0
9:00:00	71	17	14	0	347	35	4	0	0	0	1	0	0	0	0	0	0	0	0	0
9:00:06	71	0	14	0	347	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0
11:00:00	71	0	14	0	348	1	4	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15:00	77	6	15	1	369	21	4	0	0	0	2	1	0	0	0	0	0	0	0	0
11:30:00	86	9	20	5	393	24	4	0	0	0	2	0	0	0	0	0	0	0	0	0
11:45:00	94	8	24	4	420	27	4	0	0	0	2	0	0	0	0	0	0	0	0	0
12:00:00	102	8	26	2	443	23	5	1	0	0	2	0	0	0	0	0	0	0	0	0
12:15:00	108	6	28	2	461	18	5	0	0	0	2	0	0	0	0	0	0	0	0	0
12:30:00	112	4	29	1	476	15	5	0	0	0	2	0	0	0	0	0	0	0	0	0
12:45:00	116	4	30	1	497	21	5	0	0	0	3	1	0	0	0	0	0	0	0	0
13:00:00	122	6	32	2	518	21	5	0	0	0	3	0	0	0	0	0	0	0	0	0
13:15:00	125	3	32	0	536	18	5	0	0	0	3	0	0	0	0	0	0	0	0	0
13:30:00	131	6	33	1	561	25	5	0	0	0	3	0	0	0	0	0	0	0	0	0
13:45:00	136	5	35	2	584	23	5	0	0	0	3	0	0	0	0	0	0	0	0	0
14:00:00	138	2	38	3	600	16	5	0	0	0	3	0	0	0	0	0	0	0	0	0
14:00:14	139	1	39	1	600	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0
15:00:00	139	0	39	0	603	3	5	0	0	0	3	0	0	0	0	0	0	0	0	0
15:15:00	154	15	44	5	625	22	5	0	0	0	3	0	0	0	0	0	0	0	0	0
15:30:00	161	7	47	3	647	22	5	0	0	0	3	0	0	0	0	0	0	0	0	0
15:45:00	175	14	54	7	685	38	6	1	0	0	4	1	0	0	0	0	0	0	0	0
16:00:00	192	17	55	1	708	23	8	2	0	0	4	0	0	0	0	0	0	0	0	0
16:15:00	207	15	59	4	741	33	10	2	0	0	4	0	0	0	0	0	0	0	0	0
16:30:00	215	8	60	1	757	16	11	1	0	0	5	1	0	0	0	0	0	0	0	0
16:45:00	223	8	68	8	777	20	11	0	0	0	5	0	0	0	0	0	0	0	0	0
17:00:00	227	4	73	5	797	20	11	0	0	0	5	0	0	0	0	0	0	0	0	0
17:15:00	235	8	76	3	818	21	11	0	0	0	5	0	0	0	0	0	0	0	0	0
17:30:00	245	10	79	3	842	24	11	0	0	0	5	0	0	0	0	0	0	0	0	0
17:45:00	253	8	81	2	866	24	11	0	0	0	5	0	0	0	0	0	0	0	0	0
18:00:00	257	4	84	3	893	27	11	0	0	0	5	0	0	0	0	0	0	0	0	0
18:00:05	257	0	84	0	893	0	11	0	0	0	5	0	0	0	0	0	0	0	0	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

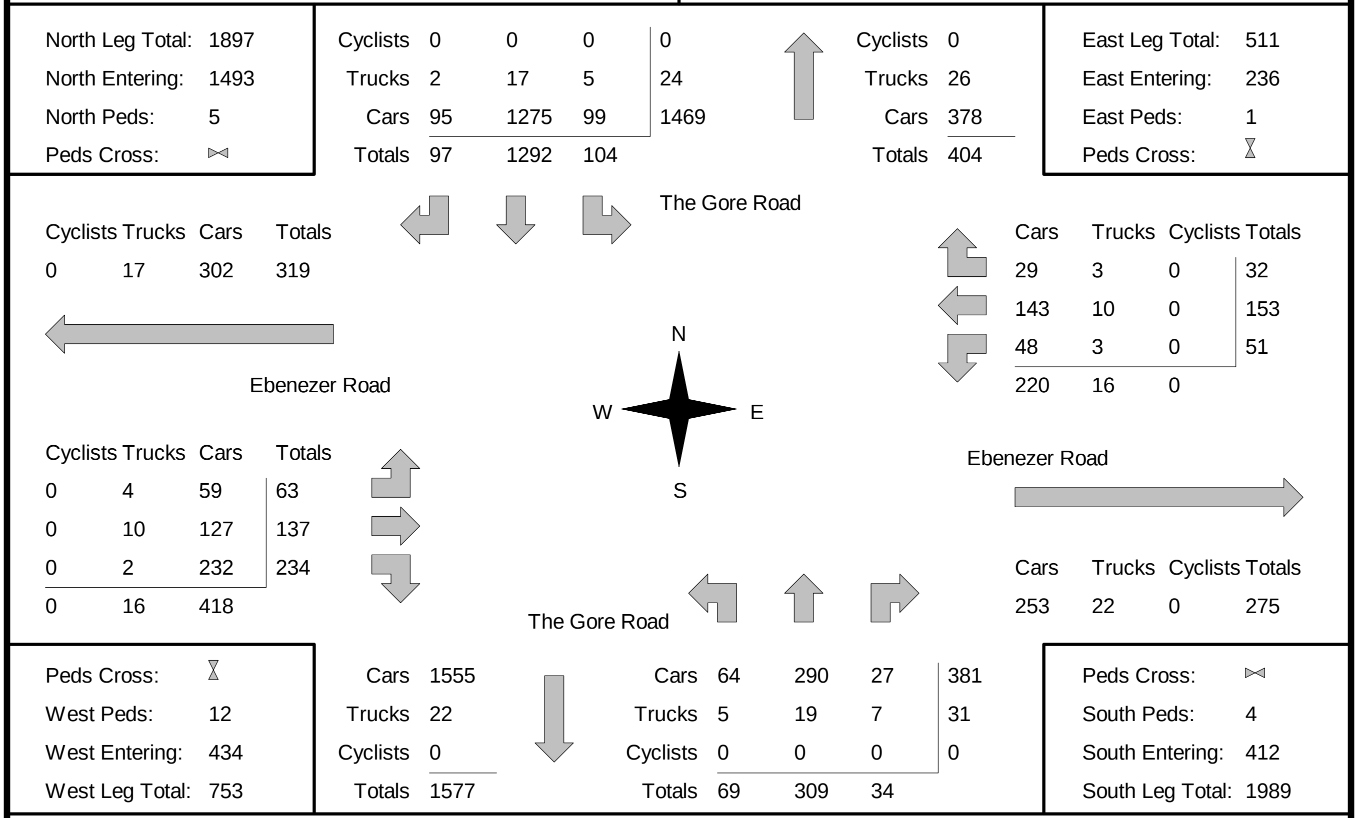
Municipality: Region of Peel
Site #: 0000802314
Intersection: The Gore Road & Ebenezer Road
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
DAVID

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total: 1897
North Entering: 1493
North Peds: 5
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	2	17	5	24
Cars	95	1275	99	1469
Totals	97	1292	104	

Cyclists	0
Trucks	26
Cars	378
Totals	404

East Leg Total: 511
East Entering: 236
East Peds: 1
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	17	302	319

Cars	Trucks	Cyclists	Totals
29	3	0	32
143	10	0	153
48	3	0	51
220	16	0	

Ebenezer Road

Cyclists	Trucks	Cars	Totals
0	4	59	63
0	10	127	137
0	2	232	234
0	16	418	

Ebenezer Road

Cars	Trucks	Cyclists	Totals
253	22	0	275

The Gore Road

Peds Cross: ⧗
West Peds: 12
West Entering: 434
West Leg Total: 753

Cars	1555
Trucks	22
Cyclists	0
Totals	1577

Cars	64	290	27	381
Trucks	5	19	7	31
Cyclists	0	0	0	0
Totals	69	309	34	

Peds Cross: ⋈
South Peds: 4
South Entering: 412
South Leg Total: 1989

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Region of Peel
Site #: 0000802314
Intersection: The Gore Road & Ebenezer Road
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
DAVID

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 988
North Entering: 533
North Peds: 1
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	0	19	0	19
Cars	51	388	75	514
Totals	51	407	75	

Cyclists	0
Trucks	11
Cars	444
Totals	455

East Leg Total: 470
East Entering: 226
East Peds: 4
Peds Cross: ⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
0	3	288	291

Ebenezer Road

Cars	Trucks	Cyclists	Totals
61	0	0	61
126	1	0	127
34	4	0	38
221	5	0	

N

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Cyclists	Trucks	Cars	Totals
0	1	51	52
0	6	120	126
0	0	72	72
0	7	243	

Ebenezer Road

Cars	Trucks	Cyclists	Totals
234	10	0	244

The Gore Road

Peds Cross: ⧗
West Peds: 4
West Entering: 250
West Leg Total: 541

Cars	494
Trucks	23
Cyclists	0
Totals	517

Cars	111	332	39	482
Trucks	2	10	4	16
Cyclists	0	0	0	0
Totals	113	342	43	

Peds Cross: ⋈
South Peds: 2
South Entering: 498
South Leg Total: 1015

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Region of Peel
Site #: 0000802314
Intersection: The Gore Road & Ebenezer Road
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

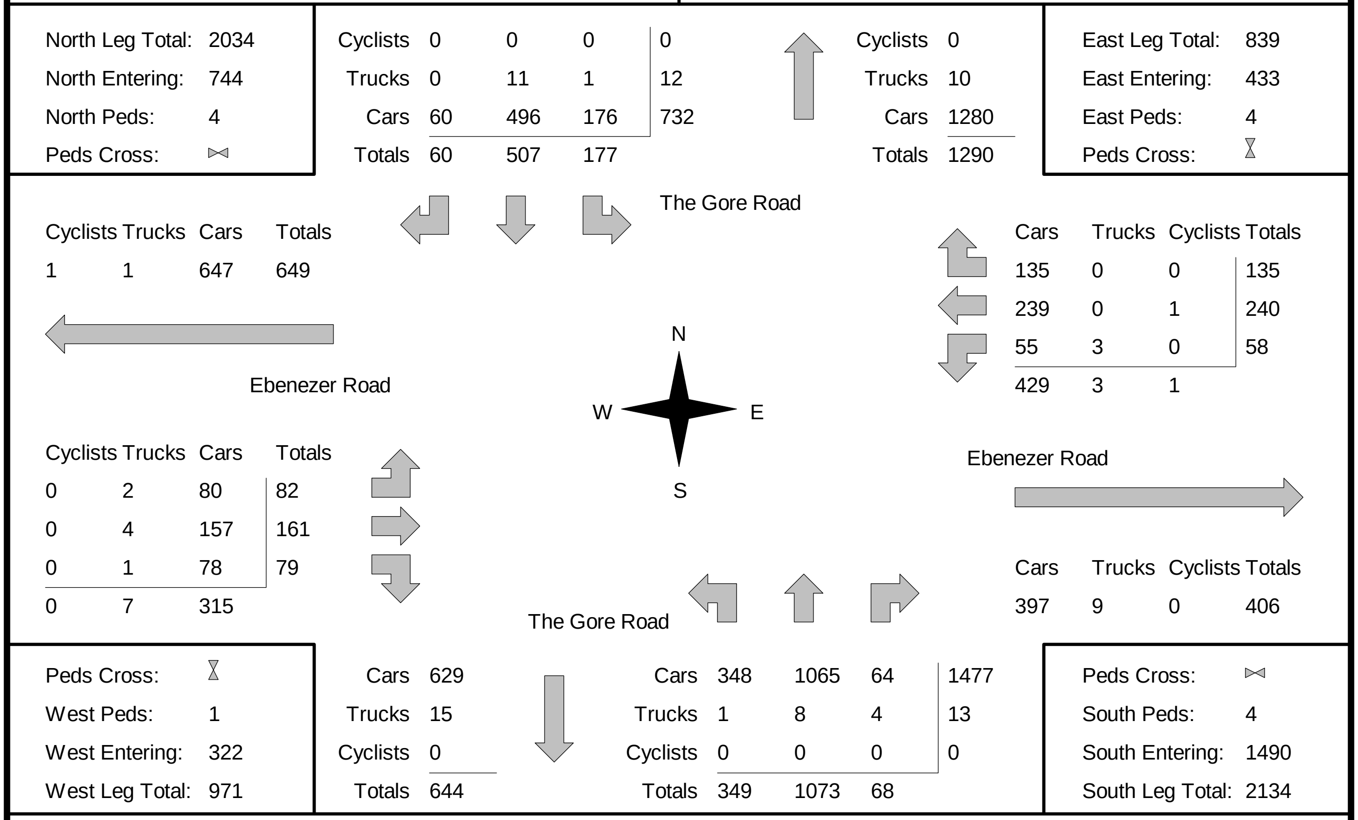
Person(s) who counted:
DAVID

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 2034
North Entering: 744
North Peds: 4
Peds Cross: ⋈

East Leg Total: 839
East Entering: 433
East Peds: 4
Peds Cross: ⧗



Cyclists	0	0	0	0
Trucks	0	11	1	12
Cars	60	496	176	732
Totals	60	507	177	

Cyclists	0
Trucks	10
Cars	1280
Totals	1290

Cyclists	Trucks	Cars	Totals
1	1	647	649

Cars	Trucks	Cyclists	Totals
135	0	0	135
239	0	1	240
55	3	0	58
429	3	1	

Cyclists	Trucks	Cars	Totals
0	2	80	82
0	4	157	161
0	1	78	79
0	7	315	

Cars	Trucks	Cyclists	Totals
397	9	0	406

Peds Cross: ⧗
West Peds: 1
West Entering: 322
West Leg Total: 971

Cars	629
Trucks	15
Cyclists	0
Totals	644

Cars	348	1065	64	1477
Trucks	1	8	4	13
Cyclists	0	0	0	0
Totals	349	1073	68	

Peds Cross: ⋈
South Peds: 4
South Entering: 1490
South Leg Total: 2134

Comments

MG8 ENG

Total Count Diagram

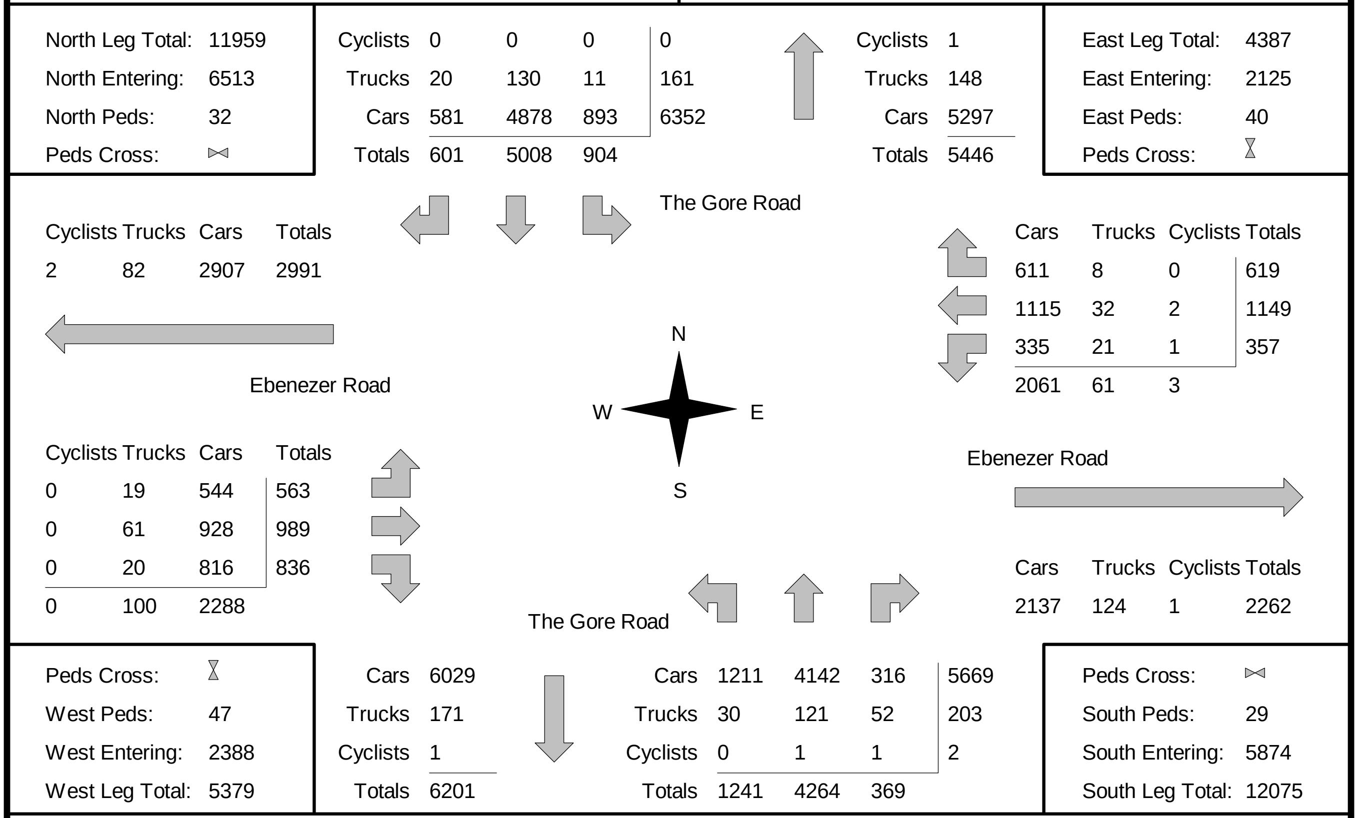
Municipality: Region of Peel
Site #: 0000802314
Intersection: The Gore Road & Ebenezer Road
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
DAVID

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total:	11959
North Entering:	6513
North Peds:	32
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	20	130	11	161
Cars	581	4878	893	6352
Totals	601	5008	904	

Cyclists	1
Trucks	148
Cars	5297
Totals	5446

East Leg Total:	4387
East Entering:	2125
East Peds:	40
Peds Cross:	⧗

Cyclists	Trucks	Cars	Totals
2	82	2907	2991

Cars	Trucks	Cyclists	Totals
611	8	0	619
1115	32	2	1149
335	21	1	357
2061	61	3	

Cyclists	Trucks	Cars	Totals
0	19	544	563
0	61	928	989
0	20	816	836
0	100	2288	

Cars	Trucks	Cyclists	Totals
2137	124	1	2262

Peds Cross:	⧗
West Peds:	47
West Entering:	2388
West Leg Total:	5379

Cars	6029
Trucks	171
Cyclists	1
Totals	6201

Cars	1211	4142	316	5669
Trucks	30	121	52	203
Cyclists	0	1	1	2
Totals	1241	4264	369	

Peds Cross:	⋈
South Peds:	29
South Entering:	5874
South Leg Total:	12075

Comments

MG8 ENG

Traffic Count Summary

Intersection: The Gore Road & Ebenezer Road	Count Date: 24-Apr-2013	Municipality: Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	87	1307	90	1484	5	1879	8:00:00	69	293	33	395	6
9:00:00	130	1105	108	1343	6	1740	9:00:00	59	309	29	397	2
11:00:00	1	12	4	17	0	26	11:00:00	0	9	0	9	0
12:00:00	120	392	48	560	5	971	12:00:00	86	295	30	411	1
13:00:00	94	402	49	545	2	1027	13:00:00	94	343	45	482	3
14:00:00	75	407	51	533	1	1031	14:00:00	113	342	43	498	2
15:00:00	0	2	0	2	1	6	15:00:00	0	3	1	4	0
16:00:00	111	449	119	679	8	1630	16:00:00	192	704	55	951	5
17:00:00	109	425	72	606	0	1843	17:00:00	279	893	65	1237	6
18:00:00	177	507	60	744	4	2234	18:00:00	349	1073	68	1490	4
Totals:	904	5008	601	6513	32	12387		1241	4264	369	5874	29

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	33	105	21	159	2	524	8:00:00	40	109	216	365	7
9:00:00	45	166	52	263	2	711	9:00:00	115	135	198	448	8
11:00:00	0	2	1	3	0	7	11:00:00	3	0	1	4	0
12:00:00	38	84	54	176	14	349	12:00:00	37	81	55	173	7
13:00:00	39	95	59	193	5	413	13:00:00	53	88	79	220	5
14:00:00	38	127	61	226	4	476	14:00:00	52	126	72	250	4
15:00:00	2	2	3	7	0	13	15:00:00	3	3	0	6	0
16:00:00	49	172	103	324	4	678	16:00:00	98	171	85	354	4
17:00:00	55	156	130	341	5	587	17:00:00	80	115	51	246	11
18:00:00	58	240	135	433	4	755	18:00:00	82	161	79	322	1
Totals:	357	1149	619	2125	40	4513		563	989	836	2388	47

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	193	334	165	192	220	332	297	388

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802314

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	15	15	269	269	17	17	0	0	8	8	0	0	0	0	0	0	0	0	2	2
7:30:00	35	20	587	318	40	23	0	0	15	7	2	2	0	0	0	0	0	0	3	1
7:45:00	57	22	945	358	70	30	3	3	20	5	2	0	0	0	0	0	0	0	4	1
8:00:00	84	27	1282	337	87	17	3	0	25	5	3	1	0	0	0	0	0	0	5	1
8:15:00	104	20	1565	283	113	26	4	1	28	3	4	1	0	0	0	0	0	0	8	3
8:30:00	134	30	1862	297	135	22	5	1	32	4	4	0	0	0	0	0	0	0	8	0
8:45:00	171	37	2125	263	157	22	6	1	39	7	5	1	0	0	0	0	0	0	10	2
9:00:00	211	40	2368	243	192	35	6	0	44	5	6	1	0	0	0	0	0	0	11	1
9:00:42	211	0	2375	7	196	4	6	0	44	0	6	0	0	0	0	0	0	0	11	0
11:00:00	212	1	2380	5	196	0	6	0	44	0	6	0	0	0	0	0	0	0	11	0
11:15:00	242	30	2474	94	207	11	6	0	46	2	7	1	0	0	0	0	0	0	13	2
11:30:00	267	25	2562	88	220	13	7	1	48	2	8	1	0	0	0	0	0	0	15	2
11:45:00	309	42	2660	98	228	8	7	0	50	2	8	0	0	0	0	0	0	0	15	0
12:00:00	331	22	2761	101	241	13	7	0	55	5	9	1	0	0	0	0	0	0	16	1
12:15:00	354	23	2863	102	250	9	7	0	56	1	11	2	0	0	0	0	0	0	17	1
12:30:00	372	18	2948	85	266	16	7	0	60	4	11	0	0	0	0	0	0	0	17	0
12:45:00	393	21	3041	93	276	10	7	0	66	6	12	1	0	0	0	0	0	0	18	1
13:00:00	425	32	3146	105	287	11	7	0	72	6	12	0	0	0	0	0	0	0	18	0
13:15:00	448	23	3243	97	299	12	7	0	77	5	12	0	0	0	0	0	0	0	18	0
13:30:00	468	20	3331	88	307	8	7	0	79	2	12	0	0	0	0	0	0	0	18	0
13:45:00	481	13	3446	115	322	15	7	0	84	5	12	0	0	0	0	0	0	0	19	1
14:00:00	500	19	3534	88	338	16	7	0	91	7	12	0	0	0	0	0	0	0	19	0
14:00:16	500	0	3535	1	338	0	7	0	91	0	12	0	0	0	0	0	0	0	19	0
15:00:00	500	0	3536	1	338	0	7	0	91	0	12	0	0	0	0	0	0	0	20	1
15:15:00	524	24	3631	95	359	21	8	1	96	5	13	1	0	0	0	0	0	0	24	4
15:30:00	548	24	3725	94	386	27	8	0	98	2	13	0	0	0	0	0	0	0	24	0
15:45:00	583	35	3857	132	435	49	9	1	106	8	15	2	0	0	0	0	0	0	24	0
16:00:00	609	26	3968	111	453	18	9	0	108	2	16	1	0	0	0	0	0	0	28	4
16:15:00	636	27	4072	104	468	15	9	0	110	2	17	1	0	0	0	0	0	0	28	0
16:30:00	655	19	4168	96	482	14	10	1	112	2	17	0	0	0	0	0	0	0	28	0
16:45:00	684	29	4273	105	499	17	10	0	116	4	20	3	0	0	0	0	0	0	28	0
17:00:00	717	33	4382	109	521	22	10	0	119	3	20	0	0	0	0	0	0	0	28	0
17:15:00	770	53	4473	91	533	12	11	1	119	0	20	0	0	0	0	0	0	0	28	0
17:30:00	811	41	4615	142	547	14	11	0	125	6	20	0	0	0	0	0	0	0	31	3
17:45:00	851	40	4730	115	566	19	11	0	129	4	20	0	0	0	0	0	0	0	31	0
18:00:00	893	42	4878	148	581	15	11	0	130	1	20	0	0	0	0	0	0	0	32	1
18:15:00	893	0	4878	0	581	0	11	0	130	0	20	0	0	0	0	0	0	0	32	0
18:15:03	893	0	4878	0	581	0	11	0	130	0	20	0	0	0	0	0	0	0	32	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802314

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	12	12	3	3	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	14	8	41	29	11	8	1	1	2	2	0	0	0	0	0	0	0	0	2	0
7:45:00	25	11	70	29	12	1	2	1	5	3	0	0	0	0	0	0	0	0	2	0
8:00:00	31	6	98	28	20	8	2	0	7	2	1	1	0	0	0	0	0	0	2	0
8:15:00	51	20	132	34	30	10	3	1	8	1	3	2	0	0	0	0	0	0	2	0
8:30:00	62	11	184	52	40	10	4	1	12	4	3	0	0	0	0	0	0	0	3	1
8:45:00	67	5	220	36	57	17	5	1	13	1	4	1	0	0	0	0	0	0	3	0
9:00:00	72	5	258	38	69	12	5	0	13	0	4	0	1	1	0	0	0	0	4	1
9:00:42	72	0	260	2	70	1	5	0	13	0	4	0	1	0	0	0	0	0	4	0
11:00:00	72	0	260	0	70	0	5	0	13	0	4	0	1	0	0	0	0	0	4	0
11:15:00	79	7	276	16	89	19	5	0	15	2	4	0	1	0	0	0	0	0	9	5
11:30:00	85	6	292	16	100	11	5	0	15	0	4	0	1	0	0	0	0	0	15	6
11:45:00	98	13	320	28	114	14	5	0	16	1	5	1	1	0	0	0	0	0	16	1
12:00:00	110	12	340	20	123	9	5	0	16	0	5	0	1	0	1	1	0	0	18	2
12:15:00	122	12	363	23	137	14	5	0	16	0	5	0	1	0	1	0	0	0	18	0
12:30:00	132	10	391	28	149	12	5	0	17	1	5	0	1	0	1	0	0	0	22	4
12:45:00	143	11	417	26	166	17	5	0	17	0	5	0	1	0	1	0	0	0	23	1
13:00:00	149	6	434	17	181	15	5	0	17	0	6	1	1	0	1	0	0	0	23	0
13:15:00	158	9	463	29	196	15	7	2	17	0	6	0	1	0	1	0	0	0	26	3
13:30:00	163	5	492	29	209	13	8	1	17	0	6	0	1	0	1	0	0	0	26	0
13:45:00	172	9	527	35	224	15	8	0	18	1	6	0	1	0	1	0	0	0	27	1
14:00:00	183	11	560	33	242	18	9	1	18	0	6	0	1	0	1	0	0	0	27	0
14:00:16	183	0	560	0	243	1	9	0	18	0	6	0	1	0	1	0	0	0	27	0
15:00:00	185	2	562	2	245	2	9	0	18	0	6	0	1	0	1	0	0	0	27	0
15:15:00	193	8	584	22	271	26	9	0	18	0	6	0	1	0	1	0	0	0	28	1
15:30:00	203	10	618	34	294	23	11	2	22	4	7	1	1	0	1	0	0	0	29	1
15:45:00	211	8	660	42	324	30	13	2	26	4	7	0	1	0	1	0	0	0	29	0
16:00:00	228	17	725	65	347	23	15	2	27	1	7	0	1	0	1	0	0	0	31	2
16:15:00	247	19	760	35	381	34	15	0	28	1	7	0	1	0	1	0	0	0	34	3
16:30:00	256	9	790	30	416	35	16	1	28	0	7	0	1	0	1	0	0	0	34	0
16:45:00	261	5	828	38	451	35	16	0	31	3	7	0	1	0	1	0	0	0	34	0
17:00:00	280	19	876	48	476	25	18	2	32	1	8	1	1	0	1	0	0	0	36	2
17:15:00	293	13	946	70	502	26	18	0	32	0	8	0	1	0	1	0	0	0	37	1
17:30:00	310	17	1029	83	533	31	18	0	32	0	8	0	1	0	2	1	0	0	40	3
17:45:00	324	14	1076	47	570	37	20	2	32	0	8	0	1	0	2	0	0	0	40	0
18:00:00	335	11	1115	39	611	41	21	1	32	0	8	0	1	0	2	0	0	0	40	0
18:15:00	335	0	1115	0	611	0	21	0	32	0	8	0	1	0	2	0	0	0	40	0
18:15:03	335	0	1115	0	611	0	21	0	32	0	8	0	1	0	2	0	0	0	40	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802314

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	12	12	79	79	5	5	2	2	3	3	3	3	0	0	0	0	0	0	1	1
7:30:00	31	19	137	58	12	7	2	0	5	2	4	1	0	0	0	0	0	0	2	1
7:45:00	47	16	221	84	19	7	4	2	9	4	7	3	0	0	0	0	0	0	2	0
8:00:00	63	16	279	58	25	6	6	2	14	5	8	1	0	0	0	0	0	0	6	4
8:15:00	80	17	346	67	32	7	6	0	18	4	10	2	0	0	0	0	0	0	6	0
8:30:00	95	15	427	81	39	7	7	1	24	6	11	1	0	0	0	0	0	0	6	0
8:45:00	106	11	504	77	43	4	8	1	30	6	12	1	0	0	0	0	0	0	6	0
9:00:00	117	11	564	60	48	5	11	3	38	8	14	2	0	0	0	0	0	0	8	2
9:00:42	117	0	571	7	48	0	11	0	38	0	14	0	0	0	0	0	0	0	8	0
11:00:00	117	0	573	2	48	0	11	0	38	0	14	0	0	0	0	0	0	0	8	0
11:15:00	131	14	641	68	59	11	11	0	38	0	14	0	0	0	0	0	0	0	8	0
11:30:00	146	15	705	64	62	3	14	3	42	4	15	1	0	0	0	0	0	0	8	0
11:45:00	167	21	769	64	67	5	14	0	45	3	15	0	0	0	0	0	0	0	8	0
12:00:00	200	33	855	86	76	9	14	0	50	5	16	1	0	0	1	1	0	0	9	1
12:15:00	223	23	931	76	88	12	15	1	52	2	16	0	0	0	1	0	0	0	9	0
12:30:00	249	26	1013	82	93	5	15	0	55	3	18	2	0	0	1	0	0	0	9	0
12:45:00	274	25	1093	80	103	10	17	2	66	11	21	3	0	0	1	0	0	0	9	0
13:00:00	291	17	1179	86	115	12	17	0	69	3	22	1	0	0	1	0	0	0	12	3
13:15:00	310	19	1243	64	121	6	17	0	74	5	22	0	0	0	1	0	0	0	14	2
13:30:00	343	33	1342	99	130	9	18	1	74	0	24	2	0	0	1	0	0	0	14	0
13:45:00	374	31	1420	78	142	12	19	1	77	3	25	1	0	0	1	0	0	0	14	0
14:00:00	402	28	1511	91	154	12	19	0	79	2	26	1	0	0	1	0	0	0	14	0
14:00:16	402	0	1514	3	155	1	19	0	79	0	26	0	0	0	1	0	0	0	14	0
15:00:00	402	0	1514	0	155	0	19	0	79	0	26	0	0	0	1	0	0	0	14	0
15:15:00	441	39	1658	144	164	9	22	3	83	4	28	2	0	0	1	0	0	0	14	0
15:30:00	476	35	1821	163	174	10	22	0	86	3	32	4	0	0	1	0	0	0	16	2
15:45:00	528	52	2018	197	187	13	22	0	88	2	35	3	0	0	1	0	0	0	18	2
16:00:00	588	60	2207	189	198	11	25	3	90	2	38	3	0	0	1	0	0	0	19	1
16:15:00	654	66	2427	220	213	15	28	3	97	7	40	2	0	0	1	0	0	0	22	3
16:30:00	712	58	2609	182	226	13	28	0	106	9	44	4	0	0	1	0	0	0	22	0
16:45:00	772	60	2796	187	238	12	29	1	110	4	46	2	0	0	1	0	1	1	22	0
17:00:00	863	91	3077	281	252	14	29	0	113	3	48	2	0	0	1	0	1	0	25	3
17:15:00	937	74	3341	264	265	13	29	0	118	5	49	1	0	0	1	0	1	0	28	3
17:30:00	1042	105	3586	245	282	17	30	1	118	0	50	1	0	0	1	0	1	0	29	1
17:45:00	1134	92	3859	273	298	16	30	0	119	1	51	1	0	0	1	0	1	0	29	0
18:00:00	1211	77	4142	283	316	18	30	0	121	2	52	1	0	0	1	0	1	0	29	0
18:15:00	1211	0	4142	0	316	0	30	0	121	0	52	0	0	0	1	0	1	0	29	0
18:15:03	1211	0	4142	0	316	0	30	0	121	0	52	0	0	0	1	0	1	0	29	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000802314

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	4	15	15	45	45	0	0	6	6	0	0	0	0	0	0	0	0	0	0
7:30:00	15	11	41	26	77	32	0	0	8	2	1	1	0	0	0	0	0	0	1	1
7:45:00	30	15	71	30	132	55	0	0	11	3	1	0	0	0	0	0	0	0	5	4
8:00:00	39	9	97	26	214	82	1	1	12	1	2	1	0	0	0	0	0	0	7	2
8:15:00	54	15	125	28	264	50	2	1	15	3	3	1	0	0	0	0	0	0	12	5
8:30:00	74	20	168	43	309	45	4	2	18	3	3	0	0	0	0	0	0	0	13	1
8:45:00	103	29	191	23	361	52	7	3	19	1	4	1	0	0	0	0	0	0	13	0
9:00:00	147	44	225	34	408	47	8	1	19	0	6	2	0	0	0	0	0	0	15	2
9:00:42	149	2	225	0	409	1	9	1	19	0	6	0	0	0	0	0	0	0	15	0
11:00:00	149	0	225	0	409	0	9	0	19	0	6	0	0	0	0	0	0	0	15	0
11:15:00	155	6	249	24	422	13	9	0	22	3	6	0	0	0	0	0	0	0	20	5
11:30:00	168	13	264	15	433	11	9	0	25	3	6	0	0	0	0	0	0	0	20	0
11:45:00	180	12	280	16	449	16	9	0	27	2	6	0	0	0	0	0	0	0	21	1
12:00:00	186	6	297	17	464	15	9	0	28	1	6	0	0	0	0	0	0	0	22	1
12:15:00	198	12	316	19	477	13	9	0	30	2	7	1	0	0	0	0	0	0	23	1
12:30:00	217	19	332	16	506	29	10	1	30	0	7	0	0	0	0	0	0	0	24	1
12:45:00	227	10	358	26	523	17	10	0	30	0	7	0	0	0	0	0	0	0	26	2
13:00:00	238	11	381	23	540	17	10	0	32	2	9	2	0	0	0	0	0	0	27	1
13:15:00	251	13	410	29	548	8	11	1	35	3	9	0	0	0	0	0	0	0	27	0
13:30:00	263	12	439	29	576	28	11	0	35	0	9	0	0	0	0	0	0	0	28	1
13:45:00	283	20	474	35	591	15	11	0	37	2	9	0	0	0	0	0	0	0	30	2
14:00:00	289	6	501	27	612	21	11	0	38	1	9	0	0	0	0	0	0	0	31	1
14:00:16	289	0	501	0	612	0	11	0	38	0	9	0	0	0	0	0	0	0	31	0
15:00:00	292	3	503	2	612	0	11	0	39	1	9	0	0	0	0	0	0	0	31	0
15:15:00	317	25	538	35	625	13	13	2	42	3	11	2	0	0	0	0	0	0	31	0
15:30:00	345	28	573	35	644	19	13	0	44	2	11	0	0	0	0	0	0	0	31	0
15:45:00	370	25	605	32	660	16	13	0	47	3	16	5	0	0	0	0	0	0	33	2
16:00:00	387	17	663	58	689	29	14	1	50	3	17	1	0	0	0	0	0	0	35	2
16:15:00	416	29	699	36	699	10	16	2	53	3	17	0	0	0	0	0	0	0	44	9
16:30:00	439	23	714	15	711	12	16	0	55	2	18	1	0	0	0	0	0	0	44	0
16:45:00	448	9	738	24	720	9	16	0	56	1	18	0	0	0	0	0	0	0	44	0
17:00:00	464	16	771	33	738	18	17	1	57	1	19	1	0	0	0	0	0	0	46	2
17:15:00	480	16	817	46	766	28	18	1	57	0	20	1	0	0	0	0	0	0	46	0
17:30:00	500	20	857	40	786	20	18	0	60	3	20	0	0	0	0	0	0	0	47	1
17:45:00	522	22	886	29	805	19	19	1	61	1	20	0	0	0	0	0	0	0	47	0
18:00:00	544	22	928	42	816	11	19	0	61	0	20	0	0	0	0	0	0	0	47	0
18:15:00	544	0	928	0	816	0	19	0	61	0	20	0	0	0	0	0	0	0	47	0
18:15:03	544	0	928	0	816	0	19	0	61	0	20	0	0	0	0	0	0	0	47	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:00:00
To: 8:00:00

Municipality: Region of Peel
Site #: 0000801904
Intersection: The Gore Road & Fogal Road
TFR File #: 5
Count date: 24-Apr-2013

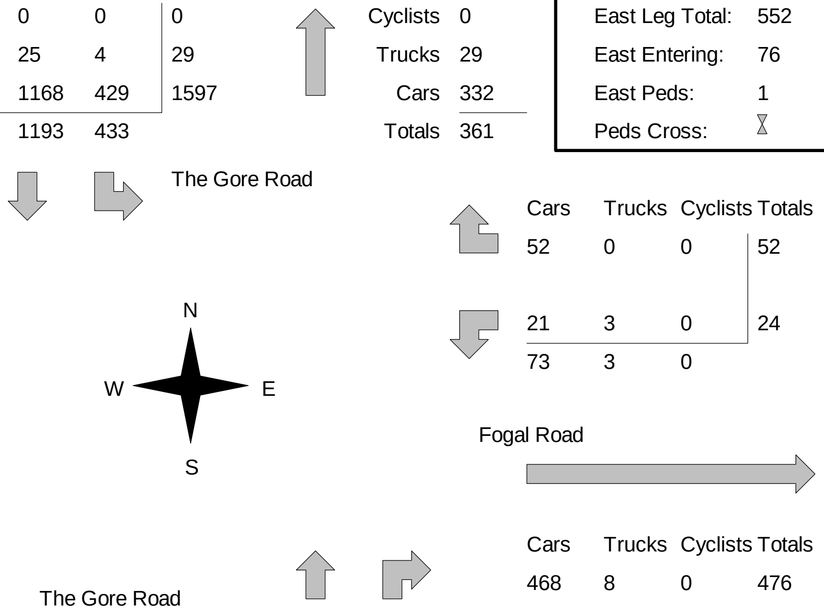
Weather conditions:

Person(s) who counted:
NIKOLA

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 1987
North Entering: 1626
North Peds: 2
Peds Cross: ⋈



Cyclists	0	0	0
Trucks	25	4	29
Cars	1168	429	1597
Totals	1193	433	

Cyclists	0
Trucks	29
Cars	332
Totals	361

East Leg Total: 552
East Entering: 76
East Peds: 1
Peds Cross: ⧗

Cars	Trucks	Cyclists	Totals
52	0	0	52
21	3	0	24
73	3	0	

Cars	Trucks	Cyclists	Totals
468	8	0	476

Cars	1189
Trucks	28
Cyclists	0
Totals	1217

Cars	280	39	319
Trucks	29	4	33
Cyclists	0	0	0
Totals	309	43	

Peds Cross: ⋈
South Peds: 0
South Entering: 352
South Leg Total: 1569

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Region of Peel
Site #: 0000801904
Intersection: The Gore Road & Fogal Road
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
NIKOLA

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S

North Leg Total: 1041
North Entering: 549
North Peds: 0
Peds Cross: ⋈

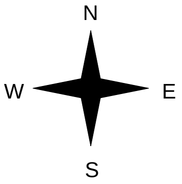
Cyclists	0	0	0
Trucks	19	2	21
Cars	421	107	528
Totals	440	109	

Cyclists	0
Trucks	17
Cars	475
Totals	492

East Leg Total: 302
East Entering: 150
East Peds: 1
Peds Cross: ⧗

The Gore Road

Cars	Trucks	Cyclists	Totals
109	4	0	113
33	4	0	37
142	8	0	



Fogal Road

Cars	Trucks	Cyclists	Totals
144	8	0	152

The Gore Road

Cars	454
Trucks	23
Cyclists	0
Totals	477

Cars	366	37	403
Trucks	13	6	19
Cyclists	0	0	0
Totals	379	43	

Peds Cross: ⋈
South Peds: 0
South Entering: 422
South Leg Total: 899

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

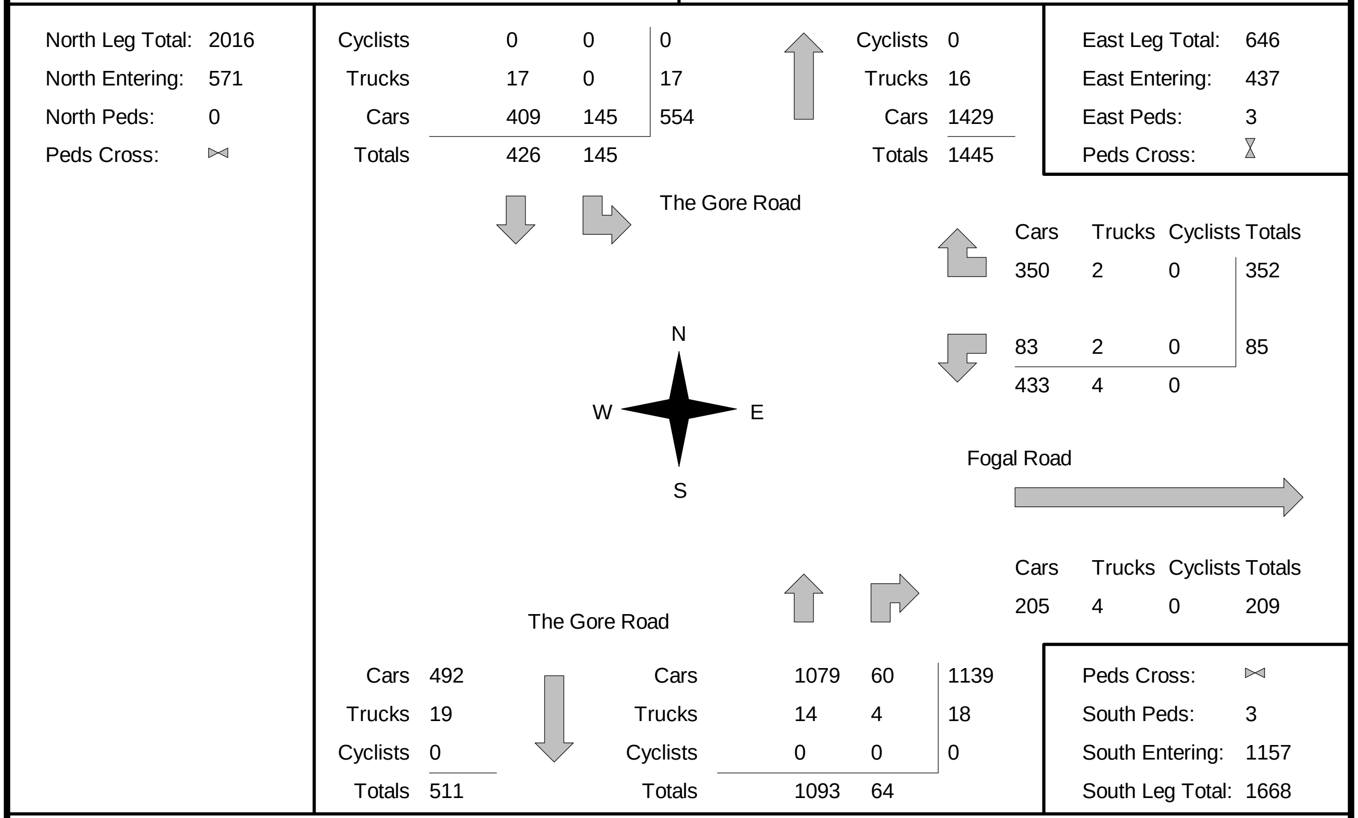
Municipality: Region of Peel
Site #: 0000801904
Intersection: The Gore Road & Fogal Road
TFR File #: 5
Count date: 24-Apr-2013

Weather conditions:

Person(s) who counted:
NIKOLA

**** Signalized Intersection ****

Major Road: The Gore Road runs N/S



North Leg Total: 2016
North Entering: 571
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	17	0	17
Cars	409	145	554
Totals	426	145	

Cyclists	0
Trucks	16
Cars	1429
Totals	1445

The Gore Road

East Leg Total: 646
East Peds: 3
East Entering: 437
Peds Cross: ⧖

Cars	Trucks	Cyclists	Totals
350	2	0	352
83	2	0	85
433	4	0	

Fogal Road

Cars	Trucks	Cyclists	Totals
205	4	0	209

The Gore Road

Cars	492
Trucks	19
Cyclists	0
Totals	511

Cars	1079	60	1139
Trucks	14	4	18
Cyclists	0	0	0
Totals	1093	64	

Peds Cross: ⋈
South Peds: 3
South Entering: 1157
South Leg Total: 1668

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000801904
Intersection: The Gore Road & Fogal Road
TFR File #: 5
Count date: 24-Apr-2013

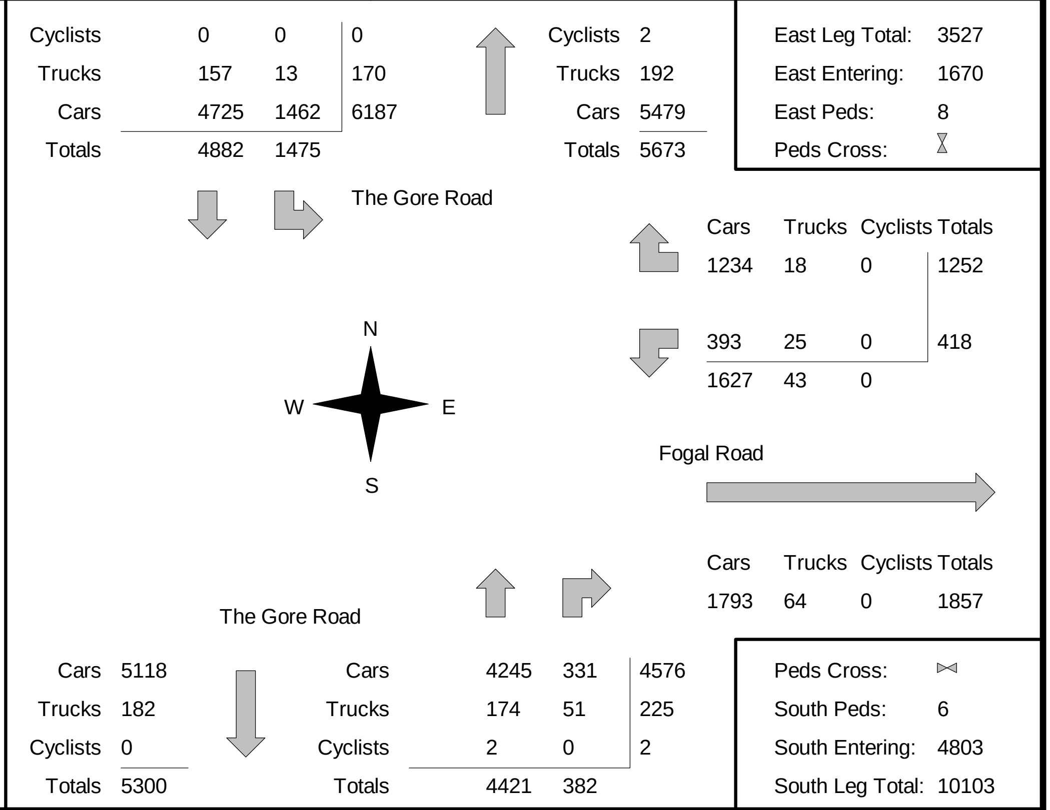
Weather conditions:

Person(s) who counted:
NIKOLA

** Signalized Intersection **

Major Road: The Gore Road runs N/S

North Leg Total:	12030
North Entering:	6357
North Peds:	5
Peds Cross:	⋈



Cyclists	0	0	0
Trucks	157	13	170
Cars	4725	1462	6187
Totals	4882	1475	

Cyclists	2
Trucks	192
Cars	5479
Totals	5673

East Leg Total:	3527
East Entering:	1670
East Peds:	8
Peds Cross:	⧗

The Gore Road

Cars	Trucks	Cyclists	Totals
1234	18	0	1252
393	25	0	418
1627	43	0	

Fogal Road

Cars	Trucks	Cyclists	Totals
1793	64	0	1857

The Gore Road

Cars	5118
Trucks	182
Cyclists	0
Totals	5300

Cars	4245	331	4576
Trucks	174	51	225
Cyclists	2	0	2
Totals	4421	382	

Peds Cross:	⋈
South Peds:	6
South Entering:	4803
South Leg Total:	10103

Comments

MG8 ENG
Traffic Count Summary

Intersection: The Gore Road & Fogal Road **Count Date:** 24-Apr-2013 **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	1	6	0	7	0	11	7:00:00	0	4	0	4	0
8:00:00	433	1193	0	1626	2	1978	8:00:00	0	309	43	352	0
9:00:00	279	1078	0	1357	1	1696	9:00:00	0	310	29	339	1
11:00:00	0	1	0	1	0	3	11:00:00	0	2	0	2	0
12:00:00	122	394	0	516	2	847	12:00:00	0	305	26	331	2
13:00:00	117	426	0	543	0	916	13:00:00	0	333	40	373	0
14:00:00	109	440	0	549	0	971	14:00:00	0	379	43	422	0
15:00:00	0	0	0	0	0	2	15:00:00	0	2	0	2	0
16:00:00	150	480	0	630	0	1440	16:00:00	0	753	57	810	0
17:00:00	121	443	0	564	0	1586	17:00:00	0	957	65	1022	0
18:00:00	143	421	0	564	0	1709	18:00:00	0	1066	79	1145	3
Totals:	1475	4882	0	6357	5	11159		0	4420	382	4802	6

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists							Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	24	0	52	76	1	76	8:00:00	0	0	0	0	3
9:00:00	42	0	50	92	0	92	9:00:00	0	0	0	0	5
11:00:00	0	0	0	0	0	0	11:00:00	0	0	0	0	0
12:00:00	30	0	84	114	1	114	12:00:00	0	0	0	0	0
13:00:00	40	0	98	138	0	138	13:00:00	0	0	0	0	2
14:00:00	37	0	113	150	1	150	14:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0	0	15:00:00	0	0	0	0	0
16:00:00	67	0	182	249	0	249	16:00:00	0	0	0	0	3
17:00:00	96	0	343	439	3	439	17:00:00	0	0	0	0	0
18:00:00	82	0	330	412	2	412	18:00:00	0	0	0	0	2
Totals:	418	0	1252	1670	8	1670		0	0	0	0	15

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	26	44	34	40	37	67	96	85

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000801904

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	1	1	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	85	84	264	258	0	0	1	1	7	7	0	0	0	0	0	0	0	0	1	1
7:30:00	195	110	546	282	0	0	3	2	14	7	0	0	0	0	0	0	0	0	1	0
7:45:00	306	111	871	325	0	0	4	1	19	5	0	0	0	0	0	0	0	0	2	1
8:00:00	430	124	1174	303	0	0	4	0	25	6	0	0	0	0	0	0	0	0	2	0
8:15:00	503	73	1438	264	0	0	4	0	29	4	0	0	0	0	0	0	0	0	3	1
8:30:00	582	79	1739	301	0	0	4	0	34	5	0	0	0	0	0	0	0	0	3	0
8:45:00	655	73	2001	262	0	0	4	0	44	10	0	0	0	0	0	0	0	0	3	0
9:00:00	708	53	2227	226	0	0	5	1	50	6	0	0	0	0	0	0	0	0	3	0
9:00:05	708	0	2228	1	0	0	5	0	50	0	0	0	0	0	0	0	0	0	3	0
11:00:00	708	0	2228	0	0	0	5	0	50	0	0	0	0	0	0	0	0	0	3	0
11:15:00	733	25	2319	91	0	0	6	1	52	2	0	0	0	0	0	0	0	0	3	0
11:30:00	758	25	2409	90	0	0	6	0	54	2	0	0	0	0	0	0	0	0	4	1
11:45:00	792	34	2509	100	0	0	8	2	54	0	0	0	0	0	0	0	0	0	4	0
12:00:00	826	34	2615	106	0	0	9	1	57	3	0	0	0	0	0	0	0	0	5	1
12:15:00	861	35	2722	107	0	0	9	0	60	3	0	0	0	0	0	0	0	0	5	0
12:30:00	887	26	2819	97	0	0	9	0	66	6	0	0	0	0	0	0	0	0	5	0
12:45:00	908	21	2930	111	0	0	10	1	71	5	0	0	0	0	0	0	0	0	5	0
13:00:00	942	34	3018	88	0	0	10	0	80	9	0	0	0	0	0	0	0	0	5	0
13:15:00	975	33	3121	103	0	0	11	1	86	6	0	0	0	0	0	0	0	0	5	0
13:30:00	1004	29	3226	105	0	0	12	1	88	2	0	0	0	0	0	0	0	0	5	0
13:45:00	1024	20	3342	116	0	0	12	0	92	4	0	0	0	0	0	0	0	0	5	0
14:00:00	1049	25	3439	97	0	0	12	0	99	7	0	0	0	0	0	0	0	0	5	0
14:00:04	1049	0	3439	0	0	0	12	0	99	0	0	0	0	0	0	0	0	0	5	0
15:00:00	1049	0	3439	0	0	0	12	0	99	0	0	0	0	0	0	0	0	0	5	0
15:15:00	1080	31	3543	104	0	0	12	0	106	7	0	0	0	0	0	0	0	0	5	0
15:30:00	1110	30	3650	107	0	0	12	0	109	3	0	0	0	0	0	0	0	0	5	0
15:45:00	1147	37	3765	115	0	0	13	1	122	13	0	0	0	0	0	0	0	0	5	0
16:00:00	1198	51	3889	124	0	0	13	0	129	7	0	0	0	0	0	0	0	0	5	0
16:15:00	1218	20	4006	117	0	0	13	0	131	2	0	0	0	0	0	0	0	0	5	0
16:30:00	1245	27	4112	106	0	0	13	0	135	4	0	0	0	0	0	0	0	0	5	0
16:45:00	1276	31	4212	100	0	0	13	0	138	3	0	0	0	0	0	0	0	0	5	0
17:00:00	1319	43	4318	106	0	0	13	0	143	5	0	0	0	0	0	0	0	0	5	0
17:15:00	1355	36	4400	82	0	0	13	0	145	2	0	0	0	0	0	0	0	0	5	0
17:30:00	1391	36	4514	114	0	0	13	0	150	5	0	0	0	0	0	0	0	0	5	0
17:45:00	1421	30	4621	107	0	0	13	0	155	5	0	0	0	0	0	0	0	0	5	0
18:00:00	1462	41	4725	104	0	0	13	0	157	2	0	0	0	0	0	0	0	0	5	0
18:00:11	1462	0	4725	0	0	0	13	0	157	0	0	0	0	0	0	0	0	0	5	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000801904

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	10	7	0	0	22	12	1	1	0	0	0	0	0	0	0	0	0	0	1	1
7:45:00	13	3	0	0	40	18	3	2	0	0	0	0	0	0	0	0	0	0	1	0
8:00:00	21	8	0	0	52	12	3	0	0	0	0	0	0	0	0	0	0	0	1	0
8:15:00	25	4	0	0	75	23	4	1	0	0	0	0	0	0	0	0	0	0	1	0
8:30:00	37	12	0	0	82	7	4	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45:00	47	10	0	0	94	12	4	0	0	0	2	2	0	0	0	0	0	0	1	0
9:00:00	62	15	0	0	99	5	4	0	0	0	3	1	0	0	0	0	0	0	1	0
9:00:05	62	0	0	0	99	0	4	0	0	0	3	0	0	0	0	0	0	0	1	0
11:00:00	62	0	0	0	99	0	4	0	0	0	3	0	0	0	0	0	0	0	1	0
11:15:00	68	6	0	0	115	16	5	1	0	0	3	0	0	0	0	0	0	0	1	0
11:30:00	77	9	0	0	127	12	6	1	0	0	4	1	0	0	0	0	0	0	1	0
11:45:00	85	8	0	0	145	18	6	0	0	0	5	1	0	0	0	0	0	0	2	1
12:00:00	89	4	0	0	181	36	7	1	0	0	5	0	0	0	0	0	0	0	2	0
12:15:00	94	5	0	0	199	18	9	2	0	0	6	1	0	0	0	0	0	0	2	0
12:30:00	106	12	0	0	226	27	11	2	0	0	8	2	0	0	0	0	0	0	2	0
12:45:00	116	10	0	0	254	28	11	0	0	0	8	0	0	0	0	0	0	0	2	0
13:00:00	122	6	0	0	276	22	14	3	0	0	8	0	0	0	0	0	0	0	2	0
13:15:00	130	8	0	0	290	14	15	1	0	0	11	3	0	0	0	0	0	0	2	0
13:30:00	142	12	0	0	324	34	18	3	0	0	11	0	0	0	0	0	0	0	2	0
13:45:00	147	5	0	0	348	24	18	0	0	0	12	1	0	0	0	0	0	0	2	0
14:00:00	155	8	0	0	385	37	18	0	0	0	12	0	0	0	0	0	0	0	3	1
14:00:04	155	0	0	0	385	0	18	0	0	0	12	0	0	0	0	0	0	0	3	0
15:00:00	155	0	0	0	385	0	18	0	0	0	12	0	0	0	0	0	0	0	3	0
15:15:00	163	8	0	0	425	40	19	1	0	0	13	1	0	0	0	0	0	0	3	0
15:30:00	176	13	0	0	471	46	20	1	0	0	14	1	0	0	0	0	0	0	3	0
15:45:00	193	17	0	0	515	44	22	2	0	0	14	0	0	0	0	0	0	0	3	0
16:00:00	218	25	0	0	564	49	22	0	0	0	15	1	0	0	0	0	0	0	3	0
16:15:00	245	27	0	0	653	89	22	0	0	0	16	1	0	0	0	0	0	0	3	0
16:30:00	265	20	0	0	729	76	22	0	0	0	16	0	0	0	0	0	0	0	3	0
16:45:00	295	30	0	0	816	87	22	0	0	0	16	0	0	0	0	0	0	0	5	2
17:00:00	314	19	0	0	906	90	22	0	0	0	16	0	0	0	0	0	0	0	6	1
17:15:00	334	20	0	0	999	93	23	1	0	0	17	1	0	0	0	0	0	0	6	0
17:30:00	353	19	0	0	1090	91	23	0	0	0	18	1	0	0	0	0	0	0	6	0
17:45:00	378	25	0	0	1166	76	24	1	0	0	18	0	0	0	0	0	0	0	8	2
18:00:00	393	15	0	0	1234	68	25	1	0	0	18	0	0	0	0	0	0	0	8	0
18:00:11	393	0	0	0	1234	0	25	0	0	0	18	0	0	0	0	0	0	0	8	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000801904

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	77	73	13	13	0	0	7	7	1	1	0	0	0	0	0	0	0	0
7:30:00	0	0	145	68	18	5	0	0	11	4	1	0	0	0	0	0	0	0	0	0
7:45:00	0	0	225	80	23	5	0	0	19	8	2	1	0	0	0	0	0	0	0	0
8:00:00	0	0	284	59	39	16	0	0	29	10	4	2	0	0	0	0	0	0	0	0
8:15:00	0	0	349	65	45	6	0	0	37	8	5	1	0	0	0	0	0	0	0	0
8:30:00	0	0	434	85	52	7	0	0	44	7	7	2	0	0	0	0	0	0	0	0
8:45:00	0	0	507	73	59	7	0	0	48	4	8	1	0	0	0	0	0	0	0	0
9:00:00	0	0	565	58	63	4	0	0	58	10	9	1	0	0	0	0	0	0	1	1
9:00:05	0	0	566	1	63	0	0	0	58	0	9	0	0	0	0	0	0	0	1	0
11:00:00	0	0	567	1	63	0	0	0	58	0	9	0	0	0	0	0	0	0	1	0
11:15:00	0	0	631	64	69	6	0	0	59	1	11	2	0	0	1	1	0	0	1	0
11:30:00	0	0	694	63	73	4	0	0	65	6	13	2	0	0	1	0	0	0	3	2
11:45:00	0	0	774	80	73	0	0	0	67	2	14	1	0	0	2	1	0	0	3	0
12:00:00	0	0	857	83	83	10	0	0	71	4	15	1	0	0	2	0	0	0	3	0
12:15:00	0	0	947	90	93	10	0	0	72	1	17	2	0	0	2	0	0	0	3	0
12:30:00	0	0	1016	69	98	5	0	0	75	3	21	4	0	0	2	0	0	0	3	0
12:45:00	0	0	1094	78	106	8	0	0	85	10	24	3	0	0	2	0	0	0	3	0
13:00:00	0	0	1173	79	114	8	0	0	88	3	24	0	0	0	2	0	0	0	3	0
13:15:00	0	0	1252	79	126	12	0	0	91	3	25	1	0	0	2	0	0	0	3	0
13:30:00	0	0	1352	100	132	6	0	0	95	4	26	1	0	0	2	0	0	0	3	0
13:45:00	0	0	1448	96	146	14	0	0	98	3	28	2	0	0	2	0	0	0	3	0
14:00:00	0	0	1539	91	151	5	0	0	101	3	30	2	0	0	2	0	0	0	3	0
14:00:04	0	0	1541	2	151	0	0	0	101	0	30	0	0	0	2	0	0	0	3	0
15:00:00	0	0	1541	0	151	0	0	0	101	0	30	0	0	0	2	0	0	0	3	0
15:15:00	0	0	1679	138	161	10	0	0	109	8	30	0	0	0	2	0	0	0	3	0
15:30:00	0	0	1859	180	173	12	0	0	115	6	33	3	0	0	2	0	0	0	3	0
15:45:00	0	0	2071	212	185	12	0	0	121	6	35	2	0	0	2	0	0	0	3	0
16:00:00	0	0	2269	198	202	17	0	0	126	5	36	1	0	0	2	0	0	0	3	0
16:15:00	0	0	2487	218	215	13	0	0	137	11	39	3	0	0	2	0	0	0	3	0
16:30:00	0	0	2712	225	235	20	0	0	149	12	40	1	0	0	2	0	0	0	3	0
16:45:00	0	0	2921	209	245	10	0	0	158	9	42	2	0	0	2	0	0	0	3	0
17:00:00	0	0	3190	269	260	15	0	0	162	4	43	1	0	0	2	0	0	0	3	0
17:15:00	0	0	3467	277	272	12	0	0	166	4	44	1	0	0	2	0	0	0	3	0
17:30:00	0	0	3728	261	287	15	0	0	169	3	45	1	0	0	2	0	0	0	3	0
17:45:00	0	0	4000	272	305	18	0	0	172	3	46	1	0	0	2	0	0	0	6	3
18:00:00	0	0	4244	244	331	26	0	0	174	2	51	5	0	0	2	0	0	0	6	0
18:00:11	0	0	4245	1	331	0	0	0	174	0	51	0	0	0	2	0	0	0	6	0

MG8 ENG

Count Date: 24-Apr-2013 Site #: 0000801904

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3
9:00:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1
12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1
13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
14:00:04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	3
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	2
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0
18:00:11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:00:00
To: 8:00:00

Municipality: Region of Peel
Site #: 0000801389
Intersection: Queen St East & The Gore Rd
TFR File #: 2
Count date: 23-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE
BARRY

**** Signalized Intersection ****

Major Road: Queen St East runs W/E

North Leg Total:	1943
North Entering:	1626
North Peds:	0
Peds Cross:	⋈

Cyclists	0	0	0	0
Trucks	11	20	10	41
Cars	93	570	922	1585
Totals	104	590	932	

Cyclists	0
Trucks	42
Cars	275
Totals	317

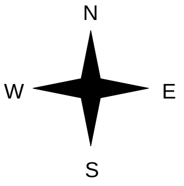
East Leg Total:	4245
East Entering:	1341
East Peds:	18
Peds Cross:	⧗

The Gore Road

Cyclists	Trucks	Cars	Totals
1	182	1196	1379

Cars	Trucks	Cyclists	Totals
151	17	0	168
994	168	1	1163
10	0	0	10
1155	185	1	

Queen Street East



Cyclists	Trucks	Cars	Totals
0	13	54	67
4	170	1782	1956
1	6	518	525
5	189	2354	

Queen Street East

Cars	Trucks	Cyclists	Totals
2720	180	4	2904

The Gore Road

Peds Cross:	⧗
West Peds:	6
West Entering:	2548
West Leg Total:	3927

Cars	1098
Trucks	26
Cyclists	1
Totals	1125

Cars	109	70	16	195
Trucks	3	12	0	15
Cyclists	0	0	0	0
Totals	112	82	16	

Peds Cross:	⋈
South Peds:	6
South Entering:	210
South Leg Total:	1335

Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Region of Peel
Site #: 0000801389
Intersection: Queen St East & The Gore Rd
TFR File #: 2
Count date: 23-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE
BARRY

**** Signalized Intersection ****

Major Road: Queen St East runs W/E

North Leg Total:	703
North Entering:	373
North Peds:	0
Peds Cross:	⋈

The Gore Road

	↲	↓	↳	
Cyclists	0	1	1	2
Trucks	3	4	2	9
Cars	48	128	186	362
Totals	51	133	189	

↑	
Cyclists	1
Trucks	30
Cars	299
Totals	330

East Leg Total:	2528
East Entering:	1087
East Peds:	12
Peds Cross:	⧗

Queen Street East

Cyclists	Trucks	Cars	Totals
4	230	870	1104

←

	Cars	Trucks	Cyclists	Totals
↰	123	18	0	141
←	708	225	4	937
↵	7	1	1	9
	838	244	5	

N
W E
S

Cyclists	Trucks	Cars	Totals	
0	7	81	88	↱
2	242	998	1242	→
1	6	127	134	↴
3	255	1206		

Queen Street East

→

Cars	Trucks	Cyclists	Totals
1189	244	8	1441

The Gore Road

Peds Cross:	⧗
West Peds:	1
West Entering:	1464
West Leg Total:	2568

↓	
Cars	262
Trucks	11
Cyclists	3
Totals	276

	↰	↑	↱	
Cars	114	95	5	214
Trucks	2	5	0	7
Cyclists	0	1	5	6
Totals	116	101	10	

Peds Cross:	⋈
South Peds:	1
South Entering:	227
South Leg Total:	503

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

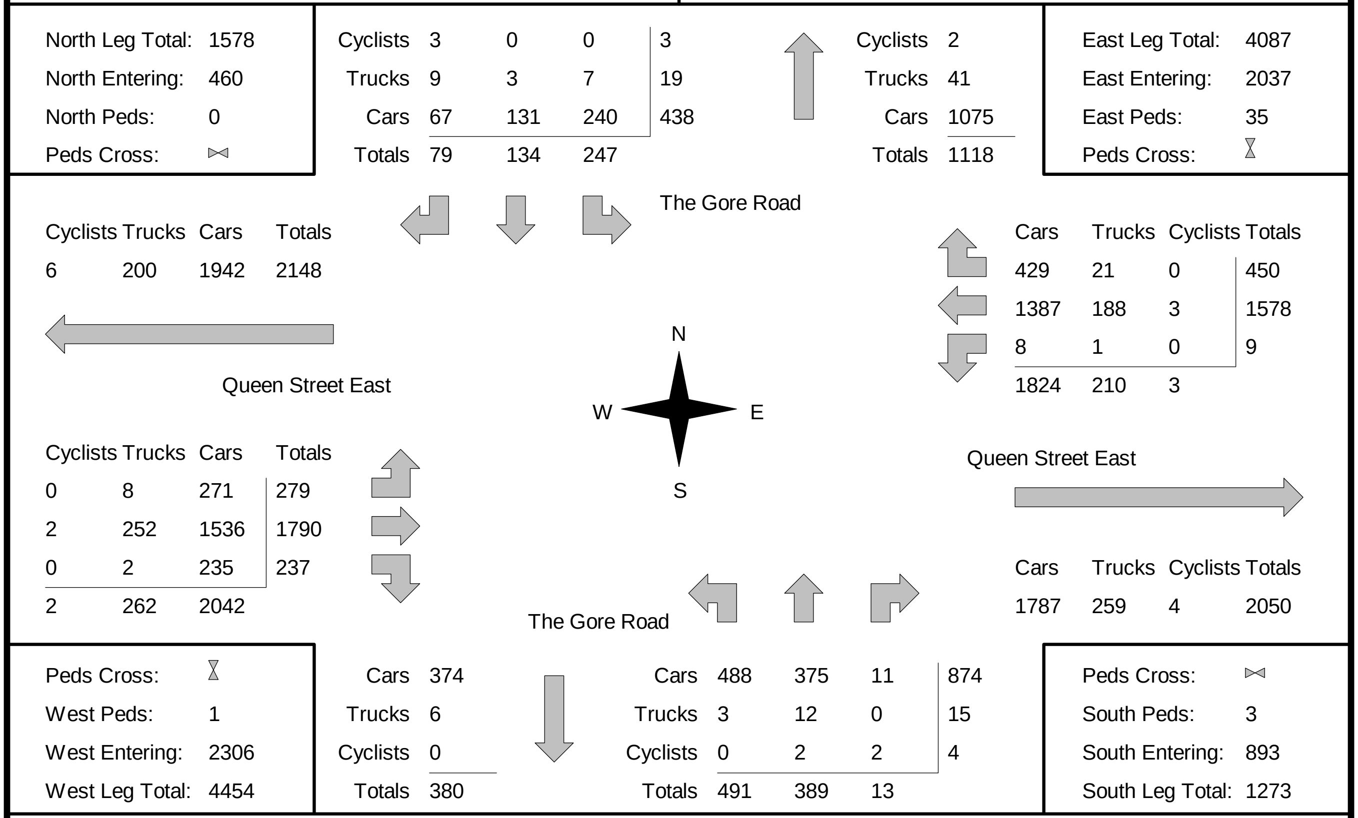
Municipality: Region of Peel
Site #: 0000801389
Intersection: Queen St East & The Gore Rd
TFR File #: 2
Count date: 23-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE
BARRY

**** Signalized Intersection ****

Major Road: Queen St East runs W/E



North Leg Total: 1578
North Entering: 460
North Peds: 0
Peds Cross: ⋈

Cyclists	3	0	0	3
Trucks	9	3	7	19
Cars	67	131	240	438
Totals	79	134	247	

Cyclists	2
Trucks	41
Cars	1075
Totals	1118

East Leg Total: 4087
East Entering: 2037
East Peds: 35
Peds Cross: ⧗

Cyclists	Trucks	Cars	Totals
6	200	1942	2148

Cars	Trucks	Cyclists	Totals
429	21	0	450
1387	188	3	1578
8	1	0	9
1824	210	3	

Cyclists	Trucks	Cars	Totals
0	8	271	279
2	252	1536	1790
0	2	235	237
2	262	2042	

Cars	Trucks	Cyclists	Totals
1787	259	4	2050

Peds Cross: ⧗
West Peds: 1
West Entering: 2306
West Leg Total: 4454

Cars	374
Trucks	6
Cyclists	0
Totals	380

Cars	488	375	11	874
Trucks	3	12	0	15
Cyclists	0	2	2	4
Totals	491	389	13	

Peds Cross: ⋈
South Peds: 3
South Entering: 893
South Leg Total: 1273

Comments

MG8 ENG

Total Count Diagram

Municipality: Region of Peel
Site #: 0000801389
Intersection: Queen St East & The Gore Rd
TFR File #: 2
Count date: 23-Apr-2013

Weather conditions:

Person(s) who counted:
STEVE
BARRY

**** Signalized Intersection ****

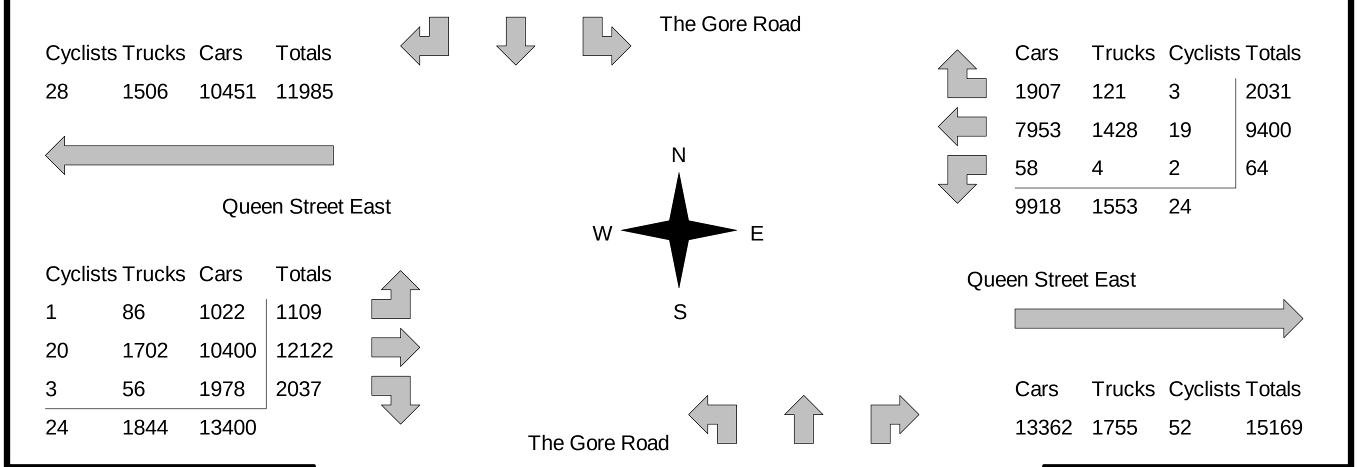
Major Road: Queen St East runs W/E

North Leg Total:	10181
North Entering:	5444
North Peds:	8
Peds Cross:	⋈

Cyclists	3	2	3	8
Trucks	55	56	51	162
Cars	599	1791	2884	5274
Totals	657	1849	2938	

Cyclists	10
Trucks	269
Cars	4458
Totals	4737

East Leg Total:	26664
East Entering:	11495
East Peds:	147
Peds Cross:	⧗



Cyclists	Trucks	Cars	Totals
28	1506	10451	11985

Cars	Trucks	Cyclists	Totals
1907	121	3	2031
7953	1428	19	9400
58	4	2	64
9918	1553	24	

Cyclists	Trucks	Cars	Totals
1	86	1022	1109
20	1702	10400	12122
3	56	1978	2037
24	1844	13400	

Cars	Trucks	Cyclists	Totals
13362	1755	52	15169

Peds Cross:	⧗
West Peds:	22
West Entering:	15268
West Leg Total:	27253

Cars	3827
Trucks	116
Cyclists	7
Totals	3950

Cars	1899	1529	78	3506
Trucks	23	62	2	87
Cyclists	6	6	29	41
Totals	1928	1597	109	

Peds Cross:	⋈
South Peds:	19
South Entering:	3634
South Leg Total:	7584

Comments

MG8 ENG
Traffic Count Summary

Intersection: Queen St East & The Gore Rd **Count Date:** 23-Apr-2013 **Municipality:** Region of Peel

North Approach Totals							South Approach Totals					
	Includes Cars, Trucks, & Cyclists					North/South Total Approaches		Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	18	9	2	29	0	31	7:00:00	1	1	0	2	0
8:00:00	932	590	104	1626	0	1836	8:00:00	112	82	16	210	6
9:00:00	685	389	106	1180	3	1342	9:00:00	74	73	15	162	3
11:00:00	6	0	0	6	0	6	11:00:00	0	0	0	0	0
12:00:00	217	114	63	394	3	589	12:00:00	93	86	16	195	1
13:00:00	211	127	60	398	0	615	13:00:00	103	99	15	217	1
14:00:00	154	128	60	342	2	589	14:00:00	120	120	7	247	0
15:00:00	14	13	1	28	0	37	15:00:00	7	2	0	9	0
16:00:00	259	195	81	535	0	1302	16:00:00	415	338	14	767	0
17:00:00	247	134	79	460	0	1353	17:00:00	491	389	13	893	3
18:00:00	195	150	101	446	0	1378	18:00:00	512	407	13	932	5
Totals:	2938	1849	657	5444	8	9078		1928	1597	109	3634	19

East Approach Totals							West Approach Totals					
	Includes Cars, Trucks, & Cyclists					East/West Total Approaches		Includes Cars, Trucks, & Cyclists				
Hour Ending	Left	Thru	Right	Grand Total	Total Peds		Hour Ending	Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	14	0	14	0	73	7:00:00	3	56	0	59	0
8:00:00	10	1163	168	1341	18	3889	8:00:00	67	1956	525	2548	6
9:00:00	3	1019	154	1176	17	3466	9:00:00	59	1745	486	2290	2
11:00:00	0	0	0	0	0	56	11:00:00	0	54	2	56	0
12:00:00	13	800	129	942	13	2246	12:00:00	88	1090	126	1304	2
13:00:00	9	880	149	1038	7	2433	13:00:00	99	1164	132	1395	0
14:00:00	6	937	153	1096	12	2528	14:00:00	104	1187	141	1432	4
15:00:00	0	0	1	1	0	83	15:00:00	1	77	4	82	0
16:00:00	3	1298	285	1586	33	3393	16:00:00	144	1441	222	1807	0
17:00:00	9	1578	450	2037	35	4343	17:00:00	279	1790	237	2306	1
18:00:00	11	1711	542	2264	12	4253	18:00:00	265	1562	162	1989	7
Totals:	64	9400	2031	11495	147	26763		1109	12122	2037	15268	22

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	1658	1167	439	448	418	1045	1163	1133

MG8 ENG

Count Date: 23-Apr-2013 Site #: 0000801389

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	18	18	9	9	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	262	244	124	115	13	11	1	1	6	6	2	2	0	0	0	0	0	0	0	0
7:30:00	473	211	267	143	30	17	3	2	8	2	4	2	0	0	0	0	0	0	0	0
7:45:00	715	242	440	173	62	32	6	3	15	7	5	1	0	0	0	0	0	0	0	0
8:00:00	940	225	579	139	95	33	10	4	20	5	11	6	0	0	0	0	0	0	0	0
8:15:00	1146	206	707	128	128	33	10	0	21	1	13	2	0	0	0	0	0	0	0	0
8:30:00	1319	173	804	97	151	23	11	1	22	1	15	2	0	0	0	0	0	0	0	0
8:45:00	1458	139	878	74	177	26	12	1	24	2	15	0	0	0	0	0	0	0	0	0
9:00:00	1619	161	962	84	197	20	16	4	26	2	15	0	0	0	0	0	0	0	3	3
11:00:00	1623	4	962	0	197	0	18	2	26	0	15	0	0	0	0	0	0	0	3	0
11:15:00	1680	57	987	25	220	23	20	2	27	1	18	3	0	0	0	0	0	0	3	0
11:30:00	1737	57	1025	38	227	7	22	2	27	0	18	0	2	2	0	0	0	0	6	3
11:45:00	1789	52	1041	16	240	13	23	1	27	0	18	0	2	0	0	0	0	0	6	0
12:00:00	1833	44	1074	33	254	14	23	0	28	1	21	3	2	0	0	0	0	0	6	0
12:15:00	1887	54	1101	27	274	20	23	0	30	2	24	3	2	0	0	0	0	0	6	0
12:30:00	1951	64	1131	30	284	10	23	0	32	2	24	0	2	0	0	0	0	0	6	0
12:45:00	1989	38	1164	33	292	8	23	0	32	0	25	1	2	0	0	0	0	0	6	0
13:00:00	2042	53	1197	33	309	17	25	2	32	0	26	1	2	0	0	0	0	0	6	0
13:15:00	2073	31	1229	32	322	13	25	0	34	2	27	1	3	1	1	1	0	0	6	0
13:30:00	2108	35	1256	27	337	15	26	1	34	0	29	2	3	0	1	0	0	0	6	0
13:45:00	2129	21	1287	31	355	18	27	1	37	3	29	0	3	0	1	0	0	0	7	1
14:00:00	2190	61	1319	32	365	10	30	3	37	0	30	1	3	0	1	0	0	0	8	1
15:00:00	2204	14	1332	13	366	1	30	0	37	0	30	0	3	0	1	0	0	0	8	0
15:15:00	2253	49	1366	34	379	13	32	2	39	2	34	4	3	0	1	0	0	0	8	0
15:30:00	2317	64	1419	53	389	10	34	2	41	2	34	0	3	0	2	1	0	0	8	0
15:45:00	2389	72	1466	47	405	16	36	2	46	5	43	9	3	0	2	0	0	0	8	0
16:00:00	2454	65	1514	48	432	27	39	3	49	3	45	2	3	0	2	0	0	0	8	0
16:15:00	2541	87	1564	50	454	22	44	5	50	1	50	5	3	0	2	0	0	0	8	0
16:30:00	2585	44	1591	27	463	9	44	0	51	1	51	1	3	0	2	0	0	0	8	0
16:45:00	2660	75	1627	36	493	30	45	1	52	1	51	0	3	0	2	0	0	0	8	0
17:00:00	2694	34	1645	18	499	6	46	1	52	0	54	3	3	0	2	0	3	3	8	0
17:15:00	2744	50	1675	30	523	24	46	0	53	1	54	0	3	0	2	0	3	0	8	0
17:30:00	2785	41	1723	48	551	28	48	2	54	1	55	1	3	0	2	0	3	0	8	0
17:45:00	2833	48	1770	47	580	29	50	2	55	1	55	0	3	0	2	0	3	0	8	0
18:00:00	2884	51	1791	21	599	19	51	1	56	1	55	0	3	0	2	0	3	0	8	0

MG8 ENG

Count Date: 23-Apr-2013 Site #: 0000801389

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	238	224	32	32	0	0	34	34	4	4	0	0	1	1	0	0	0	0
7:30:00	6	1	470	232	72	40	0	0	73	39	10	6	0	0	1	0	0	0	6	6
7:45:00	8	2	735	265	114	42	0	0	121	48	16	6	0	0	1	0	0	0	15	9
8:00:00	10	2	1008	273	151	37	0	0	168	47	17	1	0	0	1	0	0	0	18	3
8:15:00	10	0	1215	207	186	35	0	0	200	32	23	6	0	0	1	0	0	0	24	6
8:30:00	12	2	1431	216	224	38	0	0	240	40	26	3	0	0	2	1	0	0	31	7
8:45:00	12	0	1678	247	263	39	0	0	267	27	27	1	0	0	2	0	0	0	31	0
9:00:00	13	1	1891	213	289	26	0	0	302	35	33	6	0	0	3	1	0	0	35	4
11:00:00	13	0	1891	0	289	0	0	0	302	0	33	0	0	0	3	0	0	0	35	0
11:15:00	15	2	2045	154	317	28	0	0	350	48	33	0	0	0	3	0	0	0	37	2
11:30:00	18	3	2189	144	343	26	0	0	395	45	35	2	0	0	3	0	0	0	44	7
11:45:00	23	5	2331	142	380	37	0	0	453	58	36	1	0	0	3	0	0	0	44	0
12:00:00	26	3	2495	164	412	32	0	0	498	45	38	2	0	0	3	0	1	1	48	4
12:15:00	28	2	2647	152	448	36	0	0	541	43	38	0	1	1	5	2	1	0	48	0
12:30:00	28	0	2837	190	479	31	1	1	597	56	44	6	1	0	6	1	1	0	49	1
12:45:00	30	2	3006	169	507	28	1	0	656	59	45	1	2	1	7	1	1	0	53	4
13:00:00	32	2	3157	151	548	41	1	0	710	54	51	6	2	0	9	2	1	0	55	2
13:15:00	35	3	3355	198	571	23	1	0	766	56	56	5	2	0	9	0	1	0	60	5
13:30:00	36	1	3524	169	609	38	3	2	809	43	59	3	2	0	9	0	1	0	63	3
13:45:00	36	0	3720	196	640	31	3	0	856	47	62	3	2	0	9	0	1	0	66	3
14:00:00	36	0	3907	187	682	42	3	0	897	41	69	7	2	0	9	0	2	1	67	1
15:00:00	36	0	3907	0	683	1	3	0	897	0	69	0	2	0	9	0	2	0	67	0
15:15:00	37	1	4162	255	754	71	3	0	937	40	73	4	2	0	10	1	2	0	73	6
15:30:00	38	1	4422	260	822	68	3	0	984	47	78	5	2	0	10	0	2	0	80	7
15:45:00	39	1	4721	299	883	61	3	0	1025	41	79	1	2	0	10	0	2	0	90	10
16:00:00	39	0	5014	293	951	68	3	0	1085	60	86	7	2	0	12	2	2	0	100	10
16:15:00	44	5	5341	327	1053	102	3	0	1138	53	90	4	2	0	13	1	2	0	108	8
16:30:00	45	1	5698	357	1151	98	4	1	1174	36	94	4	2	0	15	2	2	0	115	7
16:45:00	45	0	6052	354	1263	112	4	0	1222	48	103	9	2	0	15	0	2	0	125	10
17:00:00	47	2	6401	349	1380	117	4	0	1273	51	107	4	2	0	15	0	2	0	135	10
17:15:00	49	2	6778	377	1491	111	4	0	1318	45	112	5	2	0	15	0	2	0	135	0
17:30:00	53	4	7142	364	1608	117	4	0	1353	35	114	2	2	0	15	0	2	0	135	0
17:45:00	55	2	7565	423	1771	163	4	0	1394	41	118	4	2	0	19	4	3	1	141	6
18:00:00	58	3	7953	388	1907	136	4	0	1428	34	121	3	2	0	19	0	3	0	147	6

MG8 ENG

Count Date: 23-Apr-2013 Site #: 0000801389

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
7:15:00	23	23	21	20	2	2	1	1	3	3	0	0	1	0	0	0	0	0	1	1
7:30:00	64	41	42	21	6	4	2	1	3	0	0	0	1	0	0	0	0	0	2	1
7:45:00	93	29	56	14	8	2	2	0	6	3	0	0	1	0	0	0	0	0	3	1
8:00:00	109	16	71	15	16	8	3	1	12	6	0	0	1	0	0	0	0	0	6	3
8:15:00	119	10	89	18	20	4	3	0	15	3	0	0	1	0	0	0	0	0	6	0
8:30:00	130	11	103	14	26	6	4	1	16	1	0	0	1	0	0	0	0	0	7	1
8:45:00	155	25	121	18	29	3	7	3	17	1	0	0	1	0	0	0	0	0	7	0
9:00:00	179	24	136	15	31	2	7	0	20	3	0	0	1	0	0	0	0	0	9	2
11:00:00	179	0	136	0	31	0	7	0	20	0	0	0	1	0	0	0	0	0	9	0
11:15:00	197	18	150	14	32	1	7	0	21	1	0	0	1	0	0	0	7	7	10	1
11:30:00	216	19	167	17	34	2	8	1	24	3	1	1	2	1	0	0	7	0	10	0
11:45:00	236	20	195	28	34	0	8	0	26	2	1	0	2	0	0	0	12	5	10	0
12:00:00	268	32	214	19	34	0	10	2	28	2	1	0	2	0	0	0	12	0	10	0
12:15:00	282	14	238	24	39	5	12	2	28	0	1	0	2	0	0	0	12	0	10	0
12:30:00	298	16	261	23	42	3	13	1	30	2	1	0	2	0	1	1	15	3	10	0
12:45:00	333	35	279	18	44	2	13	0	31	1	1	0	2	0	1	0	17	2	10	0
13:00:00	368	35	309	30	44	0	13	0	31	0	1	0	2	0	1	0	17	0	11	1
13:15:00	396	28	333	24	44	0	14	1	33	2	1	0	2	0	1	0	17	0	11	0
13:30:00	423	27	367	34	47	3	16	2	33	0	1	0	2	0	2	1	17	0	11	0
13:45:00	448	25	396	29	48	1	16	0	34	1	1	0	2	0	2	0	17	0	11	0
14:00:00	484	36	425	29	51	3	17	1	34	0	1	0	2	0	2	0	17	0	11	0
15:00:00	491	7	427	2	51	0	17	0	34	0	1	0	2	0	2	0	17	0	11	0
15:15:00	567	76	504	77	54	3	19	2	36	2	2	1	2	0	2	0	24	7	11	0
15:30:00	678	111	580	76	54	0	19	0	38	2	2	0	2	0	2	0	26	2	11	0
15:45:00	781	103	669	89	55	1	19	0	41	3	2	0	5	3	2	0	26	0	11	0
16:00:00	901	120	756	87	55	0	19	0	43	2	2	0	5	0	2	0	26	0	11	0
16:15:00	1011	110	848	92	60	5	19	0	49	6	2	0	5	0	3	1	26	0	13	2
16:30:00	1127	116	944	96	62	2	20	1	52	3	2	0	5	0	3	0	28	2	13	0
16:45:00	1245	118	1040	96	65	3	21	1	53	1	2	0	5	0	3	0	28	0	14	1
17:00:00	1389	144	1131	91	66	1	22	1	55	2	2	0	5	0	4	1	28	0	14	0
17:15:00	1514	125	1245	114	74	8	22	0	56	1	2	0	6	1	4	0	29	1	14	0
17:30:00	1642	128	1364	119	75	1	23	1	58	2	2	0	6	0	5	1	29	0	15	1
17:45:00	1777	135	1457	93	77	2	23	0	60	2	2	0	6	0	6	1	29	0	17	2
18:00:00	1899	122	1529	72	78	1	23	0	62	2	2	0	6	0	6	0	29	0	19	2

MG8 ENG

Count Date: 23-Apr-2013 Site #: 0000801389

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	3	3	52	52	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:15:00	21	18	545	493	96	96	3	3	32	28	1	1	0	0	2	2	1	1	0	0
7:30:00	32	11	980	435	230	134	5	2	66	34	1	0	0	0	2	0	1	0	1	1
7:45:00	47	15	1351	371	370	140	12	7	113	47	3	2	0	0	2	0	1	0	3	2
8:00:00	57	10	1834	483	518	148	13	1	174	61	6	3	0	0	4	2	1	0	6	3
8:15:00	66	9	2192	358	653	135	16	3	215	41	12	6	0	0	4	0	1	0	6	0
8:30:00	73	7	2556	364	762	109	17	1	272	57	20	8	0	0	5	1	1	0	6	0
8:45:00	92	19	3005	449	881	119	27	10	335	63	22	2	0	0	5	0	1	0	8	2
9:00:00	97	5	3347	342	986	105	32	5	403	68	24	2	0	0	7	2	1	0	8	0
11:00:00	97	0	3395	48	988	2	32	0	409	6	24	0	0	0	7	0	1	0	8	0
11:15:00	117	20	3591	196	1014	26	34	2	458	49	24	0	0	0	7	0	1	0	8	0
11:30:00	140	23	3796	205	1045	31	34	0	506	48	25	1	0	0	7	0	1	0	10	2
11:45:00	153	13	4048	252	1080	35	38	4	573	67	26	1	0	0	7	0	1	0	10	0
12:00:00	176	23	4266	218	1109	29	41	3	628	55	29	3	0	0	7	0	1	0	10	0
12:15:00	210	34	4463	197	1139	30	43	2	674	46	32	3	0	0	8	1	2	1	10	0
12:30:00	225	15	4675	212	1180	41	44	1	727	53	33	1	0	0	10	2	2	0	10	0
12:45:00	245	20	4971	296	1203	23	47	3	791	64	36	3	0	0	10	0	2	0	10	0
13:00:00	267	22	5206	235	1231	28	49	2	849	58	38	2	0	0	10	0	2	0	10	0
13:15:00	291	24	5461	255	1266	35	50	1	916	67	38	0	0	0	10	0	3	1	11	1
13:30:00	316	25	5701	240	1290	24	54	4	969	53	41	3	0	0	10	0	3	0	14	3
13:45:00	331	15	5943	242	1310	20	56	2	1024	55	42	1	0	0	11	1	3	0	14	0
14:00:00	362	31	6156	213	1367	57	58	2	1085	61	42	0	0	0	11	0	3	0	14	0
15:00:00	363	1	6222	66	1370	3	58	0	1096	11	43	1	0	0	11	0	3	0	14	0
15:15:00	396	33	6496	274	1409	39	61	3	1139	43	44	1	0	0	13	2	3	0	14	0
15:30:00	432	36	6809	313	1472	63	63	2	1181	42	46	2	0	0	14	1	3	0	14	0
15:45:00	464	32	7159	350	1525	53	63	0	1225	44	47	1	0	0	16	2	3	0	14	0
16:00:00	499	35	7477	318	1584	59	66	3	1277	52	51	4	0	0	16	0	3	0	14	0
16:15:00	579	80	7846	369	1648	64	68	2	1345	68	51	0	0	0	17	1	3	0	14	0
16:30:00	669	90	8263	417	1715	67	70	2	1406	61	51	0	0	0	18	1	3	0	14	0
16:45:00	723	54	8690	427	1756	41	70	0	1465	59	52	1	0	0	18	0	3	0	14	0
17:00:00	770	47	9013	323	1819	63	74	4	1529	64	53	1	0	0	18	0	3	0	15	1
17:15:00	823	53	9367	354	1862	43	78	4	1584	55	55	2	0	0	19	1	3	0	20	5
17:30:00	900	77	9709	342	1910	48	79	1	1633	49	56	1	0	0	19	0	3	0	20	0
17:45:00	976	76	10062	353	1953	43	79	0	1668	35	56	0	0	0	19	0	3	0	22	2
18:00:00	1022	46	10400	338	1978	25	86	7	1702	34	56	0	1	1	20	1	3	0	22	0

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**2013-03-27**	**Prepared Date:**	**March 28, 2014**
Database Rev	**3**	**Completed By:**	**KB**
Timing Card / Field rev	**3**	**Checked By:**	**SL**

Location: **The Gore Rd. @ Castlemore Public School**

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	TIME PERIOD (sec.) (Green+Amber+All Red)		
			WALK	FDWALK			AM MAX	OFF MAX	PM MAX
1									
2	S/B -The Gore Rd.	12.0	8.0	7.0	4.0	2.0	65.0	55.0	65.0
3									
4	W/B - Computer Phase	8.0	8.0	19.0	4.2	2.4	35.0	35.0	35.0
5									
6	NB -The Gore Rd.	12.0	8.0	7.0	4.0	2.0	65.0	55.0	65.0
7									
8	E/B -Castlemore Public School	8.0	8.0	19.0	4.2	2.4	35.0	35.0	35.0

System Control	YES
Local Control	NO
Semi-Actuated Mode	YES

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	1
09:00-15:30	OFF	90	86
15:30-19:00	PM	100	18

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	2013-03-27	Prepared Date:	March 28, 2014
Database Rev	5	Completed By:	KB
Timing Card / Field rev	5	Checked By:	SL

Location: The Gore Rd. @ Pannahill/Gardenbrooke

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	TIME PERIOD (sec.) (Green+Amber+All Red)		
			WALK	FDWALK			AM MAX	OFF MAX	PM MAX
1	NIU								
2	S/B -The Gore Rd.	12.0	8.0	27.0	4.2	2.8	52.0	42.0	52.0
3	E/B P.P.LT - Pannahill Drive	5.0			3.0		9.0	9.0	9.0
4	W/B - Gardenbrooke Trail	8.0	8.0	23.0	4.0	3.3	39.0	39.0	39.0
5	NIU								
6	NB -The Gore Rd.	12.0	8.0	27.0	4.2	2.8	52.0	42.0	52.0
7	W/B P.P. LT - Gardenbrooke Trail	5.0			3.0		9.0	9.0	9.0
8	E/B - Pannahill Drive	8.0	8.0	23.0	4.0	3.3	39.0	39.0	39.0

System Control	YES
Local Control	NO
Semi-Actuated Mode	YES

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	84
09:00-15:30	OFF	90	48
15:30-19:00	PM	100	61

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE: Jan. 31, 2013

Completed By: KB

Database Rev 5

Checked By: AP

Timing Card / Field rev

Location: The Gore Road @ Castlemore Road

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)	Amber (sec.)	All Red (sec.)		TIME PERIOD (sec.) (Green+Amber+All Red)		
							AM MAX	Other Time MAX	PM MAX
1									
2	**The Gore Rd - S/B**	12.0	35.0	4.2	2.6		41.8	31.8	41.8
3									
4	**Castlemore Rd - W/B**	12.0	32.0	4.2	2.4		61.6	46.6	61.6
5									
6	**The Gore Rd - N/B**	12.0	35.0	4.2	2.6		41.8	31.8	41.8
7									
8	**Castlemore Rd - E/B**	12.0	32.0	4.2	2.4		61.6	46.6	61.6

System Control No

Local Control Yes

Semi-Actuated Mode (No) Fully

TIME	CYCLE LENGTH (sec.)
06:00-09:00 (M-F)	Local/Free
All Other Time	Local/Free
15:00-19:00 (M-F)	Local/Free

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE:	Jan.6, 2014		Completed By:	KB
Database / Office rev		24	Checked By:	SL
Timing Card / Field rev				
Locatio	The Gore Rd. @ Queen St.			

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum(sec.)		Amber (sec.)	All Red (sec.)		TIME PERIOD (sec.) (Green + Amber + All Red)		
			WALK	FDWALK				AM SPLIT	OP SPLIT	PM SPLIT
1										
2	Queen St. - EB	12.0	8.0	26.0	4.6	2.3		88.0	58.0	88.0
3	The Gore Rd. - S/B LT & SB THRU	8.0	8.0	30.0	4.0	3.1		46.0	51.0	26.0
4	The Gore Rd. -NB LT & NB THRU	8.0	8.0	30.0	30.0	3.1		26.0	51.0	46.0
5	Queen ST. - EB P.P. LT	5.0			3.0			12.0	12.0	12.0
6	Queen St. - WB	12.0	8.0	26.0	4.6	2.3		76.0	46.0	76.0
7										
8	Computer phase	8.0	8.0	20.0	4.0	3.1		72.0	102.0	72.0

System Control	Yes
Local Control	No
Semi-Actuated Mode	Yes

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec).
06:00 to 09:00 (M-F)	AM	160	39
09:00 to 15:00 (M-F)	OP	160	0
15:00 to 19:00 (M-F)	PM	160	15

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE:	**Jan.6, 2014**	**Completed By:**	**KB**
Database Rev	**1**	**Checked By:**	**AP**

Location: **The Gore Road @ Castle Oaks Crossing**

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)	Amber (sec.)	All Red (sec.)		TIME PERIOD (Mon-Fri) (sec.) (Green+Amber+All Red) AM SPLIT	OFF SPLIT	PM SPLIT
1	Not in Use								
2	The Gore Rd. - S/B	12.0	34.0	4.2	2.6		62.0	46.0	62.0
3	Not in Use								
4	Castle Oaks Crossing - W/B	8.0	27.0	4.0	2.5		38.0	34.0	38.0
5	The Gore Rd. - S/B P.P.LT. Arrow						10.0	0.0	0.0
6	The Gore Rd. - N/B	12.0	34.0	4.2	2.6		52.0	46.0	62.0
7	Not in Use								
8	Fire Hall Access Rd. - E/B	8.0	27.0	4.0	2.5		38.0	34.0	38.0

System Control	
Local Control	NO
Semi-Actuated Mode	YES

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:30	AM	100	72
09:30-15:30	OFF	80	21
15:30-18:00	PM	100	9

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE: Jan. 6, 2016

Completed By: KB

Database Rev 5

Checked By: SL

Location: The Gore Road @ Cottrelle Parkway

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)		TIME PERIOD (Mon-Fri) (sec.) (Green+Amber+All Red)		
			WALK	FDWALK				AM SPLIT	OFF SPLIT	PM SPLIT
1	Not in Use									
2	The Gore Rd. - S/B	12.0	8.0	20.0	4.2	2.6		61.0	51.0	61.0
3	Not in Use									
4	Cottrelle Parkway - W/B	8.0	8.0	22.0	4.0	3.9		39.0	39.0	39.0
5	The Gore Rd. -S/B LT	5.0			3.0			9.0		
6	The Gore Rd. - N/B	12.0	8.0	20.0	4.2	2.6		52.0	51.0	61.0
7	Not in Use									
8	Cottrelle Parkway - E/B	8.0	8.0	22.0	4.0	3.9		39.0	39.0	39.0

System Control

Local Control NO

Semi-Actuated Mode YES

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	16
09:00-15:30	OFF	90	44
15:30-18:00	PM	100	29

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE:	Jan. 6, 2014		Completed By:	KB
Database Rev		4	Checked By:	AP

Location: The Gore Road @ Don Minaker Dr./Tyler Ave.

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)	Amber (sec.)	All Red (sec.)		TIME PERIOD (Mon-Fri) (sec.) (Green+Amber+All Red)		
							AM SPLIT	OFF SPLIT	PM SPLIT
1	Not in Use								
2	The Gore Rd. - S/B	12.0	17.0	4.2	2.0		56.0	44.0	56.0
3	Not in Use								
4	Tyler Ave. - W/B	8.0	27.0	4.0	2.2		44.0	36.0	44.0
5	Not in Use								
6	The Gore Rd. - N/B	12.0	17.0	4.2	2.0		56.0	44.0	56.0
7	Not in Use								
8	Don Minaker Dr. -E/B	8.0	27.0	4.0	2.2		44.0	36.0	44.0

System Control

Local Control NO

Semi-Actuated Mode YES

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	54
09:00-15:30	OFF	80	34
15:30-18:00	PM	100	20

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE: Jan. 6, 2014

Completed By: KB

Database Rev 2

Checked By: AP

Location: **The Gore Road @ Eastview Gate/Eastbrook Way**

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)	Amber (sec.)	All Red (sec.)		TIME PERIOD (Mon-Fri) (sec.) (Green+Amber+All Red) AM SPLIT	OFF SPLIT	PM SPLIT
1	Not in Use								
2	The Gore Rd. - S/B	12.0	18.0	4.2	2.0		59.0	41.0	59.0
3	Not in Use								
4	Eastbrook Way - W/B	8.0	33.0	4.0	3.5		41.0	39.0	41.0
5	Not in Use								
6	The Gore Rd. - N/B	12.0	18.0	4.2	2.0		59.0	41.0	59.0
7	Not in Use								
8	Eastview Gate - E/B	8.0	33.0	4.0	3.5		41.0	39.0	41.0

System Control

Local Control NO

Semi-Actuated Mode YES

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	46
09:00-15:30	OFF	80	28
15:30-18:00	PM	100	29

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE:	Jan. 6, 2014		Completed By:	KB
Database Rev	6		Checked By:	AP

Location: The Gore Road @ Ebenezer Road

							TIME PERIOD (Mon-Fri)		
							(sec.)		
							(Green+Amber+All Red)		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)	Amber (sec.)	All Red (sec.)		AM SPLIT	OFF SPLIT	PM SPLIT
1	N/B P.P. LT	5.0		3.0			9		9.0
2	The Gore Rd - S/B	12.0	29.0	4.2	2.4		54.0	44.0	54.0
3	Not in Use								
4	Ebenezer Rd. - W/B	8.0	29.0	4.0	2.7		37.0	36.0	37.0
5	S/B P.P. LT	5.0		3.0			9.0		9.0
6	The Gore Rd. - N/B	12.0	29.0	4.2	2.4		54.0	44.0	54.0
7	Not in Use								
8	Ebenezer Rd. - E/B	8.0	29.0	4.0	2.7		37.0	36.0	37.0

System Control	
Local Control	NO
Semi-Actuated Mode	YES

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	98
09:00-15:30	OFF	80	71
15:30-18:00	PM	100	79

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

DATE:	Jan. 6, 2014		Completed By:	KB
Database Rev	2		Checked By:	AP

Location: The Gore Road @ Fogal Road

							TIME PERIOD (Mon-Fri) (sec.) (Green+Amber+All Red)		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)	Amber (sec.)	All Red (sec.)		AM SPLIT	OFF SPLIT	PM SPLIT
1	Not in Use								
2	The Gore Rd. - S/B	12.0	32.0	4.2	2.6		67.0	47.0	60.0
3	Not in Use								
4	Fogal Rd. - W/B	8.0	25.0	4.0	3.4		33.0	33.0	40.0
5	Not in Use								
6	The Gore Rd. - N/B	12.0	32.0	4.2	2.6		67.0	47.0	60.0
7	Not in Use								
8	Fogal Rd - Computer Phase	8.0	25.0	4.0	3.4		33.0	33.0	40.0

System Control

Local Control NO

Semi-Actuated Mode YES

TIME	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	100	2
09:00-15:30	OFF	80	78
15:30-18:00	PM	100	70

Report-3.1

Location : **802514NS** **THE GORE ROAD - 0.2 KM NORTH OF EBENEZER ROAD**

Dates : **4/24/2013**

Directions ---------->		North		South		East		West		Total	
		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	203	1.8%	67	0.6%					270	1.2%
1:00	2:00	74	0.7%	32	0.3%					106	0.5%
2:00	3:00	71	0.6%	52	0.4%					123	0.5%
3:00	4:00	42	0.4%	56	0.5%					98	0.4%
4:00	5:00	37	0.3%	135	1.2%					172	0.7%
5:00	6:00	85	0.7%	426	3.7%					511	2.2%
6:00	7:00	245	2.2%	1090	9.4%					1335	5.8%
7:00	8:00	420	3.7%	1262	10.9%					1682	7.3%
8:00	9:00	499	4.4%	1115	9.6%					1614	7.0%
9:00	10:00	309	2.7%	742	6.4%					1051	4.6%
10:00	11:00	328	2.9%	522	4.5%					850	3.7%
11:00	12:00	439	3.9%	543	4.7%					982	4.3%
12:00	13:00	494	4.3%	491	4.2%					985	4.3%
13:00	14:00	505	4.4%	485	4.2%					990	4.3%
14:00	15:00	612	5.4%	536	4.6%					1148	5.0%
15:00	16:00	897	7.9%	645	5.6%					1542	6.7%
16:00	17:00	1064	9.4%	583	5.0%					1647	7.2%
17:00	18:00	1153	10.1%	641	5.5%					1794	7.8%
18:00	19:00	1067	9.4%	565	4.9%					1632	7.1%
19:00	20:00	846	7.4%	509	4.4%					1355	5.9%
20:00	21:00	774	6.8%	422	3.6%					1196	5.2%
21:00	22:00	530	4.7%	278	2.4%					808	3.5%
22:00	23:00	355	3.1%	260	2.2%					615	2.7%
23:00	OO:OO	314	2.8%	122	1.1%					436	1.9%
Total		11363		11579						22942	100.0%
		49.5%		50.5%						100.0%	
AM PEAK		499		1262						1682	
period		8:00		7:00						7:00	
% of class			4.4%		10.9%						7.3%
PM PEAK		1153		645						1794	
period		17:00		15:00						17:00	
% of class			10.1%		5.6%						7.8%

Report-3.2

Location : **802514NS** **THE GORE ROAD - 0.2 KM NORTH OF EBENEZER ROAD**

Dates : **4/25/2013**

		North		**South**		**East**		**West**		**Total**	
Directions ---------->		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
OO:OO	**1:00**	**220**	1.9%	**73**	0.6%					**293**	1.2%
1:00	**2:00**	**79**	0.7%	**42**	0.3%					**121**	0.5%
2:00	**3:00**	**76**	0.6%	**44**	0.4%					**120**	0.5%
3:00	**4:00**	**43**	0.4%	**50**	0.4%					**93**	0.4%
4:00	**5:00**	**50**	0.4%	**127**	1.0%					**177**	0.7%
5:00	**6:00**	**105**	0.9%	**428**	3.5%					**533**	2.2%
6:00	**7:00**	**301**	2.6%	**1000**	8.2%					**1301**	5.4%
7:00	**8:00**	**481**	4.1%	**1288**	10.6%					**1769**	7.4%
8:00	**9:00**	**490**	4.2%	**1127**	9.3%					**1617**	6.7%
9:00	**10:00**	**324**	2.7%	**778**	6.4%					**1102**	4.6%
10:00	**11:00**	**328**	2.8%	**558**	4.6%					**886**	3.7%
11:00	**12:00**	**410**	3.5%	**567**	4.7%					**977**	4.1%
12:00	**13:00**	**455**	3.9%	**541**	4.4%					**996**	4.2%
13:00	**14:00**	**504**	4.3%	**513**	4.2%					**1017**	4.2%
14:00	**15:00**	**609**	5.2%	**601**	4.9%					**1210**	5.0%
15:00	**16:00**	**919**	7.8%	**618**	5.1%					**1537**	6.4%
16:00	**17:00**	**1111**	9.4%	**675**	5.5%					**1786**	7.4%
17:00	**18:00**	**1200**	10.2%	**663**	5.4%					**1863**	7.8%
18:00	**19:00**	**1077**	9.1%	**642**	5.3%					**1719**	7.2%
19:00	**20:00**	**951**	8.1%	**592**	4.9%					**1543**	6.4%
20:00	**21:00**	**764**	6.5%	**456**	3.7%					**1220**	5.1%
21:00	**22:00**	**574**	4.9%	**356**	2.9%					**930**	3.9%
22:00	**23:00**	**395**	3.3%	**294**	2.4%					**689**	2.9%
23:00	**OO:OO**	**331**	2.8%	**146**	1.2%					**477**	2.0%
Total		**11797** **49.2%**		**12179** **50.8%**						**23976** 100.0%	100.0%
AM PEAK		**490**		**1288**						**1769**	
period		**8:00**		**7:00**						**7:00**	
% of class			4.2%		10.6%						7.4%
PM PEAK		**1200**		**675**						**1863**	
period		**17:00**		**16:00**						**17:00**	
% of class			10.2%		5.5%						7.8%

Report-3.3

Location : **802514NS** **THE GORE ROAD - 0.2 KM NORTH OF EBENEZER ROAD**

Dates : **4/26/2013**

Directions ---------->		North		South		East		West		Total	
		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	209	1.7%	67	0.5%					276	1.1%
1:00	2:00	89	0.7%	54	0.4%					143	0.6%
2:00	3:00	72	0.6%	41	0.3%					113	0.4%
3:00	4:00	61	0.5%	52	0.4%					113	0.4%
4:00	5:00	59	0.5%	146	1.1%					205	0.8%
5:00	6:00	85	0.7%	388	3.0%					473	1.8%
6:00	7:00	302	2.4%	1032	7.9%					1334	5.2%
7:00	8:00	521	4.1%	1142	8.7%					1663	6.5%
8:00	9:00	480	3.8%	1120	8.5%					1600	6.2%
9:00	10:00	314	2.5%	771	5.9%					1085	4.2%
10:00	11:00	321	2.5%	548	4.2%					869	3.4%
11:00	12:00	459	3.6%	565	4.3%					1024	4.0%
12:00	13:00	513	4.1%	564	4.3%					1077	4.2%
13:00	14:00	585	4.6%	552	4.2%					1137	4.4%
14:00	15:00	670	5.3%	590	4.5%					1260	4.9%
15:00	16:00	940	7.5%	707	5.4%					1647	6.4%
16:00	17:00	1110	8.8%	619	4.7%					1729	6.7%
17:00	18:00	1198	9.5%	744	5.7%					1942	7.5%
18:00	19:00	1107	8.8%	780	5.9%					1887	7.3%
19:00	20:00	958	7.6%	832	6.3%					1790	7.0%
20:00	21:00	859	6.8%	679	5.2%					1538	6.0%
21:00	22:00	651	5.2%	423	3.2%					1074	4.2%
22:00	23:00	524	4.2%	393	3.0%					917	3.6%
23:00	OO:OO	522	4.1%	312	2.4%					834	3.2%
Total		12609		13121						25730	100.0%
		49.0%		51.0%						100.0%	
AM PEAK		521		1142						1663	
period		7:00		7:00						7:00	
% of class			4.1%		8.7%						6.5%
PM PEAK		1198		832						1942	
period		17:00		19:00						17:00	
% of class			9.5%		6.3%						7.5%

Report-3.1

Location : 804384NS THE GORE ROAD - 1.0 KM SOUTH OF CASTLEMORE ROAD

Dates : 4/24/2013

Directions ---------->		North		South		East		West		Total	
		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	85	1.2%	51	0.7%					136	1.0%
1:00	2:00	30	0.4%	31	0.4%					61	0.4%
2:00	3:00	29	0.4%	22	0.3%					51	0.4%
3:00	4:00	11	0.2%	27	0.4%					38	0.3%
4:00	5:00	35	0.5%	51	0.7%					86	0.6%
5:00	6:00	60	0.9%	210	2.9%					270	1.9%
6:00	7:00	124	1.8%	610	8.3%					734	5.1%
7:00	8:00	245	3.5%	822	11.2%					1067	7.5%
8:00	9:00	547	7.9%	848	11.5%					1395	9.8%
9:00	10:00	258	3.7%	474	6.5%					732	5.1%
10:00	11:00	228	3.3%	315	4.3%					543	3.8%
11:00	12:00	278	4.0%	328	4.5%					606	4.2%
12:00	13:00	308	4.4%	287	3.9%					595	4.2%
13:00	14:00	258	3.7%	287	3.9%					545	3.8%
14:00	15:00	425	6.1%	337	4.6%					762	5.3%
15:00	16:00	568	8.2%	542	7.4%					1110	7.8%
16:00	17:00	709	10.2%	380	5.2%					1089	7.6%
17:00	18:00	707	10.2%	369	5.0%					1076	7.5%
18:00	19:00	607	8.8%	341	4.6%					948	6.6%
19:00	20:00	465	6.7%	292	4.0%					757	5.3%
20:00	21:00	399	5.8%	298	4.1%					697	4.9%
21:00	22:00	255	3.7%	200	2.7%					455	3.2%
22:00	23:00	177	2.6%	135	1.8%					312	2.2%
23:00	OO:OO	124	1.8%	88	1.2%					212	1.5%
Total		6932 48.6%		7345 51.4%						14277 100.0%	100.0%
AM PEAK		547		848						1395	
period		8:00		8:00						8:00	
% of class			7.9%		11.5%						9.8%
PM PEAK		709		542						1110	
period		16:00		15:00						15:00	
% of class			10.2%		7.4%						7.8%

Report-3.2

Location : **804384NS** **THE GORE ROAD - 1.0 KM SOUTH OF CASTLEMORE ROAD**

Dates : **5/6/2013**

Directions ---------->		North Volume	%	South Volume	%	East Volume	%	West Volume	%	Total Volume	%
OO:OO	**1:00**	**95**	1.3%	**56**	0.7%					**151**	1.0%
1:00	**2:00**	**50**	0.7%	**28**	0.4%					**78**	0.5%
2:00	**3:00**	**26**	0.3%	**20**	0.3%					**46**	0.3%
3:00	**4:00**	**22**	0.3%	**33**	0.4%					**55**	0.4%
4:00	**5:00**	**22**	0.3%	**54**	0.7%					**76**	0.5%
5:00	**6:00**	**66**	0.9%	**228**	2.9%					**294**	1.9%
6:00	**7:00**	**169**	2.3%	**600**	7.8%					**769**	5.0%
7:00	**8:00**	**255**	3.4%	**820**	10.6%					**1075**	7.1%
8:00	**9:00**	**562**	7.5%	**827**	10.7%					**1389**	9.1%
9:00	**10:00**	**267**	3.6%	**455**	5.9%					**722**	4.7%
10:00	**11:00**	**237**	3.2%	**315**	4.1%					**552**	3.6%
11:00	**12:00**	**332**	4.4%	**372**	4.8%					**704**	4.6%
12:00	**13:00**	**290**	3.9%	**314**	4.1%					**604**	4.0%
13:00	**14:00**	**340**	4.5%	**299**	3.9%					**639**	4.2%
14:00	**15:00**	**479**	6.4%	**398**	5.1%					**877**	5.8%
15:00	**16:00**	**582**	7.8%	**520**	6.7%					**1102**	7.2%
16:00	**17:00**	**753**	10.0%	**389**	5.0%					**1142**	7.5%
17:00	**18:00**	**799**	10.7%	**429**	5.5%					**1228**	8.1%
18:00	**19:00**	**666**	8.9%	**451**	5.8%					**1117**	7.3%
19:00	**20:00**	**494**	6.6%	**319**	4.1%					**813**	5.3%
20:00	**21:00**	**390**	5.2%	**325**	4.2%					**715**	4.7%
21:00	**22:00**	**284**	3.8%	**223**	2.9%					**507**	3.3%
22:00	**23:00**	**189**	2.5%	**156**	2.0%					**345**	2.3%
23:00	**OO:OO**	**126**	1.7%	**106**	1.4%					**232**	1.5%
Total		**7495**		**7737**						**15232**	100.0%
		49.2%		**50.8%**						100.0%	
AM PEAK		**562**		**827**						**1389**	
period		**8:00**		**8:00**						**8:00**	
% of class			7.5%		10.7%						9.1%
PM PEAK		**799**		**520**						**1228**	
period		**17:00**		**15:00**						**17:00**	
% of class			10.7%		6.7%						8.1%

Report-3.3

Location : **804384NS** **THE GORE ROAD - 1.0 KM SOUTH OF CASTLEMORE ROAD**

Dates : **5/7/2013**

Directions ---------->		North		South		East		West		Total	
		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	78	1.0%	37	0.5%					115	0.7%
1:00	2:00	37	0.5%	25	0.3%					62	0.4%
2:00	3:00	42	0.6%	20	0.3%					62	0.4%
3:00	4:00	17	0.2%	41	0.5%					58	0.4%
4:00	5:00	28	0.4%	67	0.8%					95	0.6%
5:00	6:00	52	0.7%	230	2.9%					282	1.8%
6:00	7:00	159	2.1%	605	7.7%					764	5.0%
7:00	8:00	259	3.5%	856	10.9%					1115	7.3%
8:00	9:00	570	7.6%	869	11.0%					1439	9.4%
9:00	10:00	262	3.5%	476	6.0%					738	4.8%
10:00	11:00	248	3.3%	312	4.0%					560	3.6%
11:00	12:00	273	3.7%	362	4.6%					635	4.1%
12:00	13:00	333	4.5%	293	3.7%					626	4.1%
13:00	14:00	317	4.2%	301	3.8%					618	4.0%
14:00	15:00	459	6.1%	352	4.5%					811	5.3%
15:00	16:00	615	8.2%	498	6.3%					1113	7.2%
16:00	17:00	738	9.9%	421	5.3%					1159	7.5%
17:00	18:00	754	10.1%	427	5.4%					1181	7.7%
18:00	19:00	625	8.4%	413	5.2%					1038	6.8%
19:00	20:00	483	6.5%	415	5.3%					898	5.8%
20:00	21:00	411	5.5%	359	4.6%					770	5.0%
21:00	22:00	356	4.8%	259	3.3%					615	4.0%
22:00	23:00	197	2.6%	144	1.8%					341	2.2%
23:00	OO:OO	153	2.0%	107	1.4%					260	1.7%
Total		7466		7889						15355	100.0%
		48.6%		51.4%						100.0%	
AM PEAK		570		869						1439	
period		8:00		8:00						8:00	
% of class			7.6%		11.0%						9.4%
PM PEAK		754		498						1181	
period		17:00		15:00						17:00	
% of class			10.1%		6.3%						7.7%

Report-3.1		Location :		805784NS		THE GORE ROAD - 0.4 KM NORTH OF CASTLEMORE ROAD					
		Dates :		4/24/2013							
		North		South		East		West		Total	
Directions ---------->		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	24	0.7%	9	0.2%					33	0.5%
1:00	2:00	10	0.3%	6	0.2%					16	0.2%
2:00	3:00	9	0.3%	6	0.2%					15	0.2%
3:00	4:00	3	0.1%	10	0.3%					13	0.2%
4:00	5:00	17	0.5%	29	0.8%					46	0.7%
5:00	6:00	26	0.8%	132	3.7%					158	2.3%
6:00	7:00	86	2.5%	363	10.0%					449	6.4%
7:00	8:00	117	3.4%	499	13.8%					616	8.8%
8:00	9:00	163	4.8%	444	12.3%					607	8.7%
9:00	10:00	118	3.5%	237	6.6%					355	5.1%
10:00	11:00	116	3.4%	169	4.7%					285	4.1%
11:00	12:00	106	3.1%	146	4.0%					252	3.6%
12:00	13:00	135	4.0%	124	3.4%					259	3.7%
13:00	14:00	147	4.3%	138	3.8%					285	4.1%
14:00	15:00	184	5.4%	130	3.6%					314	4.5%
15:00	16:00	309	9.1%	182	5.0%					491	7.0%
16:00	17:00	450	13.2%	177	4.9%					627	8.9%
17:00	18:00	473	13.9%	192	5.3%					665	9.5%
18:00	19:00	342	10.1%	184	5.1%					526	7.5%
19:00	20:00	223	6.6%	158	4.4%					381	5.4%
20:00	21:00	155	4.6%	142	3.9%					297	4.2%
21:00	22:00	86	2.5%	72	2.0%					158	2.3%
22:00	23:00	64	1.9%	43	1.2%					107	1.5%
23:00	OO:OO	37	1.1%	23	0.6%					60	0.9%
Total		3400		3615						7015	100.0%
		48.5%		51.5%						100.0%	
AM PEAK		163		499						616	
period		8:00		7:00						7:00	
% of class			4.8%		13.8%						8.8%
PM PEAK		473		192						665	
period		17:00		17:00						17:00	
% of class			13.9%		5.3%						9.5%

Report-3.2

Location : **805784NS** **THE GORE ROAD - 0.4 KM NORTH OF CASTLEMORE ROAD**

Dates : **4/25/2013**

		North		South		East		West		Total	
Directions	---------->	Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	24	0.7%	13	0.4%					37	0.5%
1:00	2:00	7	0.2%	5	0.1%					12	0.2%
2:00	3:00	5	0.1%	6	0.2%					11	0.2%
3:00	4:00	9	0.3%	7	0.2%					16	0.2%
4:00	5:00	24	0.7%	22	0.6%					46	0.6%
5:00	6:00	33	0.9%	133	3.8%					166	2.3%
6:00	7:00	86	2.4%	356	10.1%					442	6.2%
7:00	8:00	120	3.3%	495	14.0%					615	8.6%
8:00	9:00	152	4.2%	401	11.3%					553	7.7%
9:00	10:00	111	3.1%	216	6.1%					327	4.6%
10:00	11:00	103	2.9%	133	3.8%					236	3.3%
11:00	12:00	147	4.1%	171	4.8%					318	4.5%
12:00	13:00	137	3.8%	138	3.9%					275	3.9%
13:00	14:00	158	4.4%	126	3.6%					284	4.0%
14:00	15:00	225	6.3%	150	4.2%					375	5.3%
15:00	16:00	294	8.2%	140	4.0%					434	6.1%
16:00	17:00	491	13.6%	186	5.3%					677	9.5%
17:00	18:00	499	13.9%	194	5.5%					693	9.7%
18:00	19:00	302	8.4%	182	5.1%					484	6.8%
19:00	20:00	244	6.8%	170	4.8%					414	5.8%
20:00	21:00	182	5.1%	131	3.7%					313	4.4%
21:00	22:00	126	3.5%	89	2.5%					215	3.0%
22:00	23:00	71	2.0%	42	1.2%					113	1.6%
23:00	OO:OO	48	1.3%	33	0.9%					81	1.1%
Total		3598 50.4%		3539 49.6%						7137 100.0%	100.0%
AM PEAK		152		495						615	
period		8:00		7:00						7:00	
% of class			4.2%		14.0%						8.6%
PM PEAK		499		194						693	
period		17:00		17:00						17:00	
% of class			13.9%		5.5%						9.7%

Report-3.3

Location : 805784NS **THE GORE ROAD - 0.4 KM NORTH OF CASTLEMORE ROAD**

Dates : 4/26/2013

		North		South		East		West		Total	
Directions ---------->		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	22	0.6%	12	0.3%					34	0.5%
1:00	2:00	16	0.4%	12	0.3%					28	0.4%
2:00	3:00	10	0.3%	5	0.1%					15	0.2%
3:00	4:00	16	0.4%	9	0.3%					25	0.4%
4:00	5:00	19	0.5%	27	0.8%					46	0.6%
5:00	6:00	35	1.0%	111	3.2%					146	2.0%
6:00	7:00	89	2.4%	350	10.1%					439	6.2%
7:00	8:00	117	3.2%	455	13.2%					572	8.0%
8:00	9:00	166	4.5%	365	10.6%					531	7.4%
9:00	10:00	110	3.0%	201	5.8%					311	4.4%
10:00	11:00	112	3.0%	130	3.8%					242	3.4%
11:00	12:00	115	3.1%	145	4.2%					260	3.6%
12:00	13:00	181	4.9%	143	4.1%					324	4.5%
13:00	14:00	179	4.9%	134	3.9%					313	4.4%
14:00	15:00	237	6.4%	141	4.1%					378	5.3%
15:00	16:00	326	8.9%	164	4.7%					490	6.9%
16:00	17:00	470	12.8%	174	5.0%					644	9.0%
17:00	18:00	466	12.7%	199	5.8%					665	9.3%
18:00	19:00	349	9.5%	205	5.9%					554	7.8%
19:00	20:00	219	6.0%	175	5.1%					394	5.5%
20:00	21:00	143	3.9%	129	3.7%					272	3.8%
21:00	22:00	95	2.6%	81	2.3%					176	2.5%
22:00	23:00	96	2.6%	49	1.4%					145	2.0%
23:00	OO:OO	90	2.4%	42	1.2%					132	1.8%
Total		3678		3458						7136	100.0%
		51.5%		48.5%						100.0%	
AM PEAK		166		455						572	
period		8:00		7:00						7:00	
% of class			4.5%		13.2%						8.0%
PM PEAK		470		205						665	
period		16:00		18:00						17:00	
% of class			12.8%		5.9%						9.3%

Report-3.1

Location : 800800NS THE GORE ROAD - 0.8 KM NORTH OF HIGHWAY 50

Dates : 4/23/2013

		North		South		East		West		Total	
Directions	---------->	Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00										
1:00	2:00										
2:00	3:00										
3:00	4:00										
4:00	5:00										
5:00	6:00										
6:00	7:00										
7:00	8:00										
8:00	9:00										
9:00	10:00										
10:00	11:00										
11:00	12:00										
12:00	13:00	139	3.0%	183	6.6%					322	4.3%
13:00	14:00	234	5.0%	251	9.0%					485	6.5%
14:00	15:00	340	7.2%	375	13.5%					715	9.5%
15:00	16:00	613	13.0%	322	11.6%					935	12.5%
16:00	17:00	746	15.9%	301	10.8%					1047	14.0%
17:00	18:00	767	16.3%	323	11.6%					1090	14.6%
18:00	19:00	559	11.9%	285	10.2%					844	11.3%
19:00	20:00	410	8.7%	225	8.1%					635	8.5%
20:00	21:00	299	6.4%	180	6.5%					479	6.4%
21:00	22:00	226	4.8%	122	4.4%					348	4.6%
22:00	23:00	164	3.5%	149	5.4%					313	4.2%
23:00	OO:OO	208	4.4%	69	2.5%					277	3.7%
Total		4705		2785						7490	100.0%
		62.8%		37.2%						100.0%	
AM PEAK											
period											
% of class											
PM PEAK		767		375						1090	
period		17:00		14:00						17:00	
% of class			16.3%		13.5%						14.6%

Report-3.2

Location : **800800NS** **THE GORE ROAD - 0.8 KM NORTH OF HIGHWAY 50**

Dates : **4/24/2013**

Directions ---------->		**North** Volume	%	**South** Volume	%	**East** Volume	%	**West** Volume	%	**Total** Volume	%
OO:OO	**1:00**	**85**	1.5%	**30**	0.5%					**115**	1.0%
1:00	**2:00**	**37**	0.6%	**14**	0.2%					**51**	0.4%
2:00	**3:00**	**23**	0.4%	**15**	0.2%					**38**	0.3%
3:00	**4:00**	**20**	0.3%	**20**	0.3%					**40**	0.3%
4:00	**5:00**	**13**	0.2%	**53**	0.9%					**66**	0.5%
5:00	**6:00**	**37**	0.6%	**224**	3.6%					**261**	2.2%
6:00	**7:00**	**123**	2.1%	**727**	11.7%					**850**	7.1%
7:00	**8:00**	**168**	2.9%	**762**	12.3%					**930**	7.7%
8:00	**9:00**	**150**	2.6%	**680**	11.0%					**830**	6.9%
9:00	**10:00**	**128**	2.2%	**426**	6.9%					**554**	4.6%
10:00	**11:00**	**145**	2.5%	**297**	4.8%					**442**	3.7%
11:00	**12:00**	**173**	3.0%	**249**	4.0%					**422**	3.5%
12:00	**13:00**	**199**	3.4%	**247**	4.0%					**446**	3.7%
13:00	**14:00**	**221**	3.8%	**276**	4.4%					**497**	4.1%
14:00	**15:00**	**351**	6.0%	**333**	5.4%					**684**	5.7%
15:00	**16:00**	**634**	10.9%	**325**	5.2%					**959**	8.0%
16:00	**17:00**	**708**	12.2%	**307**	4.9%					**1015**	8.4%
17:00	**18:00**	**738**	12.7%	**299**	4.8%					**1037**	8.6%
18:00	**19:00**	**552**	9.5%	**258**	4.2%					**810**	6.7%
19:00	**20:00**	**395**	6.8%	**186**	3.0%					**581**	4.8%
20:00	**21:00**	**285**	4.9%	**148**	2.4%					**433**	3.6%
21:00	**22:00**	**255**	4.4%	**104**	1.7%					**359**	3.0%
22:00	**23:00**	**182**	3.1%	**159**	2.6%					**341**	2.8%
23:00	**OO:OO**	**200**	3.4%	**71**	1.1%					**271**	2.3%
Total		**5822** **48.4%**		**6210** **51.6%**						**12032** 100.0%	100.0%
AM PEAK		**173**		**762**						**930**	
period		**11:00**		**7:00**						**7:00**	
% of class			3.0%		12.3%						7.7%
PM PEAK		**738**		**333**						**1037**	
period		**17:00**		**14:00**						**17:00**	
% of class			12.7%		5.4%						8.6%

Report-3.3

Location : **800800NS** **THE GORE ROAD - 0.8 KM NORTH OF HIGHWAY 50**

Dates : **4/25/2013**

Directions ---------->		**North** Volume	%	**South** Volume	%	**East** Volume	%	**West** Volume	%	**Total** Volume	%
OO:OO	**1:00**	**73**	1.2%	**28**	0.4%					**101**	0.8%
1:00	**2:00**	**31**	0.5%	**8**	0.1%					**39**	0.3%
2:00	**3:00**	**31**	0.5%	**21**	0.3%					**52**	0.4%
3:00	**4:00**	**23**	0.4%	**15**	0.2%					**38**	0.3%
4:00	**5:00**	**16**	0.3%	**54**	0.8%					**70**	0.6%
5:00	**6:00**	**45**	0.8%	**227**	3.5%					**272**	2.2%
6:00	**7:00**	**126**	2.1%	**716**	11.1%					**842**	6.8%
7:00	**8:00**	**150**	2.5%	**821**	12.8%					**971**	7.9%
8:00	**9:00**	**148**	2.5%	**726**	11.3%					**874**	7.1%
9:00	**10:00**	**144**	2.4%	**433**	6.7%					**577**	4.7%
10:00	**11:00**	**141**	2.4%	**304**	4.7%					**445**	3.6%
11:00	**12:00**	**168**	2.8%	**268**	4.2%					**436**	3.5%
12:00	**13:00**	**211**	3.6%	**262**	4.1%					**473**	3.8%
13:00	**14:00**	**225**	3.8%	**279**	4.3%					**504**	4.1%
14:00	**15:00**	**359**	6.1%	**357**	5.6%					**716**	5.8%
15:00	**16:00**	**639**	10.8%	**312**	4.9%					**951**	7.7%
16:00	**17:00**	**775**	13.1%	**319**	5.0%					**1094**	8.9%
17:00	**18:00**	**723**	12.2%	**330**	5.1%					**1053**	8.5%
18:00	**19:00**	**542**	9.2%	**268**	4.2%					**810**	6.6%
19:00	**20:00**	**398**	6.7%	**216**	3.4%					**614**	5.0%
20:00	**21:00**	**297**	5.0%	**165**	2.6%					**462**	3.7%
21:00	**22:00**	**246**	4.2%	**116**	1.8%					**362**	2.9%
22:00	**23:00**	**193**	3.3%	**127**	2.0%					**320**	2.6%
23:00	**OO:OO**	**208**	3.5%	**52**	0.8%					**260**	2.1%
Total		**5912**		**6424**						**12336**	100.0%
		47.9%		**52.1%**						100.0%	
AM PEAK		**168**		**821**						**971**	
period		**11:00**		**7:00**						**7:00**	
% of class			2.8%		12.8%						7.9%
PM PEAK		**775**		**357**						**1094**	
period		**16:00**		**14:00**						**16:00**	
% of class			13.1%		5.6%						8.9%

Report-3.1

Location : **801789NS** **THE GORE ROAD - 0.4 KM NORTH OF HIGHWAY 7**

Dates : **5/6/2013**

Directions ---------->		North		South		East		West		Total	
		Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	**1:00**	**109**	1.2%	**64**	0.6%					**173**	0.9%
1:00	**2:00**	**74**	0.8%	**44**	0.4%					**118**	0.6%
2:00	**3:00**	**31**	0.3%	**34**	0.3%					**65**	0.3%
3:00	**4:00**	**29**	0.3%	**44**	0.4%					**73**	0.4%
4:00	**5:00**	**28**	0.3%	**100**	1.0%					**128**	0.7%
5:00	**6:00**	**75**	0.8%	**383**	3.8%					**458**	2.3%
6:00	**7:00**	**185**	2.0%	**927**	9.2%					**1112**	5.7%
7:00	**8:00**	**360**	3.8%	**1057**	10.5%					**1417**	7.3%
8:00	**9:00**	**350**	3.7%	**1009**	10.0%					**1359**	7.0%
9:00	**10:00**	**273**	2.9%	**622**	6.2%					**895**	4.6%
10:00	**11:00**	**305**	3.2%	**432**	4.3%					**737**	3.8%
11:00	**12:00**	**333**	3.5%	**450**	4.5%					**783**	4.0%
12:00	**13:00**	**391**	4.1%	**510**	5.1%					**901**	4.6%
13:00	**14:00**	**390**	4.1%	**465**	4.6%					**855**	4.4%
14:00	**15:00**	**484**	5.1%	**531**	5.3%					**1015**	5.2%
15:00	**16:00**	**747**	7.9%	**522**	5.2%					**1269**	6.5%
16:00	**17:00**	**998**	10.6%	**523**	5.2%					**1521**	7.8%
17:00	**18:00**	**1094**	11.6%	**555**	5.5%					**1649**	8.4%
18:00	**19:00**	**970**	10.3%	**494**	4.9%					**1464**	7.5%
19:00	**20:00**	**627**	6.7%	**379**	3.8%					**1006**	5.2%
20:00	**21:00**	**577**	6.1%	**320**	3.2%					**897**	4.6%
21:00	**22:00**	**428**	4.5%	**261**	2.6%					**689**	3.5%
22:00	**23:00**	**284**	3.0%	**252**	2.5%					**536**	2.7%
23:00	**OO:OO**	**283**	3.0%	**118**	1.2%					**401**	2.1%
Total		**9425** **48.3%**		**10096** **51.7%**						**19521** 100.0%	100.0%
AM PEAK		**360**		**1057**						**1417**	
period		**7:00**		**7:00**						**7:00**	
% of class			3.8%		10.5%						7.3%
PM PEAK		**1094**		**555**						**1649**	
period		**17:00**		**17:00**						**17:00**	
% of class			11.6%		5.5%						8.4%

Report-3.2

Location : **801789NS** **THE GORE ROAD - 0.4 KM NORTH OF HIGHWAY 7**

Dates : **5/7/2013**

Directions ---------->		**North** Volume	%	**South** Volume	%	**East** Volume	%	**West** Volume	%	**Total** Volume	%
OO:OO	**1:00**	**148**	1.5%	**58**	0.6%					**206**	1.0%
1:00	**2:00**	**62**	0.6%	**25**	0.2%					**87**	0.4%
2:00	**3:00**	**43**	0.4%	**30**	0.3%					**73**	0.4%
3:00	**4:00**	**35**	0.4%	**37**	0.4%					**72**	0.4%
4:00	**5:00**	**41**	0.4%	**101**	1.0%					**142**	0.7%
5:00	**6:00**	**78**	0.8%	**358**	3.5%					**436**	2.2%
6:00	**7:00**	**224**	2.3%	**942**	9.3%					**1166**	5.9%
7:00	**8:00**	**376**	3.9%	**1101**	10.8%					**1477**	7.5%
8:00	**9:00**	**375**	3.9%	**1048**	10.3%					**1423**	7.2%
9:00	**10:00**	**277**	2.9%	**667**	6.6%					**944**	4.8%
10:00	**11:00**	**263**	2.7%	**393**	3.9%					**656**	3.3%
11:00	**12:00**	**360**	3.8%	**467**	4.6%					**827**	4.2%
12:00	**13:00**	**395**	4.1%	**438**	4.3%					**833**	4.2%
13:00	**14:00**	**390**	4.1%	**458**	4.5%					**848**	4.3%
14:00	**15:00**	**470**	4.9%	**487**	4.8%					**957**	4.8%
15:00	**16:00**	**800**	8.4%	**547**	5.4%					**1347**	6.8%
16:00	**17:00**	**975**	10.2%	**519**	5.1%					**1494**	7.6%
17:00	**18:00**	**1081**	11.3%	**525**	5.2%					**1606**	8.1%
18:00	**19:00**	**876**	9.2%	**532**	5.2%					**1408**	7.1%
19:00	**20:00**	**702**	7.3%	**439**	4.3%					**1141**	5.8%
20:00	**21:00**	**573**	6.0%	**370**	3.6%					**943**	4.8%
21:00	**22:00**	**462**	4.8%	**299**	2.9%					**761**	3.9%
22:00	**23:00**	**297**	3.1%	**232**	2.3%					**529**	2.7%
23:00	**OO:OO**	**263**	2.7%	**108**	1.1%					**371**	1.9%
Total		9566		10181						**19747**	100.0%
		48.4%		51.6%						100.0%	
AM PEAK		**376**		**1101**						**1477**	
period		**7:00**		**7:00**						**7:00**	
% of class			3.9%		10.8%						7.5%
PM PEAK		**1081**		**547**						**1606**	
period		**17:00**		**15:00**						**17:00**	
% of class			11.3%		5.4%						8.1%

Report-3.3

Location : 801789NS THE GORE ROAD - 0.4 KM NORTH OF HIGHWAY 7

Dates : 5/8/2013

		North		South		East		West		Total	
Directions	---------->	Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
OO:OO	1:00	151	1.6%	48	0.5%					199	1.0%
1:00	2:00	75	0.8%	32	0.3%					107	0.5%
2:00	3:00	48	0.5%	24	0.2%					72	0.4%
3:00	4:00	33	0.4%	41	0.4%					74	0.4%
4:00	5:00	43	0.5%	103	1.0%					146	0.7%
5:00	6:00	67	0.7%	384	3.7%					451	2.3%
6:00	7:00	206	2.2%	971	9.5%					1177	6.0%
7:00	8:00	342	3.6%	1084	10.6%					1426	7.3%
8:00	9:00	320	3.4%	1094	10.7%					1414	7.2%
9:00	10:00	272	2.9%	659	6.4%					931	4.7%
10:00	11:00	320	3.4%	524	5.1%					844	4.3%
11:00	12:00	350	3.7%	449	4.4%					799	4.1%
12:00	13:00	405	4.3%	418	4.1%					823	4.2%
13:00	14:00	372	4.0%	443	4.3%					815	4.2%
14:00	15:00	522	5.6%	541	5.3%					1063	5.4%
15:00	16:00	770	8.2%	529	5.2%					1299	6.6%
16:00	17:00	953	10.2%	530	5.2%					1483	7.6%
17:00	18:00	1064	11.3%	526	5.1%					1590	8.1%
18:00	19:00	915	9.7%	487	4.8%					1402	7.1%
19:00	20:00	614	6.5%	417	4.1%					1031	5.3%
20:00	21:00	512	5.5%	315	3.1%					827	4.2%
21:00	22:00	436	4.6%	219	2.1%					655	3.3%
22:00	23:00	298	3.2%	285	2.8%					583	3.0%
23:00	OO:OO	297	3.2%	121	1.2%					418	2.1%
Total		9385		10244						19629	100.0%
		47.8%		52.2%						100.0%	
AM PEAK		350		1094						1426	
period		11:00		8:00						7:00	
% of class			3.7%		10.7%						7.3%
PM PEAK		1064		541						1590	
period		17:00		14:00						17:00	
% of class			11.3%		5.3%						8.1%

APPENDIX B

Existing Intersections Capacity Analysis

HCM Signalized Intersection Capacity Analysis
2: The Gore Road & Castlemore Road

3/17/2016

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	18	754	403	47	708	25	212	92	44	50	389	45
Future Volume (vph)	18	754	403	47	708	25	212	92	44	50	389	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3579	1524	1747	3579	1546	1749	3544	1551	1594	3544	1530
Flt Permitted	0.35	1.00	1.00	0.32	1.00	1.00	0.52	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	639	3579	1524	593	3579	1546	961	3544	1551	1165	3544	1530
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	754	403	47	708	25	212	92	44	50	389	45
RTOR Reduction (vph)	0	0	127	0	0	13	0	0	29	0	0	30
Lane Group Flow (vph)	18	754	276	47	708	12	212	92	15	50	389	15
Confl. Peds. (#/hr)	1		8	8		1	2					2
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	3%	3%	12%	3%	3%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	32.5	32.5	32.5	32.5	32.5	32.5	23.4	23.4	23.4	23.4	23.4	23.4
Effective Green, g (s)	32.5	32.5	32.5	32.5	32.5	32.5	23.4	23.4	23.4	23.4	23.4	23.4
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.34	0.34	0.34	0.34	0.34	0.34
Clearance Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	299	1678	714	278	1678	725	324	1196	523	393	1196	516
v/s Ratio Prot		c0.21			0.20			0.03			0.11	
v/s Ratio Perm	0.03		0.18	0.08		0.01	c0.22		0.01	0.04		0.01
v/c Ratio	0.06	0.45	0.39	0.17	0.42	0.02	0.65	0.08	0.03	0.13	0.33	0.03
Uniform Delay, d1	10.1	12.4	11.9	10.6	12.2	9.8	19.5	15.6	15.3	15.9	17.1	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.4	0.7	0.6	0.4	0.0	6.3	0.1	0.0	0.3	0.3	0.0
Delay (s)	10.2	12.8	12.7	11.2	12.5	9.9	25.8	15.7	15.4	16.2	17.4	15.4
Level of Service	B	B	B	B	B	A	C	B	B	B	B	B
Approach Delay (s)		12.7			12.4			21.8			17.1	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	13.4
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (vph)	0	29	0	496	776	0
Future Volume (vph)	0	29	0	496	776	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.7	3.7	3.5
Total Lost time (s)		7.0		7.0	7.0	
Lane Util. Factor		1.00		0.95	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		1545		3510	3544	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		1545		3510	3544	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	29	0	496	776	0
RTOR Reduction (vph)	0	27	0	0	0	0
Lane Group Flow (vph)	0	2	0	496	776	0
Confl. Peds. (#/hr)		1	33			33
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Turn Type	Perm	Perm		NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4				
Actuated Green, G (s)		8.6		77.4	77.4	
Effective Green, g (s)		8.6		77.4	77.4	
Actuated g/C Ratio		0.09		0.77	0.77	
Clearance Time (s)		7.0		7.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0	
Lane Grp Cap (vph)		132		2716	2743	
v/s Ratio Prot				0.14	c0.22	
v/s Ratio Perm		c0.00				
v/c Ratio		0.02		0.18	0.28	
Uniform Delay, d1		41.8		3.0	3.3	
Progression Factor		1.00		0.50	1.00	
Incremental Delay, d2		0.1		0.1	0.3	
Delay (s)		42.0		1.6	3.5	
Level of Service		D		A	A	
Approach Delay (s)	42.0			1.6	3.5	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱		↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	0	29	18	478	776	3
Future Volume (Veh/h)	0	29	18	478	776	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	29	18	478	776	3
Pedestrians	13				1	
Lane Width (m)	3.5				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				284	181	
pX, platoon unblocked	0.96	0.95	0.95			
vC, conflicting volume	1065	401	792			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	257	670			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	98			
cM capacity (veh/h)	260	696	859			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	29	18	239	239	388	388	3
Volume Left	0	18	0	0	0	0	0
Volume Right	29	0	0	0	0	0	3
cSH	696	859	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.02	0.14	0.14	0.23	0.23	0.00
Queue Length 95th (m)	0.9	0.4	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	10.4	9.3	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	10.4	0.3			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: The Gore Road & Castle Oaks Crossing

3/17/2016

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	378	166	325	208	261	684
Future Volume (vph)	378	166	325	208	261	684
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.8	6.8	3.0	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1733	1566	3579	1566	1750	3579
Flt Permitted	0.95	1.00	1.00	1.00	0.52	1.00
Satd. Flow (perm)	1733	1566	3579	1566	961	3579
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	378	166	325	208	261	684
RTOR Reduction (vph)	0	120	0	110	0	0
Lane Group Flow (vph)	378	46	325	98	261	684
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	27.5	27.5	47.1	47.1	59.2	59.2
Effective Green, g (s)	27.5	27.5	47.1	47.1	59.2	59.2
Actuated g/C Ratio	0.28	0.28	0.47	0.47	0.59	0.59
Clearance Time (s)	6.5	6.5	6.8	6.8	3.0	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	476	430	1685	737	640	2118
v/s Ratio Prot			0.09		c0.04	0.19
v/s Ratio Perm	c0.22	0.03		0.06	c0.20	
v/c Ratio	0.79	0.11	0.19	0.13	0.41	0.32
Uniform Delay, d1	33.6	27.1	15.4	14.9	9.8	10.3
Progression Factor	1.00	1.00	1.03	2.92	1.43	1.23
Incremental Delay, d2	10.1	0.2	0.3	0.4	0.9	0.4
Delay (s)	43.7	27.3	16.1	43.9	15.0	13.0
Level of Service	D	C	B	D	B	B
Approach Delay (s)	38.7		27.0			13.6
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

↗ ↘ ↖ ↑ ↓ ↙

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	30	65	10	399	994	26
Future Volume (Veh/h)	30	65	10	399	994	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	30	65	10	399	994	26
Pedestrians	7			2	1	
Lane Width (m)	3.5			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				266	349	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	1222	506	1027			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1094	327	885			
tC, single (s)	6.9	7.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	84	89	99			
cM capacity (veh/h)	189	588	705			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	30	65	10	200	200	497	497	26
Volume Left	30	0	10	0	0	0	0	0
Volume Right	0	65	0	0	0	0	0	26
cSH	189	588	705	1700	1700	1700	1700	1700
Volume to Capacity	0.16	0.11	0.01	0.12	0.12	0.29	0.29	0.02
Queue Length 95th (m)	3.9	2.6	0.3	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	27.6	11.9	10.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B	B					
Approach Delay (s)	16.8		0.2			0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	68	35	112	255	46	36	60	399	217	40	859	52
Future Volume (vph)	68	35	112	255	46	36	60	399	217	40	859	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.84	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		0.99	1.00	1.00	0.92	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1649	1731	1458	1737	1747		1727	3510	1294	1578	3510	1394
Flt Permitted	0.70	1.00	1.00	0.68	1.00		0.30	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1221	1731	1458	1240	1747		546	3510	1294	859	3510	1394
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	35	112	255	46	36	60	399	217	40	859	52
RTOR Reduction (vph)	0	0	92	0	30	0	0	0	81	0	0	19
Lane Group Flow (vph)	68	35	20	255	52	0	60	399	136	40	859	33
Confl. Peds. (#/hr)	4		12	12		4	33		98	98		33
Heavy Vehicles (%)	8%	11%	7%	2%	2%	2%	2%	4%	4%	4%	4%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	19.2	14.4	14.4	21.6	15.6		62.6	62.6	62.6	62.6	62.6	62.6
Effective Green, g (s)	19.2	14.4	14.4	21.6	15.6		62.6	62.6	62.6	62.6	62.6	62.6
Actuated g/C Ratio	0.19	0.14	0.14	0.22	0.16		0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	254	249	209	297	272		341	2197	810	537	2197	872
v/s Ratio Prot	0.01	0.02		c0.05	0.03			0.11			c0.24	
v/s Ratio Perm	0.04		0.01	c0.13			0.11		0.10	0.05		0.02
v/c Ratio	0.27	0.14	0.10	0.86	0.19		0.18	0.18	0.17	0.07	0.39	0.04
Uniform Delay, d1	34.0	37.4	37.2	37.3	36.7		7.9	7.9	7.8	7.3	9.3	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.52	1.46	4.44	0.40	0.44	0.42
Incremental Delay, d2	1.2	0.5	0.4	22.8	0.7		1.0	0.2	0.4	0.2	0.5	0.1
Delay (s)	35.2	37.9	37.6	60.0	37.4		13.0	11.7	35.1	3.2	4.5	3.1
Level of Service	D	D	D	E	D		B	B	D	A	A	A
Approach Delay (s)		36.9			54.5			19.3			4.4	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
9: The Gore Road & Cottrelle Boulevard

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	115	148	271	114	208	103	249	1030	48	41	381	40
Future Volume (vph)	115	148	271	114	208	103	249	1030	48	41	381	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.9	7.9	7.9	7.9	7.9	7.9	6.8	6.8	6.8	3.0	6.8	6.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3510	1455	1744	3579	1566	1747	3579	1566	1750	3510	1542
Flt Permitted	0.62	1.00	1.00	0.66	1.00	1.00	0.53	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	1145	3510	1455	1208	3579	1566	967	3579	1566	392	3510	1542
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	148	271	114	208	103	249	1030	48	41	381	40
RTOR Reduction (vph)	0	0	218	0	0	83	0	0	20	0	0	14
Lane Group Flow (vph)	115	148	53	114	208	20	249	1030	28	41	381	26
Confl. Peds. (#/hr)			4	4			3					3
Heavy Vehicles (%)	2%	4%	8%	2%	2%	2%	2%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	19.6	19.6	19.6	19.6	19.6	19.6	57.9	57.9	57.9	65.7	65.7	65.7
Effective Green, g (s)	19.6	19.6	19.6	19.6	19.6	19.6	57.9	57.9	57.9	65.7	65.7	65.7
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.20	0.58	0.58	0.58	0.66	0.66	0.66
Clearance Time (s)	7.9	7.9	7.9	7.9	7.9	7.9	6.8	6.8	6.8	3.0	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	224	687	285	236	701	306	559	2072	906	322	2306	1013
v/s Ratio Prot		0.04			0.06			c0.29		0.01	c0.11	
v/s Ratio Perm	c0.10		0.04	0.09		0.01	0.26		0.02	0.08		0.02
v/c Ratio	0.51	0.22	0.19	0.48	0.30	0.07	0.45	0.50	0.03	0.13	0.17	0.03
Uniform Delay, d1	35.9	33.7	33.5	35.7	34.3	32.7	11.9	12.4	9.0	7.1	6.6	6.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.27	1.26	4.33	0.83	0.99	0.65
Incremental Delay, d2	3.9	0.3	0.7	3.2	0.5	0.2	2.6	0.9	0.1	0.3	0.1	0.0
Delay (s)	39.9	34.1	34.2	38.9	34.8	32.9	17.8	16.6	39.1	6.3	6.7	3.9
Level of Service	D	C	C	D	C	C	B	B	D	A	A	A
Approach Delay (s)		35.4			35.5			17.6			6.4	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.7
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	16	0	40	66	1	21	7	400	87	19	1111	10
Future Volume (vph)	16	0	40	66	1	21	7	400	87	19	1111	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.92	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.96	1.00	1.00
Frt	1.00	0.85		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1633	1580		1748	1591		1750	3579	1441	1689	3476	1566
Flt Permitted	0.74	1.00		0.73	1.00		0.23	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1277	1580		1345	1591		424	3579	1441	918	3476	1566
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	0	40	66	1	21	7	400	87	19	1111	10
RTOR Reduction (vph)	0	34	0	0	18	0	0	0	24	0	0	3
Lane Group Flow (vph)	16	6	0	66	4	0	7	400	63	19	1111	7
Confl. Peds. (#/hr)	3		1	1		3			22	22		
Heavy Vehicles (%)	9%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	13.9	13.9		13.9	13.9		72.1	72.1	72.1	72.1	72.1	72.1
Effective Green, g (s)	13.9	13.9		13.9	13.9		72.1	72.1	72.1	72.1	72.1	72.1
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72	0.72	0.72	0.72	0.72
Clearance Time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	177	219		186	221		305	2580	1038	661	2506	1129
v/s Ratio Prot		0.00			0.00			0.11			c0.32	
v/s Ratio Perm	0.01			c0.05			0.02		0.04	0.02		0.00
v/c Ratio	0.09	0.03		0.35	0.02		0.02	0.16	0.06	0.03	0.44	0.01
Uniform Delay, d1	37.5	37.2		39.0	37.2		4.0	4.4	4.1	4.0	5.7	3.9
Progression Factor	1.00	1.00		1.00	1.00		0.84	0.78	0.63	0.97	1.09	1.00
Incremental Delay, d2	0.5	0.1		2.4	0.1		0.1	0.1	0.1	0.1	0.6	0.0
Delay (s)	38.0	37.3		41.4	37.2		3.5	3.6	2.7	3.9	6.8	3.9
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		37.5			40.4			3.4			6.7	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	50	7	158	5	3	89	65	358	2	52	1125	57
Future Volume (vph)	50	7	158	5	3	89	65	358	2	52	1125	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.2	6.2		6.2	6.2		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1589		1746	1610		1747	3579	1530	1747	3544	1521
Flt Permitted	0.70	1.00		0.56	1.00		0.23	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	1285	1589		1025	1610		416	3579	1530	989	3544	1521
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	7	158	5	3	89	65	358	2	52	1125	57
RTOR Reduction (vph)	0	44	0	0	75	0	0	0	1	0	0	16
Lane Group Flow (vph)	50	121	0	5	17	0	65	358	1	52	1125	41
Confl. Peds. (#/hr)			3	3			3		1	1		3
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	15.8	15.8		15.8	15.8		71.8	71.8	71.8	71.8	71.8	71.8
Effective Green, g (s)	15.8	15.8		15.8	15.8		71.8	71.8	71.8	71.8	71.8	71.8
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.72	0.72	0.72	0.72	0.72
Clearance Time (s)	6.2	6.2		6.2	6.2		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	203	251		161	254		298	2569	1098	710	2544	1092
v/s Ratio Prot		c0.08			0.01			0.10			c0.32	
v/s Ratio Perm	0.04			0.00			0.16		0.00	0.05		0.03
v/c Ratio	0.25	0.48		0.03	0.07		0.22	0.14	0.00	0.07	0.44	0.04
Uniform Delay, d1	36.9	38.4		35.6	35.8		4.7	4.4	4.0	4.2	5.8	4.1
Progression Factor	1.00	1.00		1.00	1.00		0.94	0.91	1.00	0.76	0.64	0.55
Incremental Delay, d2	1.3	3.0		0.2	0.2		1.7	0.1	0.0	0.2	0.5	0.1
Delay (s)	38.2	41.4		35.8	36.1		6.1	4.1	4.0	3.4	4.2	2.3
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		40.7			36.0			4.4			4.1	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	63	137	234	51	153	32	69	309	34	104	1292	97
Future Volume (vph)	63	137	234	51	153	32	69	309	34	104	1292	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3579	1541	1694	3475		1750	3507		1749	3535	
Flt Permitted	0.64	1.00	1.00	0.67	1.00		0.13	1.00		0.54	1.00	
Satd. Flow (perm)	1165	3579	1541	1186	3475		239	3507		1000	3535	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	63	137	234	51	153	32	69	309	34	104	1292	97
RTOR Reduction (vph)	0	0	121	0	21	0	0	6	0	0	4	0
Lane Group Flow (vph)	63	137	113	51	164	0	69	337	0	104	1385	0
Confl. Peds. (#/hr)	5		4	4		5	12		1	1		12
Heavy Vehicles (%)	2%	2%	2%	5%	2%	2%	2%	2%	6%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.4	16.4	16.4	16.4	16.4		67.0	60.4		67.6	60.7	
Effective Green, g (s)	16.4	16.4	16.4	16.4	16.4		67.0	60.4		67.6	60.7	
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.67	0.60		0.68	0.61	
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	191	586	252	194	569		259	2118		727	2145	
v/s Ratio Prot		0.04			0.05		c0.02	0.10		0.01	c0.39	
v/s Ratio Perm	0.05		c0.07	0.04			0.16			0.09		
v/c Ratio	0.33	0.23	0.45	0.26	0.29		0.27	0.16		0.14	0.65	
Uniform Delay, d1	36.9	36.3	37.7	36.5	36.7		8.1	8.7		5.6	12.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.47	0.92		0.63	1.07	
Incremental Delay, d2	2.1	0.4	2.6	1.5	0.6		1.2	0.2		0.2	1.4	
Delay (s)	39.1	36.8	40.3	38.0	37.3		13.1	8.2		3.7	15.0	
Level of Service	D	D	D	D	D		B	A		A	B	
Approach Delay (s)		39.0			37.4			9.0			14.2	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	24	52	309	43	433	1193
Future Volume (vph)	24	52	309	43	433	1193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	7.4	7.4	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1746	1566	3579	1472	1748	3510
Flt Permitted	0.95	1.00	1.00	1.00	0.56	1.00
Satd. Flow (perm)	1746	1566	3579	1472	1038	3510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	52	309	43	433	1193
RTOR Reduction (vph)	0	47	0	11	0	0
Lane Group Flow (vph)	24	5	309	32	433	1193
Confl. Peds. (#/hr)	2			1	1	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	2%	2%	2%	6%	2%	4%
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	10.3	10.3	75.5	75.5	75.5	75.5
Effective Green, g (s)	10.3	10.3	75.5	75.5	75.5	75.5
Actuated g/C Ratio	0.10	0.10	0.76	0.76	0.76	0.76
Clearance Time (s)	7.4	7.4	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	179	161	2702	1111	783	2650
v/s Ratio Prot			0.09			0.34
v/s Ratio Perm	c0.01	0.00		0.02	c0.42	
v/c Ratio	0.13	0.03	0.11	0.03	0.55	0.45
Uniform Delay, d1	40.8	40.4	3.3	3.1	5.2	4.5
Progression Factor	1.00	1.00	1.00	1.00	0.46	0.53
Incremental Delay, d2	0.7	0.2	0.1	0.0	2.3	0.5
Delay (s)	41.5	40.5	3.4	3.1	4.7	2.9
Level of Service	D	D	A	A	A	A
Approach Delay (s)	40.8		3.3			3.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	↰↰	↑↱		↰↰	↑↑	↱	↰	↑↑↑	↱	↰	↑↑↑	↱
Traffic Volume (vph)	112	82	16	932	590	104	67	1952	524	10	1163	168
Future Volume (vph)	112	82	16	932	590	104	67	1952	524	10	1163	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.1	7.1		7.1	7.1	4.0	3.0	6.9	4.0	6.9	6.9	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3430		3362	3579	1426	1733	4601	1566	1608	4683	1521
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.15	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	3395	3430		3362	3579	1426	280	4601	1566	98	4683	1521
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	112	82	16	932	590	104	67	1952	524	10	1163	168
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	112	94	0	932	590	104	67	1952	524	10	1163	168
Confl. Peds. (#/hr)	6		18	18						6		
Heavy Vehicles (%)	2%	3%	2%	3%	2%	12%	3%	14%	2%	11%	12%	5%
Turn Type	Split	NA		Split	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	4	4		8	8		1	6			2	
Permitted Phases						Free	6		Free	2		Free
Actuated Green, G (s)	18.9	18.9		38.9	38.9	160.0	81.1	81.1	160.0	69.1	69.1	160.0
Effective Green, g (s)	18.9	18.9		38.9	38.9	160.0	81.1	81.1	160.0	69.1	69.1	160.0
Actuated g/C Ratio	0.12	0.12		0.24	0.24	1.00	0.51	0.51	1.00	0.43	0.43	1.00
Clearance Time (s)	7.1	7.1		7.1	7.1		3.0	6.9		6.9	6.9	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	401	405		817	870	1426	223	2332	1566	42	2022	1521
v/s Ratio Prot	0.03	0.03		c0.28	0.16		0.02	c0.42			0.25	
v/s Ratio Perm						0.07	0.14		c0.33	0.10		0.11
v/c Ratio	0.28	0.23		1.14	0.68	0.07	0.30	0.84	0.33	0.24	0.58	0.11
Uniform Delay, d1	64.3	64.0		60.5	54.9	0.0	22.4	33.8	0.0	28.8	34.4	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	1.3		77.9	4.2	0.1	3.4	3.8	0.6	12.9	1.2	0.1
Delay (s)	66.1	65.3		138.4	59.1	0.1	25.9	37.6	0.6	41.7	35.6	0.1
Level of Service	E	E		F	E	A	C	D	A	D	D	A
Approach Delay (s)		65.7			100.8			29.6			31.2	
Approach LOS		E			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	51.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: The Gore Road & Castlemore Road

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	64	673	206	42	906	82	288	413	62	26	127	38
Future Volume (vph)	64	673	206	42	906	82	288	413	62	26	127	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3579	1531	1750	3579	1546	1750	3544	1551	1594	3544	1551
Flt Permitted	0.25	1.00	1.00	0.36	1.00	1.00	0.67	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	453	3579	1531	665	3579	1546	1237	3544	1551	855	3544	1551
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	673	206	42	906	82	288	413	62	26	127	38
RTOR Reduction (vph)	0	0	109	0	0	44	0	0	40	0	0	25
Lane Group Flow (vph)	64	673	97	42	906	38	288	413	22	26	127	13
Confl. Peds. (#/hr)	1		1	1		1						
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	3%	3%	12%	3%	3%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.9	34.9	34.9	34.9	34.9	34.9	26.1	26.1	26.1	26.1	26.1	26.1
Effective Green, g (s)	34.9	34.9	34.9	34.9	34.9	34.9	26.1	26.1	26.1	26.1	26.1	26.1
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35	0.35	0.35	0.35	0.35
Clearance Time (s)	6.6	6.6	6.6	6.6	6.6	6.6	6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	212	1678	718	311	1678	725	433	1243	544	299	1243	544
v/s Ratio Prot		0.19			c0.25			0.12			0.04	
v/s Ratio Perm	0.14		0.06	0.06		0.02	c0.23		0.01	0.03		0.01
v/c Ratio	0.30	0.40	0.13	0.14	0.54	0.05	0.67	0.33	0.04	0.09	0.10	0.02
Uniform Delay, d1	12.2	12.9	11.2	11.2	14.0	10.8	20.4	17.7	15.9	16.2	16.3	15.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.3	0.2	0.4	0.6	0.1	5.0	0.3	0.1	0.3	0.1	0.0
Delay (s)	13.9	13.2	11.4	11.6	14.7	10.8	25.5	18.1	16.0	16.4	16.3	15.9
Level of Service	B	B	B	B	B	B	C	B	B	B	B	B
Approach Delay (s)		12.9			14.2			20.7			16.3	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (vph)	3	9	0	799	372	0
Future Volume (vph)	3	9	0	799	372	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.7	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1566		3510	3544	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1566		3510	3544	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	9	0	799	372	0
RTOR Reduction (vph)	0	9	0	0	0	0
Lane Group Flow (vph)	3	0	0	799	372	0
Confl. Peds. (#/hr)			12			12
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Turn Type	Perm	Perm		NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4				
Actuated Green, G (s)	1.8	1.8		84.2	84.2	
Effective Green, g (s)	1.8	1.8		84.2	84.2	
Actuated g/C Ratio	0.02	0.02		0.84	0.84	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	31	28		2955	2984	
v/s Ratio Prot				c0.23	0.10	
v/s Ratio Perm	c0.00	0.00				
v/c Ratio	0.10	0.01		0.27	0.12	
Uniform Delay, d1	48.3	48.2		1.6	1.4	
Progression Factor	1.00	1.00		0.48	1.00	
Incremental Delay, d2	2.8	0.2		0.2	0.1	
Delay (s)	51.1	48.4		1.0	1.5	
Level of Service	D	D		A	A	
Approach Delay (s)	49.1			1.0	1.5	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
5: The Gore Road & Fitzpatrick Drive

3/17/2016

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y		↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	3	9	12	787	372	3
Future Volume (Veh/h)	3	9	12	787	372	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	9	12	787	372	3
Pedestrians	12					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				284	181	
pX, platoon unblocked	0.96					
vC, conflicting volume	802	198	387			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	699	198	387			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	350	802	1157			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	12	12	394	394	186	186	3
Volume Left	3	12	0	0	0	0	0
Volume Right	9	0	0	0	0	0	3
cSH	606	1157	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.01	0.23	0.23	0.11	0.11	0.00
Queue Length 95th (m)	0.4	0.2	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.1	8.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	11.1	0.1			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: The Gore Road & Castle Oaks Crossing

3/17/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	107	46	812	161	48	260
Future Volume (vph)	107	46	812	161	48	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1733	1566	3579	1566	1750	3579
Flt Permitted	0.95	1.00	1.00	1.00	0.34	1.00
Satd. Flow (perm)	1733	1566	3579	1566	628	3579
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	107	46	812	161	48	260
RTOR Reduction (vph)	0	41	0	40	0	0
Lane Group Flow (vph)	107	5	812	121	48	260
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	11.6	11.6	75.1	75.1	75.1	75.1
Effective Green, g (s)	11.6	11.6	75.1	75.1	75.1	75.1
Actuated g/C Ratio	0.12	0.12	0.75	0.75	0.75	0.75
Clearance Time (s)	6.5	6.5	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	201	181	2687	1176	471	2687
v/s Ratio Prot			c0.23			0.07
v/s Ratio Perm	c0.06	0.00		0.08	0.08	
v/c Ratio	0.53	0.03	0.30	0.10	0.10	0.10
Uniform Delay, d1	41.6	39.2	4.0	3.4	3.4	3.3
Progression Factor	1.00	1.00	0.86	0.86	1.00	0.99
Incremental Delay, d2	4.9	0.1	0.3	0.2	0.4	0.1
Delay (s)	46.5	39.3	3.8	3.1	3.8	3.4
Level of Service	D	D	A	A	A	A
Approach Delay (s)	44.4		3.6			3.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	33	36	86	823	413	27
Future Volume (Veh/h)	33	36	86	823	413	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	36	86	823	413	27
Pedestrians	11					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				266	349	
pX, platoon unblocked	0.96					
vC, conflicting volume	1008	218	451			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	931	218	451			
tC, single (s)	6.9	7.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	86	95	92			
cM capacity (veh/h)	232	744	1096			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	33	36	86	412	412	206	206	27
Volume Left	33	0	86	0	0	0	0	0
Volume Right	0	36	0	0	0	0	0	27
cSH	232	744	1096	1700	1700	1700	1700	1700
Volume to Capacity	0.14	0.05	0.08	0.24	0.24	0.12	0.12	0.02
Queue Length 95th (m)	3.4	1.1	1.8	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	23.1	10.1	8.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B	A					
Approach Delay (s)	16.3		0.8			0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	40	19	70	223	65	28	57	562	224	26	452	56
Future Volume (vph)	40	19	70	223	65	28	57	562	224	26	452	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.86	1.00	1.00	0.90
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00		0.96	1.00	1.00	0.94	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1643	1731	1468	1745	1787		1677	3510	1316	1618	3510	1348
Flt Permitted	0.70	1.00	1.00	0.60	1.00		0.49	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	1205	1731	1468	1106	1787		867	3510	1316	748	3510	1348
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	19	70	223	65	28	57	562	224	26	452	56
RTOR Reduction (vph)	0	0	61	0	19	0	0	0	82	0	0	21
Lane Group Flow (vph)	40	19	9	223	74	0	57	562	142	26	452	35
Confl. Peds. (#/hr)	10		5	5		10	55		88	88		55
Heavy Vehicles (%)	8%	11%	7%	2%	2%	2%	2%	4%	4%	4%	4%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	16.2	12.6	12.6	22.8	16.2		63.2	63.2	63.2	63.2	63.2	63.2
Effective Green, g (s)	16.2	12.6	12.6	22.8	16.2		63.2	63.2	63.2	63.2	63.2	63.2
Actuated g/C Ratio	0.16	0.13	0.13	0.23	0.16		0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	210	218	184	298	289		547	2218	831	472	2218	851
v/s Ratio Prot	0.01	0.01		c0.05	0.04			c0.16			0.13	
v/s Ratio Perm	0.02		0.01	c0.12			0.07		0.11	0.03		0.03
v/c Ratio	0.19	0.09	0.05	0.75	0.26		0.10	0.25	0.17	0.06	0.20	0.04
Uniform Delay, d1	36.0	38.6	38.4	35.4	36.6		7.2	8.1	7.6	7.0	7.8	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.57	0.54	0.27	1.37	1.46	2.56
Incremental Delay, d2	0.9	0.4	0.2	11.7	1.0		0.4	0.3	0.4	0.2	0.2	0.1
Delay (s)	36.9	39.0	38.7	47.1	37.6		4.5	4.6	2.5	9.8	11.6	17.9
Level of Service	D	D	D	D	D		A	A	A	A	B	B
Approach Delay (s)		38.2			44.3			4.0			12.1	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
9: The Gore Road & Cottrelle Boulevard

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	33	163	48	70	290	230	126	812	103	115	391	27
Future Volume (vph)	33	163	48	70	290	230	126	812	103	115	391	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.9	7.9	7.9	7.9	7.9	7.9	6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1739	3510	1435	1725	3579	1533	1748	3579	1529	1744	3510	1544
Flt Permitted	0.57	1.00	1.00	0.65	1.00	1.00	0.52	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	1051	3510	1435	1178	3579	1533	958	3579	1529	591	3510	1544
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	33	163	48	70	290	230	126	812	103	115	391	27
RTOR Reduction (vph)	0	0	38	0	0	114	0	0	37	0	0	10
Lane Group Flow (vph)	33	163	10	70	290	116	126	812	66	115	391	17
Confl. Peds. (#/hr)	9		18	18		9	2		11	11		2
Heavy Vehicles (%)	2%	4%	8%	2%	2%	2%	2%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	21.1	21.1	21.1	21.1	21.1	21.1	64.2	64.2	64.2	64.2	64.2	64.2
Effective Green, g (s)	21.1	21.1	21.1	21.1	21.1	21.1	64.2	64.2	64.2	64.2	64.2	64.2
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)	7.9	7.9	7.9	7.9	7.9	7.9	6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	221	740	302	248	755	323	615	2297	981	379	2253	991
v/s Ratio Prot		0.05			c0.08			c0.23			0.11	
v/s Ratio Perm	0.03		0.01	0.06		0.08	0.13		0.04	0.19		0.01
v/c Ratio	0.15	0.22	0.03	0.28	0.38	0.36	0.20	0.35	0.07	0.30	0.17	0.02
Uniform Delay, d1	32.1	32.6	31.3	33.1	33.9	33.7	7.4	8.3	6.7	8.0	7.2	6.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.37	0.37	0.05	1.17	1.10	6.08
Incremental Delay, d2	0.7	0.3	0.1	1.3	0.7	1.4	0.7	0.4	0.1	2.0	0.2	0.0
Delay (s)	32.8	33.0	31.4	34.4	34.6	35.1	3.4	3.5	0.5	11.3	8.1	39.4
Level of Service	C	C	C	C	C	D	A	A	A	B	A	D
Approach Delay (s)		32.6			34.8			3.2			10.4	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.7
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	23	0	11	43	0	15	42	975	87	13	482	15
Future Volume (vph)	23	0	11	43	0	15	42	975	87	13	482	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.97	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1633	1573		1741	1577		1750	3579	1513	1744	3476	1566
Flt Permitted	0.75	1.00		0.75	1.00		0.48	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	1285	1573		1375	1577		878	3579	1513	511	3476	1566
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	0	11	43	0	15	42	975	87	13	482	15
RTOR Reduction (vph)	0	10	0	0	13	0	0	0	22	0	0	4
Lane Group Flow (vph)	23	1	0	43	2	0	42	975	65	13	482	11
Confl. Peds. (#/hr)	3		6	6		3			5	5		
Heavy Vehicles (%)	9%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	11.1	11.1		11.1	11.1		74.9	74.9	74.9	74.9	74.9	74.9
Effective Green, g (s)	11.1	11.1		11.1	11.1		74.9	74.9	74.9	74.9	74.9	74.9
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.75	0.75	0.75	0.75	0.75	0.75
Clearance Time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	142	174		152	175		657	2680	1133	382	2603	1172
v/s Ratio Prot		0.00			0.00			c0.27			0.14	
v/s Ratio Perm	0.02			c0.03			0.05		0.04	0.03		0.01
v/c Ratio	0.16	0.01		0.28	0.01		0.06	0.36	0.06	0.03	0.19	0.01
Uniform Delay, d1	40.2	39.5		40.8	39.6		3.3	4.3	3.3	3.2	3.7	3.2
Progression Factor	1.00	1.00		1.00	1.00		0.34	0.39	0.07	0.77	0.89	1.00
Incremental Delay, d2	1.1	0.0		2.1	0.0		0.2	0.4	0.1	0.2	0.2	0.0
Delay (s)	41.4	39.6		42.9	39.6		1.3	2.1	0.3	2.7	3.4	3.2
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		40.8			42.1			1.9			3.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
11: The Gore Road & Don Minaker Drive/Tyler Avenue

3/17/2016

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	30	13	89	5	21	27	199	1056	12	19	479	37
Future Volume (vph)	30	13	89	5	21	27	199	1056	12	19	479	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.2	6.2		6.2	6.2		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1618		1750	1725		1750	3579	1566	1750	3544	1566
Flt Permitted	0.73	1.00		0.69	1.00		0.48	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	1337	1618		1273	1725		881	3579	1566	471	3544	1566
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	13	89	5	21	27	199	1056	12	19	479	37
RTOR Reduction (vph)	0	79	0	0	24	0	0	0	3	0	0	9
Lane Group Flow (vph)	30	23	0	5	24	0	199	1056	9	19	479	28
Confl. Peds. (#/hr)			1									
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	11.2	11.2		11.2	11.2		76.4	76.4	76.4	76.4	76.4	76.4
Effective Green, g (s)	11.2	11.2		11.2	11.2		76.4	76.4	76.4	76.4	76.4	76.4
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.76	0.76	0.76	0.76	0.76	0.76
Clearance Time (s)	6.2	6.2		6.2	6.2		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	149	181		142	193		673	2734	1196	359	2707	1196
v/s Ratio Prot		0.01			0.01			c0.30			0.14	
v/s Ratio Perm	c0.02			0.00			0.23		0.01	0.04		0.02
v/c Ratio	0.20	0.13		0.04	0.12		0.30	0.39	0.01	0.05	0.18	0.02
Uniform Delay, d1	40.3	40.0		39.6	40.0		3.6	4.0	2.8	2.9	3.2	2.8
Progression Factor	1.00	1.00		1.00	1.00		0.26	0.25	0.00	0.96	0.98	0.93
Incremental Delay, d2	1.4	0.7		0.2	0.6		1.0	0.4	0.0	0.3	0.1	0.0
Delay (s)	41.7	40.7		39.8	40.6		1.9	1.3	0.0	3.1	3.3	2.7
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		40.9			40.5			1.4			3.3	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: The Gore Road & Ebenezer Rd.

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	82	161	79	58	240	135	349	1073	68	177	507	60
Future Volume (vph)	82	161	79	58	240	135	349	1073	68	177	507	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1746	3579	1541	1694	3366		1750	3535		1750	3517	
Flt Permitted	0.43	1.00	1.00	0.65	1.00		0.40	1.00		0.19	1.00	
Satd. Flow (perm)	787	3579	1541	1159	3366		741	3535		345	3517	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	82	161	79	58	240	135	349	1073	68	177	507	60
RTOR Reduction (vph)	0	0	65	0	92	0	0	4	0	0	8	0
Lane Group Flow (vph)	82	161	14	58	283	0	349	1137	0	177	559	0
Confl. Peds. (#/hr)	4		4	4		4	1		4	4		1
Heavy Vehicles (%)	2%	2%	2%	5%	2%	2%	2%	2%	6%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.9	17.9	17.9	17.9	17.9		67.9	55.9		63.7	53.8	
Effective Green, g (s)	17.9	17.9	17.9	17.9	17.9		67.9	55.9		63.7	53.8	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.68	0.56		0.64	0.54	
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	140	640	275	207	602		624	1976		358	1892	
v/s Ratio Prot		0.04			0.08		c0.07	c0.32		0.05	0.16	
v/s Ratio Perm	c0.10		0.01	0.05			0.31			0.27		
v/c Ratio	0.59	0.25	0.05	0.28	0.47		0.56	0.58		0.49	0.30	
Uniform Delay, d1	37.6	35.3	34.0	35.5	36.8		6.6	14.3		8.8	12.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.86	0.61		1.41	0.90	
Incremental Delay, d2	9.3	0.4	0.2	1.5	1.2		1.6	1.1		2.2	0.4	
Delay (s)	47.0	35.7	34.2	37.0	38.0		7.3	9.9		14.6	11.8	
Level of Service	D	D	C	D	D		A	A		B	B	
Approach Delay (s)		38.2			37.9			9.3			12.5	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
13: The Gore Road & Fogal Road

3/17/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	85	352	1093	64	145	426
Future Volume (vph)	85	352	1093	64	145	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	7.4	7.4	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1744	1566	3579	1467	1748	3510
Flt Permitted	0.95	1.00	1.00	1.00	0.21	1.00
Satd. Flow (perm)	1744	1566	3579	1467	387	3510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	352	1093	64	145	426
RTOR Reduction (vph)	0	51	0	20	0	0
Lane Group Flow (vph)	85	301	1093	44	145	426
Confl. Peds. (#/hr)	3			3	3	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	2%	2%	2%	6%	2%	4%
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	25.4	25.4	60.4	60.4	60.4	60.4
Effective Green, g (s)	25.4	25.4	60.4	60.4	60.4	60.4
Actuated g/C Ratio	0.25	0.25	0.60	0.60	0.60	0.60
Clearance Time (s)	7.4	7.4	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	442	397	2161	886	233	2120
v/s Ratio Prot			0.31			0.12
v/s Ratio Perm	0.05	c0.19		0.03	c0.37	
v/c Ratio	0.19	0.76	0.51	0.05	0.62	0.20
Uniform Delay, d1	29.3	34.4	11.3	8.1	12.6	8.9
Progression Factor	1.00	1.00	1.00	1.00	1.13	0.66
Incremental Delay, d2	0.4	9.5	0.8	0.1	11.6	0.2
Delay (s)	29.7	43.9	12.1	8.2	25.8	6.1
Level of Service	C	D	B	A	C	A
Approach Delay (s)	41.2		11.9			11.1
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: The Gore Road & RR 107/ Queen St. E./RR 107 / Queen St. E.

3/17/2016

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	↰↰	↑↱		↰↰	↑↑	↱	↰	↑↑↑	↱	↰	↑↑↑	↱
Traffic Volume (vph)	491	389	13	247	134	79	279	1790	237	9	1578	450
Future Volume (vph)	491	389	13	247	134	79	279	1790	237	9	1578	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.1	7.1		7.1	7.1	4.0	3.0	6.9	4.0	6.9	6.9	4.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3521		3362	3579	1426	1733	4601	1566	1608	4683	1521
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	3395	3521		3362	3579	1426	125	4601	1566	125	4683	1521
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	491	389	13	247	134	79	279	1790	237	9	1578	450
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	491	400	0	247	134	79	279	1790	237	9	1578	450
Confl. Peds. (#/hr)	1		35	35						3		
Heavy Vehicles (%)	2%	3%	2%	3%	2%	12%	3%	14%	2%	11%	12%	5%
Turn Type	Split	NA		Split	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	4	4		8	8		1	6			2	
Permitted Phases						Free	6		Free	2		Free
Actuated Green, G (s)	38.9	38.9		18.9	18.9	160.0	81.1	81.1	160.0	69.1	69.1	160.0
Effective Green, g (s)	38.9	38.9		18.9	18.9	160.0	81.1	81.1	160.0	69.1	69.1	160.0
Actuated g/C Ratio	0.24	0.24		0.12	0.12	1.00	0.51	0.51	1.00	0.43	0.43	1.00
Clearance Time (s)	7.1	7.1		7.1	7.1		3.0	6.9		6.9	6.9	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	825	856		397	422	1426	153	2332	1566	53	2022	1521
v/s Ratio Prot	c0.14	0.11		c0.07	0.04		c0.10	0.39			0.34	
v/s Ratio Perm						0.06	c0.82		0.15	0.07		0.30
v/c Ratio	0.60	0.47		0.62	0.32	0.06	1.82	0.77	0.15	0.17	0.78	0.30
Uniform Delay, d1	53.6	51.7		67.2	64.6	0.0	38.8	31.8	0.0	27.9	38.9	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	1.8		7.2	2.0	0.1	395.0	2.5	0.2	6.8	3.1	0.5
Delay (s)	56.7	53.5		74.3	66.6	0.1	433.9	34.3	0.2	34.7	42.0	0.5
Level of Service	E	D		E	E	A	F	C	A	C	D	A
Approach Delay (s)		55.3			59.3			79.2			32.8	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	57.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX C

Future 2031 Intersections Capacity Analysis

	⤴	→	⤵	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (vph)	99	1475	462	32	700	37	413	234	170	540	192	93
Future Volume (vph)	99	1475	462	32	700	37	413	234	170	540	192	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1749	5142	1520	1749	5142	1545	1748	3544	1551	3092	3544	1529
Flt Permitted	0.35	1.00	1.00	0.10	1.00	1.00	0.63	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	643	5142	1520	193	5142	1545	1161	3544	1551	3092	3544	1529
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	99	1475	462	32	700	37	413	234	170	540	192	93
RTOR Reduction (vph)	0	0	248	0	0	20	0	0	61	0	0	73
Lane Group Flow (vph)	99	1475	214	32	700	17	413	234	109	540	192	20
Confl. Peds. (#/hr)	1		8	8		1	2					2
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	3%	3%	12%	3%	3%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	55.6	55.6	55.6	55.6	55.6	55.6	41.0	20.0	20.0	24.4	25.4	25.4
Effective Green, g (s)	55.6	55.6	55.6	55.6	55.6	55.6	41.0	20.0	20.0	24.4	25.4	25.4
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46	0.46	0.34	0.17	0.17	0.20	0.21	0.21
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	297	2382	704	89	2382	715	499	590	258	628	750	323
v/s Ratio Prot		c0.29			0.14		0.14	0.07		c0.17	c0.05	
v/s Ratio Perm	0.15		0.14	0.17		0.01	c0.14		0.07			0.01
v/c Ratio	0.33	0.62	0.30	0.36	0.29	0.02	0.83	0.40	0.42	0.86	0.26	0.06
Uniform Delay, d1	20.4	24.2	20.1	20.7	20.0	17.5	34.2	44.6	44.8	46.1	39.4	37.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	1.2	1.1	10.9	0.3	0.1	12.1	0.9	2.3	12.4	0.4	0.2
Delay (s)	23.4	25.5	21.2	31.7	20.3	17.5	46.2	45.5	47.2	58.5	39.8	37.9
Level of Service	C	C	C	C	C	B	D	D	D	E	D	D
Approach Delay (s)		24.4			20.7			46.2			51.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: The Gore Road & Castlemore School Exit

3/17/2016

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (vph)	0	35	0	1144	631	0
Future Volume (vph)	0	35	0	1144	631	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.7	3.7	3.5
Total Lost time (s)		7.0		7.0	7.0	
Lane Util. Factor		1.00		0.95	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	
Frt		0.85		1.00	1.00	
Flt Protected		1.00		1.00	1.00	
Satd. Flow (prot)		1545		3510	3544	
Flt Permitted		1.00		1.00	1.00	
Satd. Flow (perm)		1545		3510	3544	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	35	0	1144	631	0
RTOR Reduction (vph)	0	32	0	0	0	0
Lane Group Flow (vph)	0	3	0	1144	631	0
Confl. Peds. (#/hr)		1	33			33
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Turn Type	Perm	Perm		NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4				
Actuated Green, G (s)		8.6		77.4	77.4	
Effective Green, g (s)		8.6		77.4	77.4	
Actuated g/C Ratio		0.09		0.77	0.77	
Clearance Time (s)		7.0		7.0	7.0	
Vehicle Extension (s)		5.0		5.0	5.0	
Lane Grp Cap (vph)		132		2716	2743	
v/s Ratio Prot				c0.33	0.18	
v/s Ratio Perm		c0.00				
v/c Ratio		0.02		0.42	0.23	
Uniform Delay, d1		41.9		3.8	3.1	
Progression Factor		1.00		0.16	1.00	
Incremental Delay, d2		0.1		0.4	0.2	
Delay (s)		42.0		1.0	3.3	
Level of Service		D		A	A	
Approach Delay (s)	42.0			1.0	3.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
5: The Gore Road & Fitzpatrick Drive

3/17/2016

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱		↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	0	35	22	1122	834	4
Future Volume (Veh/h)	0	35	22	1122	834	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	35	22	1122	834	4
Pedestrians	13				1	
Lane Width (m)	3.5				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				284	181	
pX, platoon unblocked	0.79	0.96	0.96			
vC, conflicting volume	1453	430	851			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	837	336	772			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	97			
cM capacity (veh/h)	231	630	800			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	35	22	561	561	417	417	4
Volume Left	0	22	0	0	0	0	0
Volume Right	35	0	0	0	0	0	4
cSH	630	800	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.03	0.33	0.33	0.25	0.25	0.00
Queue Length 95th (m)	1.2	0.6	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.1	9.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	11.1	0.2			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	452	199	977	249	312	547
Future Volume (vph)	452	199	977	249	312	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.8	6.8	3.0	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1733	1566	3579	1566	1750	3579
Flt Permitted	0.95	1.00	1.00	1.00	0.15	1.00
Satd. Flow (perm)	1733	1566	3579	1566	268	3579
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	452	199	977	249	312	547
RTOR Reduction (vph)	0	139	0	153	0	0
Lane Group Flow (vph)	452	60	977	96	312	547
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	30.4	30.4	38.4	38.4	56.3	56.3
Effective Green, g (s)	30.4	30.4	38.4	38.4	56.3	56.3
Actuated g/C Ratio	0.30	0.30	0.38	0.38	0.56	0.56
Clearance Time (s)	6.5	6.5	6.8	6.8	3.0	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	526	476	1374	601	371	2014
v/s Ratio Prot			0.27		c0.13	0.15
v/s Ratio Perm	c0.26	0.04		0.06	c0.35	
v/c Ratio	0.86	0.13	0.71	0.16	0.84	0.27
Uniform Delay, d1	32.8	25.2	26.1	20.2	19.6	11.3
Progression Factor	1.00	1.00	1.27	3.72	1.06	1.36
Incremental Delay, d2	14.3	0.3	3.0	0.5	17.1	0.3
Delay (s)	47.1	25.4	36.1	75.8	37.9	15.6
Level of Service	D	C	D	E	D	B
Approach Delay (s)	40.5		44.1			23.7
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: The Gore Road & Strathdale Road

3/17/2016

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	36	78	12	940	930	31
Future Volume (Veh/h)	36	78	12	940	930	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	78	12	940	930	31
Pedestrians	7			2	1	
Lane Width (m)	3.5			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	1			0	0	
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (m)				266	349	
pX, platoon unblocked	0.89	0.96	0.96			
vC, conflicting volume	1432	474	968			
vC1, stage 1 conf vol	937					
vC2, stage 2 conf vol	495					
vCu, unblocked vol	1030	368	882			
tC, single (s)	6.9	7.2	4.1			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.4	2.2			
p0 queue free %	89	86	98			
cM capacity (veh/h)	341	568	727			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	78	12	470	470	465	465	31
Volume Left	36	0	12	0	0	0	0	0
Volume Right	0	78	0	0	0	0	0	31
cSH	341	568	727	1700	1700	1700	1700	1700
Volume to Capacity	0.11	0.14	0.02	0.28	0.28	0.27	0.27	0.02
Queue Length 95th (m)	2.5	3.3	0.4	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	16.8	12.3	10.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B	B					
Approach Delay (s)	13.7		0.1			0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	81	42	134	279	55	69	72	1162	260	48	758	62
Future Volume (vph)	81	42	134	279	55	69	72	1162	260	48	758	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.84	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		0.98	1.00	1.00	0.98	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1649	1731	1458	1739	1711		1723	3510	1294	1677	3510	1394
Flt Permitted	0.68	1.00	1.00	0.60	1.00		0.34	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1176	1731	1458	1104	1711		618	3510	1294	342	3510	1394
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	81	42	134	279	55	69	72	1162	260	48	758	62
RTOR Reduction (vph)	0	0	103	0	55	0	0	0	64	0	0	24
Lane Group Flow (vph)	81	42	31	279	69	0	72	1162	196	48	758	38
Confl. Peds. (#/hr)	4		12	12		4	33		98	98		33
Heavy Vehicles (%)	8%	11%	7%	2%	2%	2%	2%	4%	4%	4%	4%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	18.3	14.3	14.3	24.3	17.3		61.7	61.7	61.7	61.7	61.7	61.7
Effective Green, g (s)	18.3	14.3	14.3	24.3	17.3		61.7	61.7	61.7	61.7	61.7	61.7
Actuated g/C Ratio	0.18	0.14	0.14	0.24	0.17		0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	234	247	208	312	296		381	2165	798	211	2165	860
v/s Ratio Prot	0.01	0.02		c0.06	0.04			c0.33			0.22	
v/s Ratio Perm	0.05		0.02	c0.15			0.12		0.15	0.14		0.03
v/c Ratio	0.35	0.17	0.15	0.89	0.23		0.19	0.54	0.25	0.23	0.35	0.04
Uniform Delay, d1	35.1	37.6	37.5	36.2	35.6		8.3	11.0	8.6	8.5	9.4	7.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		2.01	2.00	3.25	0.60	0.59	0.70
Incremental Delay, d2	1.9	0.7	0.7	27.5	0.8		0.9	0.8	0.6	2.2	0.4	0.1
Delay (s)	37.0	38.3	38.2	63.7	36.5		17.6	22.7	28.7	7.4	5.9	5.4
Level of Service	D	D	D	E	D		B	C	C	A	A	A
Approach Delay (s)		37.8			55.3			23.5			6.0	
Approach LOS		D			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (vph)	290	241	394	107	218	99	67	851	182	414	836	97
Future Volume (vph)	290	241	394	107	218	99	67	851	182	414	836	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3510	1456	1745	3579	1566	1748	3579	1566	3395	3510	1542
Flt Permitted	0.62	1.00	1.00	0.60	1.00	1.00	0.34	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1134	3510	1456	1106	3579	1566	620	3579	1566	3395	3510	1542
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	290	241	394	107	218	99	67	851	182	414	836	97
RTOR Reduction (vph)	0	0	84	0	0	67	0	0	120	0	0	45
Lane Group Flow (vph)	290	241	310	107	218	32	67	851	62	414	836	52
Confl. Peds. (#/hr)			4	4			3					3
Heavy Vehicles (%)	2%	4%	8%	2%	2%	2%	2%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	32.1	32.1	32.1	32.1	32.1	32.1	34.0	34.0	34.0	14.9	53.9	53.9
Effective Green, g (s)	32.1	32.1	32.1	32.1	32.1	32.1	34.0	34.0	34.0	14.9	53.9	53.9
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.32	0.34	0.34	0.34	0.15	0.54	0.54
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	364	1126	467	355	1148	502	210	1216	532	505	1891	831
v/s Ratio Prot		0.07			0.06			c0.24		c0.12	0.24	
v/s Ratio Perm	c0.26		0.21	0.10		0.02	0.11		0.04			0.03
v/c Ratio	0.80	0.21	0.66	0.30	0.19	0.06	0.32	0.70	0.12	0.82	0.44	0.06
Uniform Delay, d1	31.0	24.8	29.3	25.5	24.5	23.5	24.4	28.6	22.7	41.2	14.0	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.03	1.89	0.98	0.60	0.33
Incremental Delay, d2	13.1	0.2	4.7	1.0	0.2	0.1	3.7	3.2	0.4	10.6	0.7	0.1
Delay (s)	44.0	25.0	34.0	26.5	24.7	23.6	25.3	32.7	43.2	51.2	9.0	3.7
Level of Service	D	C	C	C	C	C	C	C	D	D	A	A
Approach Delay (s)		34.8			24.9			34.0			21.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
10: The Gore Road & Eastbrook Way

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	19	0	48	79	0	25	8	1058	104	28	1288	15
Future Volume (vph)	19	0	48	79	0	25	8	1058	104	28	1288	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.92	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1633	1580		1748	1577		1750	3579	1441	1730	3476	1566
Flt Permitted	0.74	1.00		0.73	1.00		0.18	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	1274	1580		1336	1577		334	3579	1441	446	3476	1566
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	0	48	79	0	25	8	1058	104	28	1288	15
RTOR Reduction (vph)	0	35	0	0	21	0	0	0	27	0	0	4
Lane Group Flow (vph)	19	13	0	79	4	0	8	1058	77	28	1288	11
Confl. Peds. (#/hr)	3		1	1		3			22	22		
Heavy Vehicles (%)	9%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	14.5	14.5		14.5	14.5		71.5	71.5	71.5	71.5	71.5	71.5
Effective Green, g (s)	14.5	14.5		14.5	14.5		71.5	71.5	71.5	71.5	71.5	71.5
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72	0.72	0.72	0.72	0.72
Clearance Time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	184	229		193	228		238	2558	1030	318	2485	1119
v/s Ratio Prot		0.01			0.00			0.30			c0.37	
v/s Ratio Perm	0.01			c0.06			0.02		0.05	0.06		0.01
v/c Ratio	0.10	0.06		0.41	0.02		0.03	0.41	0.07	0.09	0.52	0.01
Uniform Delay, d1	37.1	36.9		38.9	36.6		4.2	5.8	4.3	4.3	6.5	4.1
Progression Factor	1.00	1.00		1.00	1.00		0.34	0.28	0.06	1.59	1.71	1.00
Incremental Delay, d2	0.5	0.2		2.9	0.1		0.3	0.5	0.1	0.5	0.7	0.0
Delay (s)	37.6	37.1		41.8	36.7		1.7	2.1	0.4	7.4	11.7	4.1
Level of Service	D	D		D	D		A	A	A	A	B	A
Approach Delay (s)		37.2			40.6			1.9			11.5	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	103	8	146	6	4	106	78	858	2	76	1291	83
Future Volume (vph)	103	8	146	6	4	106	78	858	2	76	1291	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.2	6.2		6.2	6.2		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1592		1745	1611		1748	3579	1530	1749	3544	1521
Flt Permitted	0.69	1.00		0.60	1.00		0.18	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	1264	1592		1094	1611		331	3579	1530	577	3544	1521
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	103	8	146	6	4	106	78	858	2	76	1291	83
RTOR Reduction (vph)	0	52	0	0	88	0	0	0	1	0	0	24
Lane Group Flow (vph)	103	102	0	6	22	0	78	858	1	76	1291	59
Confl. Peds. (#/hr)			3	3			3		1	1		3
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	16.6	16.6		16.6	16.6		71.0	71.0	71.0	71.0	71.0	71.0
Effective Green, g (s)	16.6	16.6		16.6	16.6		71.0	71.0	71.0	71.0	71.0	71.0
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.71	0.71	0.71	0.71	0.71	0.71
Clearance Time (s)	6.2	6.2		6.2	6.2		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	209	264		181	267		235	2541	1086	409	2516	1079
v/s Ratio Prot		0.06			0.01			0.24			c0.36	
v/s Ratio Perm	c0.08			0.01			0.24		0.00	0.13		0.04
v/c Ratio	0.49	0.39		0.03	0.08		0.33	0.34	0.00	0.19	0.51	0.05
Uniform Delay, d1	37.9	37.2		35.0	35.3		5.5	5.5	4.2	4.8	6.6	4.4
Progression Factor	1.00	1.00		1.00	1.00		1.97	1.80	1.00	0.28	0.41	0.05
Incremental Delay, d2	3.8	2.0		0.2	0.3		3.6	0.3	0.0	0.9	0.7	0.1
Delay (s)	41.7	39.1		35.1	35.5		14.5	10.3	4.2	2.3	3.4	0.3
Level of Service	D	D		D	D		B	B	A	A	A	A
Approach Delay (s)		40.2			35.5			10.6			3.2	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: The Gore Road & Ebenezer Rd.

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	63	137	234	11	165	29	116	737	57	203	1419	146
Future Volume (vph)	63	137	234	11	165	29	116	737	57	203	1419	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3579	1541	1694	3489		1750	3527		1750	3521	
Flt Permitted	0.63	1.00	1.00	0.67	1.00		0.09	1.00		0.30	1.00	
Satd. Flow (perm)	1155	3579	1541	1186	3489		160	3527		553	3521	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	63	137	234	11	165	29	116	737	57	203	1419	146
RTOR Reduction (vph)	0	0	120	0	17	0	0	4	0	0	6	0
Lane Group Flow (vph)	63	137	114	11	177	0	116	790	0	203	1559	0
Confl. Peds. (#/hr)	5		4	4		5	12		1	1		12
Heavy Vehicles (%)	2%	2%	2%	5%	2%	2%	2%	2%	6%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.5	16.5	16.5	16.5	16.5		65.2	56.6		69.2	58.6	
Effective Green, g (s)	16.5	16.5	16.5	16.5	16.5		65.2	56.6		69.2	58.6	
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.65	0.57		0.69	0.59	
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	190	590	254	195	575		241	1996		509	2063	
v/s Ratio Prot		0.04			0.05		c0.04	0.22		c0.04	c0.44	
v/s Ratio Perm	0.05		c0.07	0.01			0.27			0.23		
v/c Ratio	0.33	0.23	0.45	0.06	0.31		0.48	0.40		0.40	0.76	
Uniform Delay, d1	36.9	36.3	37.6	35.2	36.7		12.1	12.1		5.9	15.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.50	0.91		0.41	0.81	
Incremental Delay, d2	2.1	0.4	2.6	0.3	0.6		3.1	0.6		1.0	2.5	
Delay (s)	39.0	36.7	40.3	35.4	37.4		21.4	11.6		3.4	14.9	
Level of Service	D	D	D	D	D		C	B		A	B	
Approach Delay (s)		38.9			37.3			12.8			13.6	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
13: The Gore Road & Fogal Road

3/17/2016

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	25	54	611	98	284	1518
Future Volume (vph)	25	54	611	98	284	1518
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	7.4	7.4	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1746	1566	3579	1472	1749	3510
Flt Permitted	0.95	1.00	1.00	1.00	0.42	1.00
Satd. Flow (perm)	1746	1566	3579	1472	774	3510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	54	611	98	284	1518
RTOR Reduction (vph)	0	48	0	24	0	0
Lane Group Flow (vph)	25	6	611	74	284	1518
Confl. Peds. (#/hr)	2			1	1	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	2%	2%	2%	6%	2%	4%
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	10.3	10.3	75.5	75.5	75.5	75.5
Effective Green, g (s)	10.3	10.3	75.5	75.5	75.5	75.5
Actuated g/C Ratio	0.10	0.10	0.76	0.76	0.76	0.76
Clearance Time (s)	7.4	7.4	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	179	161	2702	1111	584	2650
v/s Ratio Prot			0.17			c0.43
v/s Ratio Perm	c0.01	0.00		0.05	0.37	
v/c Ratio	0.14	0.03	0.23	0.07	0.49	0.57
Uniform Delay, d1	40.8	40.4	3.6	3.2	4.7	5.3
Progression Factor	1.00	1.00	1.00	1.00	0.24	0.24
Incremental Delay, d2	0.7	0.2	0.2	0.1	2.2	0.7
Delay (s)	41.6	40.6	3.8	3.3	3.3	2.0
Level of Service	D	D	A	A	A	A
Approach Delay (s)	40.9		3.7			2.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: The Gore Road & RR 107 / Queen St. E./RR 107/ Queen St. E.

3/17/2016

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰↰	↑↱		↰↰	↑↑	↱
Traffic Volume (vph)	84	1755	673	34	1180	175	169	125	12	932	819	129
Future Volume (vph)	84	1755	673	34	1180	175	169	125	12	932	819	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	6.0	7.1		6.0	7.1	7.1
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	4601	1566	1608	4683	1521	3395	3490		3362	3579	1426
Flt Permitted	0.14	1.00	1.00	0.06	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	252	4601	1566	107	4683	1521	3395	3490		3362	3579	1426
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	1755	673	34	1180	175	169	125	12	932	819	129
RTOR Reduction (vph)	0	0	215	0	0	106	0	5	0	0	0	83
Lane Group Flow (vph)	84	1755	458	34	1180	69	169	132	0	932	819	46
Confl. Peds. (#/hr)				6			6		18	18		
Heavy Vehicles (%)	3%	14%	2%	11%	12%	5%	2%	3%	2%	3%	2%	12%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6						4
Actuated Green, G (s)	74.0	65.1	65.1	70.2	63.2	63.2	14.5	38.9		26.0	50.4	50.4
Effective Green, g (s)	74.0	65.1	65.1	70.2	63.2	63.2	14.5	38.9		26.0	50.4	50.4
Actuated g/C Ratio	0.46	0.41	0.41	0.44	0.40	0.40	0.09	0.24		0.16	0.31	0.31
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	6.0	7.1		6.0	7.1	7.1
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	198	1872	637	112	1849	600	307	848		546	1127	449
v/s Ratio Prot	c0.02	c0.38		0.01	0.25		0.05	0.04		c0.28	c0.23	
v/s Ratio Perm	0.17		0.29	0.12		0.05						0.03
v/c Ratio	0.42	0.94	0.72	0.30	0.64	0.12	0.55	0.16		1.71	0.73	0.10
Uniform Delay, d1	26.9	45.5	39.8	32.4	39.2	30.7	69.6	47.6		67.0	48.7	38.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.0	10.5	6.9	3.2	1.7	0.4	3.6	0.4		325.9	4.1	0.5
Delay (s)	29.9	56.0	46.7	35.6	40.9	31.1	73.2	48.0		392.9	52.8	39.3
Level of Service	C	E	D	D	D	C	E	D		F	D	D
Approach Delay (s)		52.6			39.5			61.9			220.5	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	101.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	116.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: The Gore Road & Castlemore Road

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (vph)	143	727	278	127	1646	517	273	513	44	62	252	146
Future Volume (vph)	143	727	278	127	1646	517	273	513	44	62	252	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	5142	1530	1749	5142	1545	1750	3544	1551	3092	3544	1551
Flt Permitted	0.08	1.00	1.00	0.36	1.00	1.00	0.60	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	151	5142	1530	670	5142	1545	1097	3544	1551	3092	3544	1551
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	727	278	127	1646	517	273	513	44	62	252	146
RTOR Reduction (vph)	0	0	144	0	0	173	0	0	31	0	0	87
Lane Group Flow (vph)	143	727	134	127	1646	344	273	513	13	62	252	59
Confl. Peds. (#/hr)	1		1	1		1						
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	3%	3%	12%	3%	3%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6		6	8		8			4
Actuated Green, G (s)	57.7	57.7	57.7	45.7	45.7	45.7	35.9	35.9	35.9	6.4	48.3	48.3
Effective Green, g (s)	57.7	57.7	57.7	45.7	45.7	45.7	35.9	35.9	35.9	6.4	48.3	48.3
Actuated g/C Ratio	0.48	0.48	0.48	0.38	0.38	0.38	0.30	0.30	0.30	0.05	0.40	0.40
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	192	2472	735	255	1958	588	328	1060	464	164	1426	624
v/s Ratio Prot	c0.06	0.14			c0.32			0.14		c0.02	0.07	
v/s Ratio Perm	0.30		0.09	0.19		0.22	c0.25		0.01			0.04
v/c Ratio	0.74	0.29	0.18	0.50	0.84	0.58	0.83	0.48	0.03	0.38	0.18	0.09
Uniform Delay, d1	24.2	18.8	17.7	28.4	33.8	29.6	39.2	34.5	29.7	54.9	23.1	22.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.1	0.3	0.5	6.8	4.6	4.2	18.0	0.7	0.1	3.0	0.1	0.1
Delay (s)	41.4	19.1	18.3	35.2	38.4	33.8	57.2	35.2	29.8	57.9	23.2	22.4
Level of Service	D	B	B	D	D	C	E	D	C	E	C	C
Approach Delay (s)		21.7			37.2			42.1			27.6	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: The Gore Road & Castlemore School Exit

3/17/2016

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑↑	↑↑	
Traffic Volume (vph)	4	11	0	897	866	0
Future Volume (vph)	4	11	0	897	866	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.7	3.7	3.5
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1566		3510	3544	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1566		3510	3544	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	11	0	897	866	0
RTOR Reduction (vph)	0	11	0	0	0	0
Lane Group Flow (vph)	4	0	0	897	866	0
Confl. Peds. (#/hr)			12			12
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Turn Type	Perm	Perm		NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4				
Actuated Green, G (s)	3.4	3.4		82.6	82.6	
Effective Green, g (s)	3.4	3.4		82.6	82.6	
Actuated g/C Ratio	0.03	0.03		0.83	0.83	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	59	53		2899	2927	
v/s Ratio Prot				c0.26	0.24	
v/s Ratio Perm	c0.00	0.00				
v/c Ratio	0.07	0.01		0.31	0.30	
Uniform Delay, d1	46.8	46.7		2.0	2.0	
Progression Factor	1.00	1.00		0.33	1.00	
Incremental Delay, d2	1.0	0.1		0.3	0.3	
Delay (s)	47.8	46.8		0.9	2.3	
Level of Service	D	D		A	A	
Approach Delay (s)	47.0			0.9	2.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

5: The Gore Road & Fitzpatrick Drive

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↱		↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	4	11	14	865	866	4
Future Volume (Veh/h)	4	11	14	865	866	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	11	14	865	866	4
Pedestrians	12					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				284	181	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	1338	445	882			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1034	319	778			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	98			
cM capacity (veh/h)	211	638	788			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	14	432	432	433	433	4
Volume Left	4	14	0	0	0	0	0
Volume Right	11	0	0	0	0	0	4
cSH	415	788	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.02	0.25	0.25	0.25	0.25	0.00
Queue Length 95th (m)	0.8	0.4	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	14.0	9.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	14.0	0.2			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: The Gore Road & Castle Oaks Crossing

3/17/2016

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	128	55	922	193	57	664
Future Volume (vph)	128	55	922	193	57	664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	6.5	6.5	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1733	1566	3579	1566	1750	3579
Flt Permitted	0.95	1.00	1.00	1.00	0.29	1.00
Satd. Flow (perm)	1733	1566	3579	1566	543	3579
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	128	55	922	193	57	664
RTOR Reduction (vph)	0	47	0	54	0	0
Lane Group Flow (vph)	128	8	922	139	57	664
Heavy Vehicles (%)	3%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			2			6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	14.6	14.6	72.1	72.1	72.1	72.1
Effective Green, g (s)	14.6	14.6	72.1	72.1	72.1	72.1
Actuated g/C Ratio	0.15	0.15	0.72	0.72	0.72	0.72
Clearance Time (s)	6.5	6.5	6.8	6.8	6.8	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	253	228	2580	1129	391	2580
v/s Ratio Prot			c0.26			0.19
v/s Ratio Perm	c0.07	0.01		0.09	0.11	
v/c Ratio	0.51	0.04	0.36	0.12	0.15	0.26
Uniform Delay, d1	39.4	36.7	5.2	4.3	4.3	4.8
Progression Factor	1.00	1.00	1.05	1.43	0.99	1.00
Incremental Delay, d2	3.3	0.1	0.4	0.2	0.8	0.2
Delay (s)	42.7	36.8	5.9	6.3	5.1	5.0
Level of Service	D	D	A	A	A	A
Approach Delay (s)	40.9		6.0			5.0
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
7: The Gore Road & Strathdale Road

3/17/2016

	↗	↘	↖	↑	↓	↙
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Volume (veh/h)	39	43	103	925	981	32
Future Volume (Veh/h)	39	43	103	925	981	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	39	43	103	925	981	32
Pedestrians	11					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	TWLTL	
Median storage veh)					2	
Upstream signal (m)				266	349	
pX, platoon unblocked	0.90	0.98	0.98			
vC, conflicting volume	1660	502	1024			
vC1, stage 1 conf vol	992					
vC2, stage 2 conf vol	668					
vCu, unblocked vol	1389	440	975			
tC, single (s)	6.9	7.2	4.1			
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.4	2.2			
p0 queue free %	86	92	85			
cM capacity (veh/h)	281	515	680			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	39	43	103	462	462	490	490	32
Volume Left	39	0	103	0	0	0	0	0
Volume Right	0	43	0	0	0	0	0	32
cSH	281	515	680	1700	1700	1700	1700	1700
Volume to Capacity	0.14	0.08	0.15	0.27	0.27	0.29	0.29	0.02
Queue Length 95th (m)	3.3	1.9	3.7	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	19.9	12.6	11.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B	B					
Approach Delay (s)	16.1		1.1			0.0		
Approach LOS	C							

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

3/17/2016

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	69	23	84	267	78	48	68	936	242	57	1097	67
Future Volume (vph)	69	23	84	267	78	48	68	936	242	57	1097	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.86	1.00	1.00	0.90
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00		0.99	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1644	1731	1468	1745	1761		1725	3510	1316	1663	3510	1348
Flt Permitted	0.68	1.00	1.00	0.63	1.00		0.22	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	1170	1731	1468	1162	1761		393	3510	1316	475	3510	1348
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	23	84	267	78	48	68	936	242	57	1097	67
RTOR Reduction (vph)	0	0	66	0	27	0	0	0	74	0	0	25
Lane Group Flow (vph)	69	23	18	267	99	0	68	936	168	57	1097	42
Confl. Peds. (#/hr)	10		5	5		10	55		88	88		55
Heavy Vehicles (%)	8%	11%	7%	2%	2%	2%	2%	4%	4%	4%	4%	7%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	17.8	13.8	13.8	22.6	16.2		62.8	62.8	62.8	62.8	62.8	62.8
Effective Green, g (s)	17.8	13.8	13.8	22.6	16.2		62.8	62.8	62.8	62.8	62.8	62.8
Actuated g/C Ratio	0.18	0.14	0.14	0.23	0.16		0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)	3.0	7.0	7.0	3.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	227	238	202	299	285		246	2204	826	298	2204	846
v/s Ratio Prot	0.01	0.01		c0.06	0.06			0.27			c0.31	
v/s Ratio Perm	0.04		0.01	c0.14			0.17		0.13	0.12		0.03
v/c Ratio	0.30	0.10	0.09	0.89	0.35		0.28	0.42	0.20	0.19	0.50	0.05
Uniform Delay, d1	35.3	37.7	37.6	37.2	37.2		8.4	9.4	7.9	7.9	10.1	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.99	1.01	1.93	1.12	1.17	1.36
Incremental Delay, d2	1.6	0.4	0.4	28.2	1.5		2.1	0.5	0.4	1.4	0.8	0.1
Delay (s)	36.8	38.0	38.0	65.4	38.8		10.4	10.0	15.7	10.2	12.5	9.8
Level of Service	D	D	D	E	D		B	B	B	B	B	A
Approach Delay (s)		37.6			56.8			11.1			12.3	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
9: The Gore Road & Cottrelle Boulevard

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (vph)	70	181	46	247	543	456	140	895	112	311	1116	211
Future Volume (vph)	70	181	46	247	543	456	140	895	112	311	1116	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	7.0	5.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1744	3510	1437	1728	3579	1534	1750	3579	1529	3395	3510	1544
Flt Permitted	0.36	1.00	1.00	0.64	1.00	1.00	0.15	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	669	3510	1437	1160	3579	1534	278	3579	1529	3395	3510	1544
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	181	46	247	543	456	140	895	112	311	1116	211
RTOR Reduction (vph)	0	0	32	0	0	155	0	0	69	0	0	90
Lane Group Flow (vph)	70	181	14	247	543	301	140	895	43	311	1116	121
Confl. Peds. (#/hr)	9		18	18		9	2		11	11		2
Heavy Vehicles (%)	2%	4%	8%	2%	2%	2%	2%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			6
Actuated Green, G (s)	31.4	31.4	31.4	31.4	31.4	31.4	46.9	38.6	38.6	11.0	43.3	43.3
Effective Green, g (s)	31.4	31.4	31.4	31.4	31.4	31.4	46.9	38.6	38.6	11.0	43.3	43.3
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.31	0.47	0.39	0.39	0.11	0.43	0.43
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	210	1102	451	364	1123	481	252	1381	590	373	1519	668
v/s Ratio Prot		0.05			0.15		0.05	0.25		c0.09	c0.32	
v/s Ratio Perm	0.10		0.01	c0.21		0.20	0.21		0.03			0.08
v/c Ratio	0.33	0.16	0.03	0.68	0.48	0.63	0.56	0.65	0.07	0.83	0.73	0.18
Uniform Delay, d1	26.3	24.8	23.8	29.9	27.7	29.3	17.1	25.1	19.4	43.6	23.6	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	2.10	1.45	4.17	0.89	1.11	1.00
Incremental Delay, d2	2.0	0.1	0.1	6.4	0.7	3.6	4.2	2.2	0.2	14.8	2.9	0.5
Delay (s)	28.2	25.0	23.8	36.3	28.4	32.9	40.2	38.6	81.2	53.7	29.0	17.9
Level of Service	C	C	C	D	C	C	D	D	F	D	C	B
Approach Delay (s)		25.6			31.6			43.0			32.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	28	0	13	51	0	18	50	1078	104	20	1506	23
Future Volume (vph)	28	0	13	51	0	18	50	1078	104	20	1506	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.97	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1633	1573		1741	1577		1750	3579	1513	1745	3476	1566
Flt Permitted	0.75	1.00		0.75	1.00		0.14	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	1282	1573		1372	1577		250	3579	1513	444	3476	1566
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	28	0	13	51	0	18	50	1078	104	20	1506	23
RTOR Reduction (vph)	0	11	0	0	16	0	0	0	26	0	0	6
Lane Group Flow (vph)	28	2	0	51	2	0	50	1078	78	20	1506	17
Confl. Peds. (#/hr)	3		6	6		3			5	5		
Heavy Vehicles (%)	9%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	13.2	13.2		13.2	13.2		72.8	72.8	72.8	72.8	72.8	72.8
Effective Green, g (s)	13.2	13.2		13.2	13.2		72.8	72.8	72.8	72.8	72.8	72.8
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.73	0.73	0.73	0.73	0.73	0.73
Clearance Time (s)	8.0	8.0		8.0	8.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	169	207		181	208		182	2605	1101	323	2530	1140
v/s Ratio Prot		0.00			0.00			0.30			c0.43	
v/s Ratio Perm	0.02			c0.04			0.20		0.05	0.05		0.01
v/c Ratio	0.17	0.01		0.28	0.01		0.27	0.41	0.07	0.06	0.60	0.01
Uniform Delay, d1	38.5	37.7		39.1	37.7		4.6	5.3	3.9	3.9	6.5	3.7
Progression Factor	1.00	1.00		1.00	1.00		0.74	0.68	0.66	0.51	0.65	1.55
Incremental Delay, d2	1.0	0.0		1.8	0.0		3.4	0.4	0.1	0.3	0.8	0.0
Delay (s)	39.5	37.7		40.9	37.8		6.8	4.0	2.7	2.3	5.1	5.8
Level of Service	D	D		D	D		A	A	A	A	A	A
Approach Delay (s)		38.9			40.1			4.0			5.0	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
11: The Gore Road & Don Minaker Drive/Tyler Avenue

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (vph)	36	16	106	6	24	32	195	1195	14	29	1457	99
Future Volume (vph)	36	16	106	6	24	32	195	1195	14	29	1457	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.2	6.2		6.2	6.2		3.0	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1619		1750	1722		1750	3579	1566	1750	3544	1566
Flt Permitted	0.72	1.00		0.67	1.00		0.10	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	1327	1619		1238	1722		192	3579	1566	435	3544	1566
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	36	16	106	6	24	32	195	1195	14	29	1457	99
RTOR Reduction (vph)	0	92	0	0	28	0	0	0	4	0	0	40
Lane Group Flow (vph)	36	30	0	6	28	0	195	1195	10	29	1457	59
Confl. Peds. (#/hr)			1									
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	13.0	13.0		13.0	13.0		74.6	74.6	74.6	59.8	59.8	59.8
Effective Green, g (s)	13.0	13.0		13.0	13.0		74.6	74.6	74.6	59.8	59.8	59.8
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.75	0.75	0.75	0.60	0.60	0.60
Clearance Time (s)	6.2	6.2		6.2	6.2		3.0	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	172	210		160	223		327	2669	1168	260	2119	936
v/s Ratio Prot		0.02			0.02		c0.07	0.33			c0.41	
v/s Ratio Perm	c0.03			0.00			0.37		0.01	0.07		0.04
v/c Ratio	0.21	0.14		0.04	0.13		0.60	0.45	0.01	0.11	0.69	0.06
Uniform Delay, d1	38.9	38.6		38.0	38.5		12.4	4.8	3.2	8.7	13.7	8.4
Progression Factor	1.00	1.00		1.00	1.00		3.20	0.52	0.10	1.71	1.30	3.18
Incremental Delay, d2	1.3	0.7		0.2	0.5		3.3	0.4	0.0	0.7	1.6	0.1
Delay (s)	40.2	39.2		38.2	39.0		43.2	2.9	0.3	15.5	19.4	26.8
Level of Service	D	D		D	D		D	A	A	B	B	C
Approach Delay (s)		39.4			38.9			8.5			19.8	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.4
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰	↑↱		↰	↑↱	
Traffic Volume (vph)	75	175	72	60	248	177	446	1122	37	333	1156	113
Future Volume (vph)	75	175	72	60	248	177	446	1122	37	333	1156	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1746	3579	1541	1694	3333		1750	3555		1750	3527	
Flt Permitted	0.36	1.00	1.00	0.64	1.00		0.10	1.00		0.16	1.00	
Satd. Flow (perm)	670	3579	1541	1144	3333		185	3555		295	3527	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	175	72	60	248	177	446	1122	37	333	1156	113
RTOR Reduction (vph)	0	0	59	0	145	0	0	2	0	0	7	0
Lane Group Flow (vph)	75	175	13	60	280	0	446	1157	0	333	1262	0
Confl. Peds. (#/hr)	4		4	4		4	1		4	4		1
Heavy Vehicles (%)	2%	2%	2%	5%	2%	2%	2%	2%	6%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.9	17.9	17.9	17.9	17.9		68.8	45.5		57.2	36.9	
Effective Green, g (s)	17.9	17.9	17.9	17.9	17.9		68.8	45.5		57.2	36.9	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.69	0.46		0.57	0.37	
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7		3.0	6.6		3.0	6.6	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	119	640	275	204	596		579	1617		464	1301	
v/s Ratio Prot		0.05			0.08		c0.22	0.33		0.15	c0.36	
v/s Ratio Perm	c0.11		0.01	0.05			0.31			0.26		
v/c Ratio	0.63	0.27	0.05	0.29	0.47		0.77	0.72		0.72	0.97	
Uniform Delay, d1	38.0	35.4	34.0	35.6	36.8		24.7	22.0		16.4	31.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.94	1.75		0.96	1.41	
Incremental Delay, d2	14.2	0.5	0.1	1.7	1.2		5.3	2.0		5.0	15.8	
Delay (s)	52.1	35.9	34.1	37.3	38.0		28.6	40.6		20.7	59.6	
Level of Service	D	D	C	D	D		C	D		C	E	
Approach Delay (s)		39.3			37.9			37.2			51.5	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
13: The Gore Road & Fogal Road

3/17/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑	↱	↰	↑↑
Traffic Volume (vph)	74	31	1486	81	261	958
Future Volume (vph)	74	31	1486	81	261	958
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.7	3.5	3.5	3.7
Total Lost time (s)	7.4	7.4	6.8	6.8	3.0	6.8
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1744	1566	3579	1467	1750	3510
Flt Permitted	0.95	1.00	1.00	1.00	0.08	1.00
Satd. Flow (perm)	1744	1566	3579	1467	147	3510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	31	1486	81	261	958
RTOR Reduction (vph)	0	27	0	19	0	0
Lane Group Flow (vph)	74	4	1486	62	261	958
Confl. Peds. (#/hr)	3			3	3	
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	2%	2%	2%	6%	2%	4%
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8		2	6	
Actuated Green, G (s)	11.9	11.9	54.3	54.3	73.9	73.9
Effective Green, g (s)	11.9	11.9	54.3	54.3	73.9	73.9
Actuated g/C Ratio	0.12	0.12	0.54	0.54	0.74	0.74
Clearance Time (s)	7.4	7.4	6.8	6.8	3.0	6.8
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	207	186	1943	796	374	2593
v/s Ratio Prot			c0.42		c0.12	0.27
v/s Ratio Perm	c0.04	0.00		0.04	0.40	
v/c Ratio	0.36	0.02	0.76	0.08	0.70	0.37
Uniform Delay, d1	40.5	38.9	17.9	10.9	24.5	4.7
Progression Factor	1.00	1.00	1.00	1.00	2.48	0.11
Incremental Delay, d2	2.2	0.1	2.9	0.2	3.2	0.2
Delay (s)	42.7	39.0	20.8	11.1	63.8	0.7
Level of Service	D	D	C	B	E	A
Approach Delay (s)	41.6		20.3			14.2
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: The Gore Road & RR 107 / Queen St. E./RR 107/ Queen St. E.

3/17/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱	↰	↑↑↑	↱	↰↰	↑↱		↰↰	↑↑	↱
Traffic Volume (vph)	241	1756	307	9	1665	528	491	353	32	400	342	157
Future Volume (vph)	241	1756	307	9	1665	528	491	353	32	400	342	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5	3.5	3.7	3.5
Total Lost time (s)	3.0	6.9	6.9	3.0	6.9	6.9	6.0	7.1		6.0	7.1	7.1
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	4601	1566	1608	4683	1521	3395	3486		3362	3579	1426
Flt Permitted	0.06	1.00	1.00	0.07	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	114	4601	1566	115	4683	1521	3395	3486		3362	3579	1426
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	241	1756	307	9	1665	528	491	353	32	400	342	157
RTOR Reduction (vph)	0	0	164	0	0	211	0	4	0	0	0	114
Lane Group Flow (vph)	241	1756	143	9	1665	317	491	381	0	400	342	43
Confl. Peds. (#/hr)				3			1		35	35		
Heavy Vehicles (%)	3%	14%	2%	11%	12%	5%	2%	3%	2%	3%	2%	12%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6						4
Actuated Green, G (s)	79.1	74.4	74.4	62.8	61.1	61.1	22.0	46.9		14.0	38.9	38.9
Effective Green, g (s)	79.1	74.4	74.4	62.8	61.1	61.1	22.0	46.9		14.0	38.9	38.9
Actuated g/C Ratio	0.49	0.47	0.47	0.39	0.38	0.38	0.14	0.29		0.09	0.24	0.24
Clearance Time (s)	3.0	6.9	6.9	3.0	6.9	6.9	6.0	7.1		6.0	7.1	7.1
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	208	2139	728	61	1788	580	466	1021		294	870	346
v/s Ratio Prot	c0.11	0.38		0.00	0.36		c0.14	c0.11		c0.12	0.10	
v/s Ratio Perm	c0.46		0.09	0.06		0.21						0.03
v/c Ratio	1.16	0.82	0.20	0.15	0.93	0.55	1.05	0.37		1.36	0.39	0.13
Uniform Delay, d1	51.2	37.0	25.2	32.1	47.4	38.6	69.0	44.9		73.0	50.7	47.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	111.8	3.7	0.6	2.3	10.2	3.7	56.5	1.0		182.8	1.3	0.7
Delay (s)	163.0	40.7	25.8	34.5	57.7	42.3	125.5	45.9		255.8	52.0	48.0
Level of Service	F	D	C	C	E	D	F	D		F	D	D
Approach Delay (s)		51.5			53.9			90.5			142.0	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	70.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX D

Future 2031 Queue Analysis

SimTraffic Simulation Summary
Future 2031 AM Peak Hour r11-4

3/17/2016

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:20	7:20	7:20	7:20	7:20	7:20
End Time	8:30	8:30	8:30	8:30	8:30	8:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	14176	14002	14134	14010	14110	14088
Vehs Exited	13787	13786	13852	13712	13783	13784
Starting Vehs	797	748	766	782	744	764
Ending Vehs	1186	964	1048	1080	1071	1070
Travel Distance (km)	26201	26082	25966	25961	25928	26027
Travel Time (hr)	1191.0	1145.5	1178.7	1251.3	1207.3	1194.8
Total Delay (hr)	712.1	669.6	705.0	777.4	733.7	719.5
Total Stops	22829	22708	22351	23771	22745	22886
Fuel Used (l)	2539.7	2496.6	2533.4	2583.5	2539.0	2538.4

Interval #0 Information Seeding

Start Time	7:20
End Time	7:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	14176	14002	14134	14010	14110	14088
Vehs Exited	13787	13786	13852	13712	13783	13784
Starting Vehs	797	748	766	782	744	764
Ending Vehs	1186	964	1048	1080	1071	1070
Travel Distance (km)	26201	26082	25966	25961	25928	26027
Travel Time (hr)	1191.0	1145.5	1178.7	1251.3	1207.3	1194.8
Total Delay (hr)	712.1	669.6	705.0	777.4	733.7	719.5
Total Stops	22829	22708	22351	23771	22745	22886
Fuel Used (l)	2539.7	2496.6	2533.4	2583.5	2539.0	2538.4

Intersection: 2: The Gore Road & Castlemore Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	82.3	108.8	107.9	108.0	96.7	29.4	54.0	53.4	53.2	17.0	119.1	63.2
Average Queue (m)	24.2	67.1	71.7	69.6	34.5	11.5	31.3	33.5	29.1	5.3	63.1	19.6
95th Queue (m)	53.4	98.3	99.5	97.6	68.4	25.9	47.1	48.9	48.7	14.3	105.7	43.1
Link Distance (m)		1730.2	1730.2	1730.2			1666.8	1666.8	1666.8			196.8
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	75.0				90.0	70.0				130.0	130.0	
Storage Blk Time (%)		3		1	0						0	
Queuing Penalty (veh)		3		3	0						0	

Intersection: 2: The Gore Road & Castlemore Road

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (m)	45.0	40.2	93.5	97.0	113.1	57.9	23.9
Average Queue (m)	23.1	17.6	61.0	67.3	23.4	15.2	8.6
95th Queue (m)	39.5	32.6	94.0	96.9	68.6	38.8	18.3
Link Distance (m)	196.8				548.0	548.0	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)		60.0	90.0	90.0			35.0
Storage Blk Time (%)	0		0	2		0	0
Queuing Penalty (veh)	0		0	2		0	0

Intersection: 4: The Gore Road & Castlemore School Exit

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	T
Maximum Queue (m)	16.2	14.0	80.1	34.7	25.6
Average Queue (m)	6.2	0.8	7.0	3.3	2.5
95th Queue (m)	14.2	6.9	41.3	18.4	14.1
Link Distance (m)	114.9	168.7	168.7	68.1	68.1
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: The Gore Road & Fitzpatrick Drive

Movement	EB	NB	NB	NB	SB	SB
Directions Served	LR	L	T	T	T	T
Maximum Queue (m)	14.1	10.4	50.9	11.9	4.9	1.8
Average Queue (m)	5.3	3.1	1.8	0.6	0.2	0.1
95th Queue (m)	11.9	10.2	31.1	7.3	2.9	1.8
Link Distance (m)	299.8		271.1	271.1	168.7	168.7
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)		40.0				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: The Gore Road & Castle Oaks Crossing

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (m)	149.4	53.5	125.7	155.3	97.5	37.4	100.1	79.1
Average Queue (m)	85.8	20.5	83.9	101.4	54.6	34.3	52.1	32.6
95th Queue (m)	140.8	39.5	118.9	143.7	115.0	43.4	97.8	66.0
Link Distance (m)	319.8	319.8	336.8	336.8			271.1	271.1
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)					90.0	30.0		
Storage Blk Time (%)				14	0	38	2	
Queuing Penalty (veh)				35	1	105	7	

Intersection: 7: The Gore Road & Strathdale Road

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (m)	16.3	24.6	10.3	3.2	1.8	6.7	9.2	1.3
Average Queue (m)	6.1	9.2	1.4	0.1	0.1	0.3	0.5	0.0
95th Queue (m)	14.0	18.5	6.7	2.3	1.3	3.3	4.9	0.9
Link Distance (m)	183.1	183.1		251.6	251.6	336.8	336.8	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			60.0					35.0
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	T	R	L	T	T
Maximum Queue (m)	22.4	57.3	40.8	52.4	160.1	72.3	141.6	154.9	42.5	34.4	51.5	53.1
Average Queue (m)	12.5	13.9	15.7	46.4	74.9	18.0	80.9	93.4	31.1	10.6	26.5	24.3
95th Queue (m)	24.6	42.5	32.0	61.6	168.0	52.3	128.5	141.9	58.6	24.0	50.2	47.3
Link Distance (m)		176.9			157.2		434.7	434.7			251.6	251.6
Upstream Blk Time (%)					9							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	15.0		35.0	45.0		65.0			35.0	45.0		
Storage Blk Time (%)	19	8	0	43	1	0	13	27	0		1	2
Queuing Penalty (veh)	33	17	1	53	2	0	9	71	1		0	1

Intersection: 8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

Movement	SB
Directions Served	R
Maximum Queue (m)	36.1
Average Queue (m)	7.2
95th Queue (m)	19.8
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	40.0
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 9: The Gore Road & Cottrelle Boulevard

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (m)	87.4	152.9	144.7	87.3	39.3	38.9	30.8	28.9	37.3	104.5	108.6	67.5
Average Queue (m)	61.5	51.1	38.6	48.9	19.1	20.6	11.7	11.1	17.6	57.5	64.6	31.1
95th Queue (m)	96.7	143.0	123.6	83.2	35.4	35.7	24.9	21.6	39.0	90.7	99.4	74.6
Link Distance (m)		231.9	231.9			303.8	303.8			302.5	302.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	80.0			80.0	85.0			65.0	30.0			60.0
Storage Blk Time (%)	21	0	0	2					2	19	7	0
Queuing Penalty (veh)	25	1	0	3					7	13	12	0

Intersection: 9: The Gore Road & Cottrelle Boulevard

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (m)	70.9	72.6	71.4	60.9	15.4
Average Queue (m)	41.1	45.2	31.1	30.6	4.9
95th Queue (m)	62.5	66.0	55.4	52.6	11.7
Link Distance (m)			434.7	434.7	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0	80.0			155.0
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	1			

Intersection: 10: The Gore Road & Eastbrook Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (m)	17.2	16.6	27.1	37.2	10.4	46.8	61.4	35.7	21.4	131.1	134.0	31.2
Average Queue (m)	4.7	7.0	15.6	6.5	1.3	14.4	18.7	5.1	4.9	52.1	52.1	2.7
95th Queue (m)	13.1	14.8	27.9	24.1	6.2	34.7	43.4	18.7	14.6	102.6	104.4	16.7
Link Distance (m)		80.3		171.5		285.7	285.7			302.5	302.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	20.0		20.0		40.0			40.0	200.0			40.0
Storage Blk Time (%)	1	0	13	0		1	1	0		0	10	0
Queuing Penalty (veh)	0	0	3	0		0	1	0		0	2	0

Intersection: 11: The Gore Road & Don Minaker Drive/Tyler Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (m)	38.7	53.1	10.9	30.4	41.2	68.6	74.2	12.6	57.3	166.3	159.0	55.4
Average Queue (m)	20.5	20.2	1.2	12.9	16.1	29.5	37.1	0.5	19.7	50.8	48.1	12.4
95th Queue (m)	36.4	38.5	6.1	24.3	33.8	58.6	68.0	6.6	66.8	176.8	174.9	70.9
Link Distance (m)		188.7		197.0		550.2	550.2			285.7	285.7	
Upstream Blk Time (%)										1	1	
Queuing Penalty (veh)										8	7	
Storage Bay Dist (m)	45.0		30.0		40.0			40.0	90.0			120.0
Storage Blk Time (%)	1	0		0	1	3	6	0	0	10	9	0
Queuing Penalty (veh)	1	0		0	3	2	0	0	0	8	7	0

Intersection: 12: The Gore Road & Ebenezer Rd.

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (m)	26.9	27.2	28.6	78.2	16.1	30.4	33.6	31.8	71.6	78.8	57.4	554.4
Average Queue (m)	11.0	12.1	10.3	35.2	2.8	14.9	15.9	15.0	32.6	35.3	41.9	307.4
95th Queue (m)	23.3	22.2	22.9	64.5	10.8	25.0	28.2	27.9	57.0	60.9	75.1	636.5
Link Distance (m)		759.7	759.7			821.2	821.2		388.3	388.3		550.2
Upstream Blk Time (%)												5
Queuing Penalty (veh)												35
Storage Bay Dist (m)	100.0			85.0	45.0			128.0			50.0	
Storage Blk Time (%)				0		0					1	49
Queuing Penalty (veh)				0		0					4	99

Intersection: 12: The Gore Road & Ebenezer Rd.

Movement	SB
Directions Served	TR
Maximum Queue (m)	554.3
Average Queue (m)	301.1
95th Queue (m)	637.2
Link Distance (m)	550.2
Upstream Blk Time (%)	5
Queuing Penalty (veh)	33
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: The Gore Road & Fogal Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (m)	23.0	18.5	42.2	47.1	34.0	167.5	397.9	397.5
Average Queue (m)	7.9	6.6	11.8	11.9	5.5	131.7	302.7	297.3
95th Queue (m)	18.2	14.1	31.3	31.3	17.6	236.5	526.9	528.6
Link Distance (m)	492.4	492.4	204.8	204.8			388.3	388.3
Upstream Blk Time (%)							13	10
Queuing Penalty (veh)							112	84
Storage Bay Dist (m)					35.0	160.0		
Storage Blk Time (%)				0	0	0	56	
Queuing Penalty (veh)				0	0	1	158	

Intersection: 15: The Gore Road & RR 107 / Queen St. E./RR 107/ Queen St. E.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	L	L	T
Maximum Queue (m)	144.4	206.0	198.3	171.2	132.5	60.6	153.0	135.5	103.8	53.4	57.5	35.2
Average Queue (m)	31.1	137.8	128.4	107.7	31.5	11.8	98.0	86.3	56.7	18.8	35.1	14.8
95th Queue (m)	92.5	185.0	174.1	156.2	93.0	36.8	136.6	124.9	94.4	47.5	54.6	28.0
Link Distance (m)		415.0	415.0	415.0			259.6	259.6	259.6			245.6
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	150.0				150.0	140.0				60.0	60.0	
Storage Blk Time (%)	0	5		0	0		0			0	0	
Queuing Penalty (veh)	0	4		1	0		0			0	0	

Intersection: 15: The Gore Road & RR 107 / Queen St. E./RR 107/ Queen St. E.

Movement	NB	SB	SB	SB	SB	SB
Directions Served	TR	L	L	T	T	R
Maximum Queue (m)	30.2	85.0	92.5	275.3	254.2	87.5
Average Queue (m)	12.7	84.0	92.1	271.3	91.6	13.8
95th Queue (m)	26.1	88.3	93.1	277.2	183.9	66.2
Link Distance (m)	245.6			269.8	269.8	
Upstream Blk Time (%)				52	0	
Queuing Penalty (veh)				401	3	
Storage Bay Dist (m)		77.5	77.5			80.0
Storage Blk Time (%)		29	69	7	11	0
Queuing Penalty (veh)		119	284	67	15	0

Zone Summary

Zone wide Queuing Penalty: 1873

SimTraffic Simulation Summary
Future 2031 PM Peak Hour r11-4

3/17/2016

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:20	4:20	4:20	4:20	4:20	4:20
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	14845	14822	14999	14740	14585	14796
Vehs Exited	14444	14471	14717	14466	14300	14478
Starting Vehs	914	891	936	839	859	883
Ending Vehs	1315	1242	1218	1113	1144	1201
Travel Distance (km)	27657	28055	28173	28139	27485	27902
Travel Time (hr)	1111.5	1090.7	1092.0	1011.5	1071.4	1075.4
Total Delay (hr)	604.2	575.0	574.2	494.3	565.2	562.6
Total Stops	26115	25760	24855	23462	24713	24988
Fuel Used (l)	2579.3	2587.3	2599.3	2518.5	2549.0	2566.7

Interval #0 Information Seeding

Start Time	4:20
End Time	4:30
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	14845	14822	14999	14740	14585	14796
Vehs Exited	14444	14471	14717	14466	14300	14478
Starting Vehs	914	891	936	839	859	883
Ending Vehs	1315	1242	1218	1113	1144	1201
Travel Distance (km)	27657	28055	28173	28139	27485	27902
Travel Time (hr)	1111.5	1090.7	1092.0	1011.5	1071.4	1075.4
Total Delay (hr)	604.2	575.0	574.2	494.3	565.2	562.6
Total Stops	26115	25760	24855	23462	24713	24988
Fuel Used (l)	2579.3	2587.3	2599.3	2518.5	2549.0	2566.7

Intersection: 2: The Gore Road & Castlemore Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	T
Maximum Queue (m)	61.5	48.5	53.3	49.3	35.6	77.3	143.0	151.1	164.5	129.8	113.8	65.3
Average Queue (m)	27.2	26.3	29.8	25.4	17.0	45.6	94.1	99.6	101.4	60.0	52.0	36.7
95th Queue (m)	52.0	42.3	47.0	43.6	28.6	86.7	130.7	135.2	137.0	104.8	92.0	60.3
Link Distance (m)		1730.2	1730.2	1730.2			1666.8	1666.8	1666.8			196.8
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	75.0				90.0	70.0				130.0	130.0	
Storage Blk Time (%)	0					0	17		1	0	0	
Queuing Penalty (veh)	0					0	21		5	0	0	

Intersection: 2: The Gore Road & Castlemore Road

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (m)	67.3	22.8	30.3	33.5	39.2	39.9	37.8
Average Queue (m)	39.5	4.7	6.6	14.0	16.4	16.5	15.3
95th Queue (m)	62.6	14.8	19.4	27.9	30.5	31.7	31.6
Link Distance (m)	196.8				548.0	548.0	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)		60.0	90.0	90.0			35.0
Storage Blk Time (%)	2	0				0	1
Queuing Penalty (veh)	1	0				0	1

Intersection: 4: The Gore Road & Castlemore School Exit

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (m)	8.7	9.8	31.6	61.7	31.6	35.6
Average Queue (m)	1.0	2.2	1.1	5.8	2.5	3.2
95th Queue (m)	5.3	8.5	17.2	32.9	15.2	17.7
Link Distance (m)	114.9	114.9	168.7	168.7	68.1	68.1
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: The Gore Road & Fitzpatrick Drive

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (m)	7.7	10.3
Average Queue (m)	2.9	1.9
95th Queue (m)	8.6	7.9
Link Distance (m)	299.8	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		40.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: The Gore Road & Castle Oaks Crossing

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (m)	47.7	23.1	48.7	52.8	15.9	27.2	42.3	47.9
Average Queue (m)	24.1	7.4	12.1	17.6	4.9	9.7	14.4	18.0
95th Queue (m)	41.9	16.0	31.4	41.3	13.3	21.0	33.1	37.1
Link Distance (m)	319.8	319.8	336.8	336.8			271.1	271.1
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)					90.0	30.0		
Storage Blk Time (%)						0	1	
Queuing Penalty (veh)						0	1	

Intersection: 7: The Gore Road & Strathdale Road

Movement	EB	EB	NB	SB
Directions Served	L	R	L	R
Maximum Queue (m)	24.5	18.2	22.8	4.4
Average Queue (m)	7.6	6.1	10.2	0.3
95th Queue (m)	17.4	13.9	20.4	2.6
Link Distance (m)	183.1	183.1		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)			60.0	35.0
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	T	R	L	T	T
Maximum Queue (m)	22.4	54.3	38.0	52.4	143.0	33.1	80.5	94.7	42.5	46.2	99.1	96.8
Average Queue (m)	12.2	12.2	11.7	43.9	56.4	12.6	36.0	42.4	20.3	13.3	50.3	50.2
95th Queue (m)	22.8	39.4	25.5	62.6	137.1	27.1	73.8	85.3	49.1	35.0	89.2	89.3
Link Distance (m)		176.9			157.2		434.7	434.7			251.6	251.6
Upstream Blk Time (%)					4							
Queuing Penalty (veh)					0							
Storage Bay Dist (m)	15.0		35.0	45.0		65.0			35.0	45.0		
Storage Blk Time (%)	18	6	0	28	3		1	7	0	0	9	10
Queuing Penalty (veh)	19	10	0	36	7		1	18	1	0	5	7

Intersection: 8: The Gore Road & Pannahill Drive/Gardenbrooke Trail

Movement	SB
Directions Served	R
Maximum Queue (m)	47.5
Average Queue (m)	11.8
95th Queue (m)	38.2
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	40.0
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 9: The Gore Road & Cottrelle Boulevard

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (m)	35.2	37.0	28.8	25.3	88.7	121.4	108.1	72.0	57.4	114.4	111.9	67.5
Average Queue (m)	15.1	20.5	6.6	8.0	52.8	49.6	45.2	47.1	30.6	71.9	75.9	32.7
95th Queue (m)	29.4	33.6	18.7	19.6	86.9	93.9	89.0	74.2	61.5	105.0	106.0	78.9
Link Distance (m)		231.9	231.9			303.8	303.8			302.5	302.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	80.0			80.0	85.0			65.0	50.0			60.0
Storage Blk Time (%)					4	0	0	3	0	21	18	0
Queuing Penalty (veh)					10	0	0	9	0	30	20	0

Intersection: 9: The Gore Road & Cottrelle Boulevard

Movement	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R
Maximum Queue (m)	60.8	87.3	130.2	122.7	30.6
Average Queue (m)	34.6	43.7	63.1	63.5	11.2
95th Queue (m)	59.1	75.2	112.5	109.7	23.2
Link Distance (m)			434.7	434.7	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0	80.0			155.0
Storage Blk Time (%)	0	2	1	0	
Queuing Penalty (veh)	1	11	4	0	

Intersection: 10: The Gore Road & Eastbrook Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (m)	19.3	9.8	23.7	26.6	34.5	51.3	52.9	39.8	53.1	162.4	166.3	30.8
Average Queue (m)	6.1	2.5	10.2	3.4	10.8	16.9	18.8	4.1	7.8	49.6	48.7	2.3
95th Queue (m)	15.5	8.0	20.2	14.1	25.4	40.4	44.1	19.1	49.9	144.0	145.1	16.3
Link Distance (m)		80.3		171.5		285.7	285.7			302.5	302.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	20.0		20.0		40.0			40.0	200.0			40.0
Storage Blk Time (%)	1		3	0	0	1	1	0		2	10	0
Queuing Penalty (veh)	0		1	0	0	0	1	0		0	2	0

Intersection: 11: The Gore Road & Don Minaker Drive/Tyler Avenue

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	R	L	T	T	R
Maximum Queue (m)	22.1	52.5	9.9	27.6	45.3	55.7	51.3	12.4	97.4	288.3	287.5	127.5
Average Queue (m)	8.2	19.2	1.1	9.8	22.2	17.8	20.7	0.6	19.4	156.7	150.9	42.9
95th Queue (m)	19.3	37.2	5.9	21.2	41.1	42.7	43.0	7.0	75.7	296.9	297.0	135.7
Link Distance (m)		188.7		197.0		550.2	550.2			285.7	285.7	
Upstream Blk Time (%)										4	4	
Queuing Penalty (veh)										32	28	
Storage Bay Dist (m)	45.0		30.0		40.0			40.0	90.0			120.0
Storage Blk Time (%)		1		0	3	0	1	0	0	35	25	0
Queuing Penalty (veh)		0		0	17	1	0	0	0	10	24	1

Intersection: 12: The Gore Road & Ebenezer Rd.

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (m)	34.7	25.7	30.0	25.5	33.4	44.4	65.5	135.4	282.3	272.5	57.4	557.0
Average Queue (m)	15.1	14.2	13.5	8.8	13.9	22.7	35.3	117.7	172.0	155.3	54.7	432.6
95th Queue (m)	29.7	24.1	26.1	18.7	28.8	37.9	56.5	161.1	316.6	291.9	68.4	677.7
Link Distance (m)		759.7	759.7			821.2	821.2		388.3	388.3		550.2
Upstream Blk Time (%)									0			5
Queuing Penalty (veh)									0			37
Storage Bay Dist (m)	100.0			85.0	45.0			128.0			50.0	
Storage Blk Time (%)					0	0		35	2		11	54
Queuing Penalty (veh)					0	0		198	7		62	180

Intersection: 12: The Gore Road & Ebenezer Rd.

Movement	SB
Directions Served	TR
Maximum Queue (m)	558.2
Average Queue (m)	427.0
95th Queue (m)	678.5
Link Distance (m)	550.2
Upstream Blk Time (%)	3
Queuing Penalty (veh)	26
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: The Gore Road & Fogal Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (m)	39.5	17.1	138.8	141.4	42.5	70.8	111.1	115.7
Average Queue (m)	15.3	4.3	77.9	68.0	13.0	38.7	19.1	19.1
95th Queue (m)	31.2	11.5	133.2	123.8	39.7	63.3	73.2	74.1
Link Distance (m)	492.4	492.4	204.8	204.8			388.3	388.3
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)					35.0	160.0		
Storage Blk Time (%)				18	0			
Queuing Penalty (veh)				15	0			

Intersection: 15: The Gore Road & RR 107 / Queen St. E./RR 107/ Queen St. E.

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	T	T	T	R	L	L
Maximum Queue (m)	157.4	376.5	363.2	317.0	94.1	93.9	247.2	232.1	198.6	114.1	67.5	74.9
Average Queue (m)	147.0	292.5	274.0	156.5	4.2	5.9	179.2	162.9	120.0	14.3	66.7	74.5
95th Queue (m)	182.7	492.2	466.1	318.5	45.7	45.0	244.4	229.8	183.9	74.6	69.5	75.8
Link Distance (m)		415.0	415.0	415.0			259.6	259.6	259.6			
Upstream Blk Time (%)		8	0	0			1	0	0			
Queuing Penalty (veh)		0	0	0			0	0	0			
Storage Bay Dist (m)	150.0				150.0	140.0				150.0	60.0	60.0
Storage Blk Time (%)	70	2		0	0		22		1	0	29	76
Queuing Penalty (veh)	409	5		1	0		2		5	0	51	133

Intersection: 15: The Gore Road & RR 107 / Queen St. E./RR 107/ Queen St. E.

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	TR	L	L	T	T	R
Maximum Queue (m)	259.3	247.5	85.0	92.5	274.4	179.2	9.8
Average Queue (m)	233.8	181.6	81.3	89.6	205.9	47.2	0.3
95th Queue (m)	289.8	287.8	92.8	101.2	354.0	114.3	6.9
Link Distance (m)	245.6	245.6			269.8	269.8	
Upstream Blk Time (%)	51	2			32	0	
Queuing Penalty (veh)	0	0			146	0	
Storage Bay Dist (m)			77.5	77.5			80.0
Storage Blk Time (%)	1		25	75	0		
Queuing Penalty (veh)	7		43	128	0		

Zone Summary

Zone wide Queuing Penalty: 1794

Appendix E

Transportation Safety Assessment and Photos

AECOM

Figure A1 – Straight and Flat Alignment, Wide Through Lanes, and Expansive Right-of-Way (Looking South at North of Don Minaker Drive / Tyler Avenue)

Figure A2 – Crosswalks Intersecting in Travelled Portion of Roadways – Intersection of Castlemore Road and The Gore Road (South-West Corner)

Figure A3 – Pedestrian Signal Head and Push-Button (Shown at Far End) Not Aligned with Edge of South Crosswalk

Figure A4 – Improper Positioning of MAXIMUM SPEED LIMIT BEGINS Sign – Section between Castlemore Road and Castlemore Public School Intersection

Figure A5 – Too Many Regulatory and Warning Signs - Section between Castlemore Road and Castlemore Public School Intersection

Figure A6 – Non-Standard MAXIMUM SPEED ENDS Sign - Section between Castlemore Road and Castlemore Public School Intersection

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Figure A24 – Crosswalks Intersecting in Travelled Portion of Roadways – Intersection of The Gore Road and Cottrelle Boulevard (Southwest Corner)

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Figure A33 — Unusual Placement of Pedestrian Push-Button Device (without Snow Clearing) and Poor Snow Clearing on Sidewalk Access to Crosswalk – Intersection of The Gore Road and Fogal Road (Southwest Corner)

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Figure A37 – Signage Does Not Clearly Denote Right-of-Way Between Pedestrians and Vehicles – Intersection of The Gore Road and Queen Street (Northwest Corner)

Appendix F

Terrestrial Investigations

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Memorandum

To	File	Page	1 to 13
CC			
Subject	The Gore Road Municipal Class Environmental: Existing Terrestrial Conditions		
From	Tom Shorney, Terrestrial Ecologist, AECOM		
Date	October 20th, 2014	Project Number	60311637

1. Introduction

AECOM has been retained by the Region of Peel to conduct a Schedule 'C' Class Environmental Assessment for The Gore Road from Queen Street to just north of Castlemore Road within the City of Brampton. The Gore Road runs north to south and includes a range of land uses including residential, institutional, commercial and agricultural (future urban development). A site visit was conducted to determine the existing terrestrial conditions throughout the study area. The following memorandum has been compiled using a combination of background information and field investigations pertaining to natural heritage.

1.1 Study Area

The study area is located within the Region of Peel along The Gore Road in the City of Brampton between Queen Street and Castlemore Road. The Gore Road runs in a north – south direction, which includes a combination of residential, institutional and agricultural land uses.

2. Background Overview

A background review of natural heritage features for the study area was conducted to determine the extent of available information and to provide an understanding of existing terrestrial features within the study area. The review included a search of the City of Brampton Official Plan, the Ministry of Natural Resources and Forestry (MNRF) Species at Risk (SAR) website, communications with MNRF—Aurora District and Toronto Region Conservation Authority (TRCA), a search of the Atlas of the Breeding Birds of Ontario and Department of Fisheries and Oceans (DFO) Species at Risk mapping

2.1 City of Brampton Official Plan

According to the City of Brampton's Official Plan Schedule A: General Land Use Designations, Schedule E: Major Recreational Open Space and Schedule D: Natural Heritage Features and Areas the study area includes a couple key features important to land development in the area. Lands designated as valleylands/watercourses corridors in the City of Brampton Official Plan are intended primarily for the preservation and conservation of the natural features, functions and linkages. Although development is generally prohibited within valleylands and watercourse corridors, there are some existing uses and some permitted uses that must be recognized. There are small fragments of woodlands and urban forest in the study area closely linked with the watercourse corridors. In the context of Brampton, the urban forest refers to the mix of the remnants of native forest cover and planted trees and vegetation on all private and public lands in and around the built-up areas. The urban forest is valued for its ecological, social and economic benefits. At the intersection of Castlemore Road and The Gore Road, the northeast corner is designated as a community park.

In consultation with TRCA, site alteration within some natural features is permitted during construction.

2.2 Species at Risk and Species of Conservation Concern

Methods used to complete the Species at Risk Screening include the use of several available data sources to help identify potential SAR within the study area. Data is collected from the MNRF SAR online database for the Region of Peel. This information was used and supplemented with records obtained from correspondence with MNRF and a search of the Atlas of Breeding Birds of Ontario. Once the list of potential species is finalized preferred habitat characteristics for each species is recorded using data from the significant wildlife habitat technical guide, SAR registry, Royal Ontario Museum, individual reports published by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and the MNRF SAR website. The list of potential species is then screened for available preferred habitat within the study area through the confirmation of existing conditions completed during field investigations.

2.2.1 Species at Risk Act

The *Species At Risk Act* (*SARA*) is a national wide regulation. The goal of *SARA* is to monitor and protect disappearing species; provide recovery strategies for extirpated, endangered or threatened species, as well as to manage species of special concern. *SARA* is to be consulted when there is a need for permits and scientific/educational activities involving the handling of wildlife (Environment Canada, 2012).

- **Extirpated** - a species that no longer exists in the wild in Canada, but exists elsewhere in the wild (SARA Registry, 2012).
- **Endangered** - a species that is facing imminent extirpation or extinction (SARA Registry, 2012).
- **Threatened** - a species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction (SARA Registry, 2012).
- **Special Concern** - a species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats (SARA Registry, 2012).

2.2.2 Endangered Species Act

The 2007 *Endangered Species Act* (*ESA*) provides a protection and recovery strategy for SAR in Ontario. Methods of protection include protection of SAR habitat; support for private and public organizations; recovery of species; and strict enforcement (Ontario, 2012). The *ESA* regulation applies to extirpated, endangered and threatened species. Species of Special Concern are not protected under the *ESA*.

2.2.3 Species of Conservation Concern

The Provincial Rank (SRANK) is used by the Natural Heritage Information Centre (NHIC) as a protection tool for rare species and natural communities. The SRANK is not a legal designation. The status, rarity and urgency of conservation are evaluated by NHIC on a continual basis (NHIC, 2012). The rankings are as follows:

- S1: Critically Imperiled – Species critically imperiled due to extreme rarity.
- S2: Imperiled – Species imperiled due to restricted range, very few populations or steep declines.
- S3: Vulnerable – Species vulnerable due to a restricted range, relatively few populations and/or population decline.

2.3 Ministry of Natural Resources – Aurora District

On February 5, 2014 an information request was sent to Jackie Burkart, District Planner with the Aurora District MNRF pertaining to the following information: natural areas (Environmentally Sensitive Areas, Provincially Significant Wetland (PSW), Areas of Natural and Scientific Interest (ANSI), Significant Woodlands); recovery strategies; presences of critical habitat; Species at Risk; evaluated wetlands including wetland evaluation records; watercourse thermal regimes; and fish records.

A response was received on February 12, 2014 from Jackie Burkart providing the following information:

- No known Species at Risk; and
- The watercourse is considered to be warmwater.

A request for further information has been made, no response has been received.

2.4 Breeding Bird Atlas of Ontario

Formal breeding bird surveys were not completed for the study area; however, the Atlas of Breeding Birds of Ontario provides a tool where existing breeding bird data for 10 km squares can be downloaded. This information can then be used to target specific breeding birds for the area during detailed design. Square number 17PJ04 generated a total of 105 bird species which were identified within the project study area. Of the identified species four (4) are listed as threatened including Barn Swallow, Bobolink, Chimney Swift and Eastern Meadowlark which are protected under the *ESA*. One (1) Species of Special Concern (Common Nighthawk) was found on the Species at Risk List and is not protected under the *Endangered Species Act*. However efforts should be made to ensure they are not harmed during construction

Attachment A presents a list of breeding birds for square 17PJ04.

2.5 Toronto Region Conservation Authority

On February 5, 2014 an information request was sent to Elyssa Elton and Joe Halloran, Planning Ecologists with the TRCA pertaining to the following information: natural areas (ESA, PSW, ANSI, Significant Woodlands); recovery strategies; presences of critical habitat; Species at Risk; and evaluated wetlands including wetland evaluation records.

A response was received from Sharon Lingertat, Senior Planner of the TRCA on February 13, 2014. The following information was attached to her response:

- Shapefiles pertaining to natural cover and terrestrial natural heritage system.
- Flood line mapping.
- Fish records collected along The Gore Road between Castlemore Road and Queen Street.
- Regulation limits.

3. Existing Conditions

The following presents the results of fieldwork undertaken to determine the existing conditions along The Gore Road between Queen Street and Castlemore Road.

3.1 Methods

Terrestrial Assessment - Terrestrial field investigations were completed on December 5th, 2013 and August 26th, 2014 which included; a) vegetation community assessment; b) a compilation of a floral species list; c) wetland community assessment; and d) wildlife assessment.

a) *Vegetation community assessments* were focused primarily on where watercourse crossings were present. Surveys were completed at a minimum distance of 50 metres (m) from The Gore Road at each water crossing (1 at Castlemore Road and 3 along The Gore Road). The communities within these areas were assessed and defined into Ecological Land Classification (ELC) units as per the Ministry of Natural Resources and Forestry (Lee *et al*.., 1998);

b) *A floral species list* was collected during the vegetation community assessment noting all species within the study area.

c) *Wetland community assessments* were used to determine the presence/absence of wetland communities within the subject site and included a combination of flora surveys and vegetation community assessments. These focused on determining relative abundance of wetland species and understanding site hydrology. Wetland species are those that prefer temporary/permanent wet conditions. Wetland community boundaries were drawn at the 50/50 junction of wetland versus upland species abundance. This follows the guidelines developed by the Ontario Ministry of Natural Resources and Forestry Wetland Evaluation Manual for Southern Ontario (2013, 3rd edition).

d) *Wildlife Assessments* were completed through incidental observations during field investigations throughout the study area.

3.2 Results

The following presents the results of the terrestrial and wildlife assessments. The descriptions refer to the conditions observed along The Gore Road.

3.2.1 Terrestrial Conditions

Ecological Land Classification (ELC)

A total of nine (9) ELC communities were delineated along the entirety of the study area. They are defined as: CUM1: Mineral Cultural Meadow Ecosite; CUM1-1: Dry-Moist Old Field Meadow Type; CUT1: Mineral Cultural Thicket Ecosite; FOD7-2: Fresh-Moist Ash Lowland Deciduous Forest Type; FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest Type; FOD7-4: Fresh-Moist Black Walnut Lowland Deciduous Forest Type; MAS2-1: Cattail Mineral Shallow Marsh Type ;MAM2-2: Reed-canary Grass Mineral Meadow Marsh Type and SWT2: Willow Mineral Deciduous Thicket Swamp Ecosite. A detailed description of each of these communities is presented below.

CUM1: Mineral Cultural Meadow Ecosite – This community appears to have been previously cleared of any woody vegetation. The community is dominated by herbaceous species characteristic of disturbed areas. Refuse was observed scattered throughout these areas. The dominant herbaceous species present include wild carrot (*Daucus carota*), yellow wood-sorrel (*Oxalis stricta*), common plantain (*Plantago major*), vetch species (*Vicia sp.*), reed-canary grass (*Phalaris arundinacea*) and grass species.

CUM1-1: Dry-Moist Old Field Meadow Type – This community is found throughout the study area and presents species typically found within communities disturbed in nature. The canopy layer which covered 0-10% of the community includes species such as white spruce (*Picea glauca*), green ash (*Fraxinus pennsylvanica*), trembling aspen (*Populus tremuloides*) and white elm (*Ulmus Americana*). The shrub layer which covered 0-10% of the community was comprised of species such as red-osier dogwood (*Cornus sericea*), beaked hazel (*corylus cornuta*) and common buckthorn (*Rhamnus cathartica*). The herbaceous layer which covered greater than 60% of the community was dominated by species such as reed-canary grass, yellow foxtail (*Setaria pumila*), wild carrot, black medick (*Medicago lupulina*), yellow wood-sorrel, common plantain, spotted knapweed (*Centaurea biebersteinii*), Canada thistle (*Cirsium arevense*), tall white lettuce (*Prenanthes altissima*), Canada goldenrod (*Solidago canadensis*), aster species (*Symphyotrichum sp.*), sunflower species (*Heliantheus sp.*), common milkweed (*Asclepias syriaca*), red clover (*Triflorum pretense*) and common mullein (*Verbascum thapsus*).

CUT1: Mineral Cultural Thicket Ecosite – This community was found in one location, located north of Strathdale Road. The thicket community was surrounded by a willow lowland deciduous forest. The shrub layer which covered greater than 25% of the community was dominated by common buckthorn (*Rhamnus cathartica*). The herbaceous layer which covered greater than 60% of the community includes species such as purple loosestrife (*Lythrum salicaria*), common plaintain, yellow wood-sorrel and heath aster (*Symphyotrichum ericoides*).

FOD7-2: Fresh-Moist Ash Lowland Deciduous Forest Type – This community was typically found within riparian areas along the West Humber River Tributary which is prone to seasonal flooding. In general, the vegetation was limited to very narrow strips along this aquatic system. The canopy layer which covered greater than 60% of the community was dominated by green ash with associates such as Manitoba maple (*Acer negundo*) and willow species (*Salix sp.*). The shrub layer which covered between 10-25% of the community was dominated by common buckthorn and riverbank grape (*Vitis riparia*). The herbaceous layer which covered between 25-60% of the community includes species such as goldenrod species, wild cucumber (*Echinocystis lobata*) and reed-canary grass.

FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest Type – This community was found within a greenspace on either side of Don Minaker Drive west of The Gore Road. Vegetation was found along the riparian zone of the West Humber River Tributary. The canopy layer which covered greater than 60% of the community was dominated by willow species with associates such as Manitoba maple, green ash, white elm and black locust (*Robinia pseudo-acacia*). The shrub layer which covered between 10-25% of the community included species such as common buckthorn and riverbank grape. The herbaceous layer which covered greater than 60% of the community included species such as reed-canary grass, tall white lettuce, Canada goldenrod, garlic mustard (*Aliaria petiolata*), wild cucumber and common plantain.

FOD7-4: Fresh-Moist Black Walnut Lowland Deciduous Forest Type – This community was very small located just east of Strathdale road, on the east side of the West Humber River Tributary. During investigations, an abundance of downed woody debris and refuse was observed. The canopy layer which covered greater than 60% of the community was dominated by black walnut (*Juglans nigra*). The shrub layer which covered between 10-25% of the community included species such as common buckthorn, riverbank grape, tartarian honeysuckle (*Lonicera tatarica*), red raspberry (*Rubus ideaus*), and wild cucumber. The herbaceous layer which covered between 10-25% of the community included species such as garlic mustard (*Allaria petiolata*), beggar's tick (*Bidens frondosa*) and avens species (*Geum sp.*).

MAS2-1: Cattail Mineral Shallow Marsh Type – This community was generally found within the West Humber River Tributary and was generally 2-3 metres wide. At the time of the investigations the water levels were relatively high and vegetation was partially submerged. The herbaceous species found within this community included broad-leaved cattail (*Typha latifolia*), sedge species (*Carex sp.*), spotted jewelweed (*Impatiens capensis*) and purple loosestrife.

MAM2-2: Reed-canary Grass Mineral Meadow Marsh Type – This community was typically very narrow and found along the edge of the West Humber River Tributary. The herbaceous species found within this community included reed-canary grass, broad-leaved cattail, purple loosestrife, spotted jewelweed, tall white lettuce and Canada goldenrod.

SWT2: Willow Mineral Deciduous Thicket Swamp Ecosite – This community was found in a low lying area east of Strathdale Road. The vegetation throughout this community was very dense with saturated soils. The shrub layer which covered greater than 60% of the community was dominated by sandbar willow (*Salix exigua*) which was approximately 6m in height. Other associates included wild cucumber, riverbank grape and red raspberry. The herbaceous layer which covered between 10-25% of the community included species such as heath aster, jewelweed and reed-canary grass.

Figures 1 - 5 provides aerial photographs with delineated ELC communities.
Attachment B provides a list of vascular plants observed at time of investigations.
Attachment C provides a photographic log of the terrestrial environment.

Wetland Communities

The wetland communities observed within the study area include meadow marsh, shallow marsh and thicket swamp vegetation types. These community types were closely related to the West Humber River Tributary typically found within the riparian zone. None of the wetland features observed were larger than 2 ha in size. Since they are less than 0.5 ha in size and do not contain any significant ecological habitat attributes, a Wetland Evaluation according to the Ministry of Natural Resources and Forestry Wetland Evaluation guidelines is not required. However, MNRF should be consulted on this issue during detailed design. A notation/description of vegetation species which were observed within these communities is provided as part of the ELC designations above and the plant list provided in **Attachment B**. The wetland boundary coincides with the ELC wetland community boundaries and can be seen on **Figure 1**. The water input to these wetland communities primarily consist of water contained within the West Humber River Tributary.

3.2.2 Incidental Wildlife Observations

During field observations, seven (7) common bird species and evidence of three (3) mammal species were observed throughout the study area during investigations. **Table 1** presents the incidental wildlife observations.

Table 1: Incidental wildlife observations

Common name	Scientific name
Birds	
American Goldfinch	*Spinus tristis*
Black-capped Chickadee	*Poecile atricapillus*
Blue Jay	*Cyanocitta cristata*
Cliff Swallow (nests)	*Petrochelidon pyrrhonota*
Mourning Dove	*Zenaida macroura*
Ring-billed Gull	*Larus delawarensis*
White-breasted Nuthatch	*Sitta carolinensis*
Mammals	
Coyote (tracks)	*Canis latrans*
Raccoon (scat)	*Procyon lotor*
Squirrel species (nest)	*Sciurus sp.*

During field investigations, cliff swallow nests were observed within cement box culverts along The Gore Road. These structures contained 90^{o} angles at each corner which is ideal for mud nest construction. Cliff Swallows (*Petrochelidon* pyrrhonota) typically contain the entrance pointing downwards shaped as a tunnel (Emlen, 1954). These characteristics were observed during field investigations under the bridge along The Gore Road north of Castlemore Road. Refer to pictures in the photographic log **(Attachment C)** for evidence of cliff swallow nests. The Significant Wildlife Habitat Guide (MNRF, 2000) states that colonial-nesting bird's (cliff swallow) which breed within man-made structures do not qualify as Significant Wildlife Habitat.

None of the evidence/species found during incidental wildlife observations are considered to be significant within Ontario and/or Peel Region.

3.3 Species at Risk Screening

A list of SAR known to occur within the Region of Peel was obtained from the MNRF SAR website, and then supplemented with the records obtained from the Atlas of Breeding Birds of Ontario to create a full list of potential SAR species located within the study area.

Attachment D presents the SAR Habitat Assessment.

Based on the combination of agency correspondence and background information, a total of twenty five (25) SAR were determined to potentially occur within the Region of Peel. Following the terrestrial characterization of the study area through background review and field investigations, a habitat assessment was completed for these species to assess whether suitable habitat is present in the study area. It was determined that six (6) species have the potential, based on habitat preferences, to be found within the study area. Of these, three (3) are listed as Threatened (THR) and three (3) are listed as Special Concern (SC) which can be seen below in **Table 2**. Although the species listed as SC are not legally protected under the *ESA,* it is important to also have regard for these species and their habitats due to their conservation status and to avoid future implications should the species status change under the *ESA* (2007).

Table 2: SAR habitat assessment

Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat	Probability of Occurring at or within 100m of the Site
Barn Swallow	THR	No Status	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces. This species can typically be associated with the following ELC communities: TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; containing or adjacent structures that are suitable for nesting.	**High** Potentially suitable nesting habitat may be present underneath the 4 box culverts within the study area. The locations include: 1) the culvert on The Gore Road north of Castlemore Road; 2) the culvert on Castlemore Road west of The Gore Road; 3) the culvert on The Gore Road north of Strathdale Road; and 4) the culvert on The Gore Road south of Strathdale Road. This species typically produces mud nests in the corners of cement box culverts. This species/nests was not observed during incidental wildlife observations.

Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat	Probability of Occurring at or within 100m of the Site
Chimney swift	THR	THR Schedule 1	THR	Formerly nested in the trunks of large, hollow trees. Today, mainly use chimneys or abandoned buildings as nesting sites. May forage over wide variety of habitats. It requires dead trees >30 cm for roosting and possibly nesting. Where swifts observed foraging only, is not significant habitat. Foraging habitat for this species can be associated with the following ELC communities: TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1 containing or adjacent structures with suitable nesting habitat (i.e., chimneys).	**Low** Suitable habitat may be present within the study area due to the close proximity of residential dwellings along The Gore Road. No formal breeding bird surveys were completed. This species was not observed during incidental wildlife observations.
Eastern Meadowlark	THR	No Status	THR	Most common in native grasslands, savannah, old fields, hayfields, lightly grazed pastures, weedy meadows, fields with occasional shrubs. Minimum area of grassland required is about 5 ha. This species can be associated with the following ELC communities: TPO, TPS, CUM1, MAM2 and MAS2.	**Low** Suitable habitat is present within the study area. The majority of habitat (old cultural meadow) is located along the southern portions of The Gore Road. These areas are disturbed in nature and considered to be of minimum size. No formal breeding bird surveys were completed. This species was not observed during incidental wildlife observations.

Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat	Probability of Occurring at or within 100m of the Site
Eastern Ribbonsnake	SC	SC Schedule 1	SC	The Eastern Ribbonsnake is usually found close to water, especially in marshes, where it hunts for frogs and small fish. A good swimmer, it will dive in shallow water, especially if it is fleeing from a potential predator. At the onset of cold weather, these snakes congregate in underground burrows or rock crevices to hibernate together. This species can typically be associated with the following ELC communities: FOC, FOM, FOD, SWC, SWM, SWD, MAM, MAS, OAO, SAS, SAM and SAF containing or near year round standing or flowing water.	**Low** Suitable habitat may be present within the study area. The riparian areas along the West Humber River Tributary provides suitable habitat for this species. The Gore Road is a very busy road which could deter this species from inhabiting the area. No formal snake surveys were completed. This species was not observed during incidental wildlife observations.
Milksnake	SC	SC Schedule 1	SC	The Milksnake can be found in a range of habitats including rocky outcrops, fields and forest edges. In southern Ontario, it is often found in old farm fields and farm buildings where there is an abundance of mice. The Milksnake hibernates underground, in rotting logs or in the foundations of old buildings. This species can be associated with the following ELC communities: BL, TA, AL, RB, TP, FOC, FOM and FOD.	**Medium** Suitable habitat may be present within the study area. The cultural meadow habitat within the southern portion of the study area could provide ideal habitat for this species. No formal snake surveys were completed. This species was not observed during incidental wildlife observations.

Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat	Probability of Occurring at or within 100m of the Site
Snapping turtle	SC	SC Schedule 1	SC	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. This species can typically be associated with the following ELC communities: OAO, SA near gravelly or sandy areas.	**Low** Suitable habitat may be present within the study area. The stormwater management facility (SWMF) to the east of The Gore Road provides ideal habitat for this species. No formal turtle surveys were completed. This species was not observed during incidental wildlife observations.

The listed species above are further discussed in the recommendations (Section 5) portion of the report.

4. Summary of Environmental Conditions

The following is a summary of existing conditions observed during field investigations.

Terrestrial Conditions – The study area along The Gore Road consists of a combination of low density residential dwellings as well as urban greenspace. The natural environment was comprised of a total of nine (9) ELC community types. They are defined as: CUM1: Mineral Cultural Meadow Ecosite; CUM1-1: Dry-Moist Old Field Meadow Type; CUT1: Mineral Cultural Thicket Ecosite; FOD7-2: Fresh-Moist Ash Lowland Deciduous Forest Type; FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest Type; FOD7-4: Fresh-Moist Black Walnut Lowland Deciduous Forest Type; MAS2-1: Cattail Mineral Shallow Marsh Type ;MAM2-2: Reed-canary Grass Mineral Meadow Marsh Type and SWT2: Willow Mineral Deciduous Thicket Swamp Ecosite. None of the above communities are considered to be rare within the Region of Peel or Provincially Significant.

All of the wetland communities found along The Gore Road are less than 0.5 ha in size. Following the Ontario Wetland Evaluation System (OWES) protocol only wetlands greater than 2 ha in size require an evaluation. Since they are less than 0.5 ha in size and do not contain any significant ecological habitat attributes, a Wetland

Evaluation according to the Ministry of Natural Resources and Forestry Wetland Evaluation guidelines is not required. However, MNRF should be consulted on this issue during detailed design.

All plant species observed within these communities are common throughout Ontario. No SAR were observed.

Wildlife Conditions – Formal wildlife surveys were not completed, however incidental wildlife observations were made during field surveys. Seven (7) common bird species were observed which include American Goldfinch, Black-capped Chickadee, Blue Jay, Cliff Swallow (nests), Mourning Dove, Ring-billed Gull and White-breasted Nuthatch. None of the species observed are protected under the *SARA*.

Evidence of three (3) mammal species including Coyote (tracks), Raccoon (scat) and Squirrel species (nest) were observed during field investigations. All species observed are common within Ontario.

Species at Risk – No SAR were observed during field investigations. However, through a SAR habitat assessment conducted for the study area, six (6) SAR were identified to have potential habitat along The Gore Road. The six (6) species include *Barn Swallow* (Threatened), *Chimney swift* (Threatened), *Eastern Meadowlark* (Threatened), *Eastern Ribbonsnake* (Special Concern), *Milksnake* (Special Concern) and *Snapping Turtle* (Special Concern). Please refer to discussion below.

Barn Swallow – Probability of this species occurring within the study area is high. The cement box culverts found along The Gore Road provide ideal nesting habitat for mud nests constructed by this species. During field observations, mud nests created by Cliff Swallows were observed under the cement box culvert under The Gore Road west of Castlemore Road.

Chimney Swift – Probability of this species occurring within the study area is low. This species typically inhabits residential chimneys during nesting periods. The construction activities will not interfere with its preferred habitat.

Eastern Meadowlark – Probability of this species occurring within the study area is low. A meadow community with a minimum size of 5 ha is preferred for this species. None of the cultural meadow/meadow marsh communities in close proximity to the construction activities will be affected by the proposed works.

Eastern Ribbonsnake – Probability of this species occurring within the study area is low. The aquatic communities along the West Humber River Tributary provide adequate habitat for this species.

Milksnake – Probability of this species occurring within the study area is medium. This species is typically found within cultural meadow/agricultural communities which are found along The Gore Road.

Snapping Turtle – Probability of this species occurring within the study area is low. The stormwater management facility (SWMF) to the east of The Gore Road provides ideal basking/nesting opportunities for this species.

5. Recommendations

Recommendation 1 – Vegetation Removal: Should the removal of woody vegetation be required, it is recommended that vegetation is replaced through consultation with the Region of Peel, City of Brampton and TRCA. Recommendations as per the “Seed Mix Guidelines” by TRCA should be applied for re-vegetation plans where feasible. Restoration measures should be discussed with the Region and agency staff. Should trees be removed, the project should have regard for the City of Brampton’s Tree Preservation By-law 317-2012. Should wetland communities be removed, the project should have regard for TRCA's policies under their Ontario Regulation 166/06. If vegetation is to be removed during the bird breeding season (April 15th to August 15th) please refer to Recommendation 2.

Attachment E presents TRCAs Seed Mix Guidelines.

Recommendation 2 – Construction Timing: To avoid any impacts/negative effects to breeding birds, any tree and site clearing should take place between August 16th to April 14th. This is to ensure that works do not disturb any potentially nesting birds. This is in accordance with the *Migratory Birds Convention Act*.

Should tree and site clearing be scheduled from April 15th to August 15th, comprehensive breeding bird surveys need to be conducted prior to clearing to ensure there is no disturbance of nesting/breeding birds. Surveys should document the location of breeding pairs and potential location of nests. Should nests/breeding pairs be discovered within the clearing area, the location should be clearly marked/flagged and a 10 metre buffer surrounding the nest be implemented. The space within this buffer should be protected until the young are fully fledged. An ecologist with ornithological experience should conduct the surveys and monitor the nests (should nests be discovered) periodically. Clearing can only be undertaken if the ecologist is satisfied there are no breeding/nesting pairs within the affected area.

Recommendation 3 – Species at Risk: The following recommendations should be adhered to during detailed design pertaining to Species at Risk that may be affected by construction activities.

Barn Swallow – No Barn Swallows were observed during terrestrial observations. However, potential nesting habitat for this species, a Threatened species under the *ESA*, is located within several culverts under The Gore Road and one under Castlemore Road where the West Humber River Tributary crosses. Should the culvert be disturbed as part of the preferred design during the breeding bird timing window (April 15th to August 15th), it is recommended that an ecologist conduct a site assessment prior to construction and prior to breeding bird season to see if any evidence of nests on the culvert structure is present. Should nesting evidence be present, netting or wire mesh should be installed by March 31st covering both sides of the openings to the culvert, restricting access on both sides for the species and preventing nest construction.

Reptiles – Potential habitat for reptiles (Eastern Ribbonsnake, Milksnake and Snapping Turtle) is present within the study area along The Gore Road. An experienced ecologist should complete visual surveys to ensure there are no species within the construction area. Once the area has been cleared, protective fencing should be installed to prevent any species from entering the construction area. **Attachment F** provides Ministry of Natural Resources and Forestry SAR Reptile and Amphibian Exclusion Fencing guidelines.

Recommendation 4 – Erosion and Sediment Control: Mitigation measures must be used for erosion and sediment control to prohibit sediment from entering the surrounding natural areas and watercourses. The primary principles associated with sedimentation and erosion protection measures are to: 1) minimize the duration of soil exposure; 2) retain existing vegetation, where feasible; 3) encourage re-vegetation; 4) divert runoff away from exposed soils; 5) keep runoff velocities low; and 6) trap sediment as close to the source as possible.

To address these principles, the following mitigation measures are proposed:

- According to Ontario Provincial Standard Specifications, silt fencing (OPSD 219.110) is required to prevent sedimentation within natural features.
- All surfaces susceptible to erosion should be re-vegetated through the placement of seeding, mulching or sodding immediately upon completion of construction activities.

6. References

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AECOM

Appendix G

Tree Assessment Report

AECOM

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Tree Inventory and Assessment

Date of Inspection: April 24, 2014
Project: The Gore Road from Queen Street to Castlemore Road Municipal Class EA
Project Number : 60311637
Report By: Jesse Harnden, ISA Certified Arborist ON-1540A

The assessment presented in this report has been made using accepted standard arboriculture techniques as outlined in Council of Tree & Landscape Appraisers Guide for Plant Appraisal, 9th Edition (2000). These techniques include visual examination of above-ground parts of each tree. The trees observed were not climbed, probed, cored, or dissected, and excavation for detailed root crown inspection was not performed. Since some symptoms may only be present seasonally, the extent of observations that can be made may be limited by the time of year in which the inspection took place.

It must be realized that trees are living organisms, and their health and vigour continually change over time due to seasonal variations, changes in site conditions, and other factors. For this reason, the assessment presented in this report is valid at the time of inspection, and no guarantee is made about the continued health of trees that are deemed to be in good condition. It is recommended that the trees be re-assessed periodically. While every standing tree has the potential for failure and therefore poses some risk, a tree assessment is a good indication of present health and potential problems that could arise in the future.

Trees were identified, sized, and assessed for condition. Each tree was given a subjective condition rating of Excellent, Good, Fair, or Poor. Following is a summary of how the ratings were determined:

Excellent (E)	no apparent health problems; good structural form
Good (G)	minor problems with health and/or structural form
Fair (F)	more serious problems with health and/or structural form
Poor (P)	major problems with health and structural form
Very Poor (VP)	extensive problems with health and structural form
Dead (D)	no live growth

Tree size is expressed in Diameter at 1.4m above the base (DBH) and measured in cm.

Tree locations are shown on Tree Inventory Maps 1 to 5. Trees were inventoried on April 24, 2014. The following chart summarizes the observations made concerning species, size and condition.

Tree No.	Species	Size	Cond.	Comments
1	weeping willow (*Salix sp.*)	10 – 35	F	Located behind fence, multiple branches from same point of attachment at 1m height, crossing branches, adventitious branches, fused branches, failed branches, small dead branches
2	ivory silk lilac (*Syringa reticulate*)	7	F	Trunk lean, decay on trunk, dead branch stubs, fused branches, crossing branches, narrow branch angles with included bark, planted in garden
3	honeylocust (*Gleditsia triacanthos*)	5.5	F/G	Low branching, crossing branches, narrow branch angles, adventitious shoots, planted in garden
4	ivory silk lilac	8	G	Exposed roots, dead branch stubs, narrow branch angles with included bark, planted in garden
5	ivory silk lilac	7.5	F	Exposed girdling roots, decay on trunk, multiple branches from same point of attachment, narrow branch angles with included bark, planted in garden
6	ivory silk lilac	8	F/G	Exposed roots, narrow branch angles with included bark, adventitious shoots, planted in garden
7	ivory silk lilac	7.5	F/G	Exposed roots with decay, multiple branches from same point of attachment, narrow branch angles with included bark
8	honeylocust	6	G	Decay at pruned branches, narrow branch angles
9	ivory silk lilac	7.5	G	Exposed roots with decay, multiple branches from same point of attachment, narrow branch angles with included bark
10	ivory silk lilac	8	F/G	Narrow branch angles with included bark, crossing branches, small dead branches, adventitious shoots, planted in garden
11	ivory silk lilac	8.5	F/P	Decay at base encompassing ½ circumference, trunk lean, dieback, dead branch stubs, adventitious shoots
12	ivory silk lilac	8	F/G	Exposed roots, dead branches, multiple branches from same point of attachment, narrow branch angles with included bark
13	ivory silk lilac	8.5	F	Exposed roots, one-sided canopy, codominant adventitious trunk, narrow branch angles with included bark, crossing branches, adventitious shoots, planted in garden
14	ivory silk lilac	8	F	Numerous exposed roots, decay on lateral branches, multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches
15	red oak (*Quercus rubra*)	8	P	Numerous adventitious shoots along trunk, stunted, crooked leader, lights wrapped around trunk, dieback, red-osier dogwood at base, 3 Norway maple (~5cm) behind in poor condition
16	red oak	7	P	Numerous adventitious shoots along trunk, stunted, crooked leader, lights wrapped around trunk, dieback, red-osier dogwood at base
17	red oak	7	F/P	One-sided canopy, slightly stunted, adventitious shoots, lights wrapped around trunk, spirea at base

Tree No.	Species	Size	Cond.	Comments
18	red oak	10.5	F	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots, lights wrapped around trunk, spirea at base
19	red oak	8.5	F	Narrow branch angles, small dead branches, adventitious shoots, lights wrapped around trunk, spirea at base
20	red oak	9	F	Dieback, slightly stunted, multiple branches from same point of attachment, adventitious shoots, lights wrapped round trunk, ornamental shrubs at base, Norway maple (~5cm) behind in fair to poor condition.
21	red oak	7	F	Dead branches, crossing branches, adventitious shoots, lights wrapped around trunk, ornamental shrubs at base
22	Scots pine (*Pinus sylvestris*)	8	F/P	Dieback, canopy sparse
23	flowering crabapple (*Malus sp.*)	9	G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots
24	Colorado blue spruce (*Picea pungens*)	10	F	Middle of canopy sparse, small dead branches
25	Colorado blue spruce	10	F	Middle of canopy sparse, small dead branches
26	flowering crabapple	9	F/P	Failed branches, decay at pruning wounds, narrow branch angles with included bark, adventitious shoots at base, roses at base
27	flowering crabapple	11	G	Multiple branches from same point of attachment, narrow branch angles with included bark, roses at base
28	ash (*Fraxinus sp.*)	9	F/G	Decay on trunk, decay at base, crossing branches
29	ash	8	F/G	Trunk crooked, dead branches, multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches
30	ash	8	F/G	Crossing branches, multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches
31	flowering crabapple	7	F/G	Failed branches, multiple branches from same point of attachment, adventitious shoots, hawthorn garden at base
32	ash	10	F/P	Dead leader, adventitious girdling roots, multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots, spirea at base
33	Colorado blue spruce	19	G	Small dead branches, spirea at base
34	Colorado blue spruce	20	G/E	Small dead branches, spirea at base
35	Colorado blue spruce	16	E	Forsythia adjacent
36	ash	15	F/G	Exposed roots, decay on trunk, narrow branch angles, adventitious shoots at base

Tree No.	Species	Size	Cond.	Comments
37	Colorado blue spruce	21	G/E	
38	Norway maple (*Acer platanoides*)	17	G	Multiple branches from same point of attachment, crossing branches, narrow branch angles with included bark
39	Russian olive (*Elaeagnus angustifolia*)	9 & 7 & 16	P	3 codominant leaders at base, severe lean, dead branches, small dead branches
40	Norway maple	17	G	Girdling roots, decay at base, dead branches, multiple branches from same point of attachment, narrow branch angles with included bark
41	Russian olive	6 & 7	F	Codominant leaders at base, trunk lean, dieback, small dead branches
42	Russian olive	7 & 11	F	Codominant leaders at base, trunk lean, dieback, small dead branches
43	Russian olive	6 & 5	F	Codominant leaders at base, trunk lean, dieback, small dead branches
44	Russian olive	2 – 10	F	5 trunks at base, trunk lean, dieback, small dead branches
45	Russian olive	9 & 10	F	Codominant leaders at base, trunk lean, dieback, small dead branches
46	Colorado blue spruce	19	G/E	Burning bush at base
47	Colorado blue spruce	21	G/E	Burning bush at base
48	Colorado blue spruce	19	G/E	Burning bush at base
49	Colorado blue spruce	20	G/E	Burning bush at base
50	Austrian pine (*Pinus nigra*)	18	G	Needle dieback, small dead branches, burning bush at base
51	Austrian pine	17	G	Needle dieback, small dead branches, burning bush at base
52	Austrian pine	14	F	Stunted, needle dieback, dead branches, topped, burning bush at base
53	Austrian pine	17	G	Dead branches, burning bush at base
54	Austrian pine	17	F/G	No leader, multiple branches from same point of attachment, dead branches, burning bush at base
55	Norway maple	16	G	Girdling roots, slight trunk lean, multiple branches from same point of attachment, narrow branch angles, small dead branches
56	Norway maple	16	F/G	Girdling roots, exposed roots, narrow branch angles with included bark, crossing branches, small dead branches, adventitious shoots
57	Russian olive	6 & 7	F	Codominant leaders, dieback, small dead branches, adventitious shoots
58	Russian olive	7 & 8	F	Codominant leaders, trunk lean, dieback, one-sided canopy, adventitious shoots, ornamental shrubs at base
59	Russian olive	3 – 8	F	4 trunks at base, codominant leaders, dieback, one-sided canopy, adventitious shoots, ornamental shrubs at base

Tree No.	Species	Size	Cond.	Comments
60	Russian olive	3 – 8	F	3 codominant leaders, severe trunk lean, dieback, small dead branches, adventitious shoots, ornamental shrubs at base
61	Russian olive	3 – 7	F	3 codominant leaders, 4th codominant leader pruned at base, trunk lean, small dead branches, adventitious shoots, ornamental shrubs at base
62	Russian olive	6 & 10	F/G	Codominant leaders at base, trunk lean, small dead branches, adventitious shoots, ornamental shrubs at base
63	Russian olive	3 – 9	F	4 trunks at base, decay on trunk, dieback, adventitious shoots
64	Norway maple	18	F/G	Exposed roots, adventitious trunk at 0.3m height, multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots
65	Colorado blue spruce	19	G/E	Small dead branches, burning bush at base
66	Colorado blue spruce	20	G/E	Burning bush at base
67	Colorado blue spruce	17	G	Growing on top of culvert, small dead branches, ornamental shrubs adjacent
68	Colorado blue spruce	17	G/E	Burning bush at base
69	Russian olive	3 – 12	F	4 trunks at base, 1 trunk failed, trunk lean, adventitious shoots, small dead branches
70	ash	12	F/G	Multiple branches from same point of attachment, crossing branches, narrow branch angles with included bark, roses adjacent
71	ash	13	F/G	Multiple branches from same point of attachment, crossing branches, narrow branch angles with included bark, roses adjacent
72	ash	12.5	F	Low branching, narrow branch angles with included bark, multiple branches from same point of attachment, small dead branches, adventitious shoots
73	Colorado blue spruce	16	G/E	Ornamental shrubs at base
74	Colorado blue spruce	17	G/E	Ornamental shrubs at base
75	Colorado blue spruce	20	G/E	Small dead branches, ornamental shrubs at base
76	Colorado blue spruce	19	G/E	Small dead branches, ornamental shrubs adjacent
77	Colorado blue spruce	18	G/E	Spirea at base
78	Colorado blue spruce	16	G/E	
79	Colorado blue spruce	15	G/E	
80	Colorado blue spruce	16	G/E	

Tree No.	Species	Size	Cond.	Comments
81	Colorado blue spruce	13	G/E	
82	ash	13.5	F	Adventitious trunks at base, failed branches, crossing branches, narrow branch angles with included bark
83	Austrian pine	18	F/G	Needle dieback, small dead branches
84	Austrian pine	15	F/G	Trunk lean, codominant leaders, needle dieback, sapsucker holes in trunk
85	Austrian pine	20	F	Canopy slightly sparse, needle dieback, codominant leaders, dead branches, roses at base
86	Austrian pine	16	F/P	No lower canopy, canopy sparse
87	Austrian pine	18	F/G	Lower canopy dieback, minor needle dieback
88	Norway maple	12.5	G	Girdling roots, multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches
89	Norway maple	18.5	G	Girdling roots, multiple branches from same point of attachment, crossing branches, narrow branch angles with included bark, small dead branches
90	ash	14.5	F	Decay at base, dieback on leader, dead branches, narrow branch angles with included bark, small dead branches
91	Colorado blue spruce	17	G	Lower canopy dieback, small dead branches, ornamental shrubs at base
92	Colorado blue spruce	16	F	Horizontal growth at 4m height, self-correcting, ornamental shrubs at base
93	ash	12	F/G	One-sided upper canopy, small areas of decay on trunk, crossing branches, ornamental shrubs at base
94	Colorado blue spruce	18	G	Lower canopy overgrown by adjacent shrubs, slight lean, small dead branches, ornamental shrubs at base
95	Colorado blue spruce	18	G/E	Small dead branches, ornamental shrubs at base
96	ash	14	G	Multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches
97	ash	19	G	Exposed roots, multiple branches from same point of attachment, narrow branch angles with included bark
98	Austrian pine	17	G	Needle dieback, small dead branches, culvert and swale in front, forsythia at base
99	Austrian pine	12	F/P	Top of canopy dead, lateral branch with apical growth failed, forsythia at base
100	Austrian pine	18	G	Dead lower branches, needle dieback, forsythia at base
101	Austrian pine	17	F/G	Trunk crooked, no leader, multiple branches from same point of attachment, ninebark at base
102	Austrian pine	17	G	Needle dieback, ninebark at base
103	Norway maple	17.5	F/G	Girdling roots, decay at base, split down trunk, multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches
104	Norway maple	19.5	G	Girdling roots, multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches

Tree No.	Species	Size	Cond.	Comments
105	Austrian pine	18	F/G	Dead lower branches, fragrant sumac at base
106	Austrian pine	16	F/G	Needle dieback, fragrant sumac at base
107	Austrian pine	17	F	No leader, minor dieback, canopy slightly sparse, fragrant sumac at base
108	Norway maple	18.5	F/P	Exposed roots with decay, column of decay extends through trunk, slight trunk lean, stunted, narrow branch angles with included bark, multiple branches from same point of attachment, dieback, adventitious shoots
109	Colorado blue spruce	16	G/E	Small dead branches
110	Colorado blue spruce	13	G	Lower canopy one-sided and suppressed
111	Colorado blue spruce	15	G/E	Small dead branches
112	Colorado blue spruce	18	G/E	Slight trunk lean
113	Colorado blue spruce	12	G/E	Dieback, lower canopy one-sided
114	Colorado blue spruce	14	G	Trunk crook, small dead branches
115	Austrian pine	22	F/G	Needle dieback, small dead branches
116	Austrian pine	16	F/G	One-sided canopy, small dead branches
117	Austrian pine	17	F	Needle dieback, small dead branches, serviceberry shrubs adjacent
118	Norway maple	14.5	F/P	Girdling roots, all live growth sparse adventitious shoots, canopy topped, edge of garden
119	Norway maple	9.5	F	Ribs on trunk near base, canopy topped, narrow branch angles with included bark
120	Colorado blue spruce	16	F/G	Lower canopy dieback, crooked leader, slight trunk lean, dead branches
121	Colorado spruce	15	F/G	Needle dieback, small dead branches, narrow growth habit
122	Norway maple	17	G	Girdling roots, exposed surface roots, narrow branch angles with included bark, multiple branches from same point of attachment, crossing branches, shrubs at base
123	Austrian pine	11 & 14	F/G	Codominant leaders at 1m height, codominant leaders crossing, dead branches, minor needle dieback, adventitious branch at codominant branch union
124	Austrian pine	14	F/P	Dieback, canopy one-sided and suppressed, needle dieback, outfall adjacent trunk
125	Austrian pine	20	F	Failed leader, 3 codominant lateral branches at 2m height, dead branches, one-sided canopy, creeping juniper adjacent
126	Austrian pine	25	F/G	No lower canopy, canopy one-sided, dead branches, roses adjacent
127	Austrian pine	27	F/G	Trunk lean, dead branches, roses adjacent
128	Austrian pine	25	F/G	Canopy slightly sparse

Tree No.	Species	Size	Cond.	Comments
129	white spruce (*Picea glauca*)	16	F/G	Needle dieback, canopy slightly one-sided, small dead branches
130	white spruce	12	F/G	Mid canopy sparse of branches, minor tip dieback
131	ash	9.5	F/P	Decay at base, dieback, narrow branch angles with included bark, multiple branches from same point of attachment, crossing branches, adventitious shoots, under overhead wires
132	Austrian pine	28	F/G	Trunk crooked, needle dieback, dead branches, burning bush adjacent
133	Austrian pine	16	G	Dead lower branches
134	Austrian pine	20	G	Trunk lean, self-correcting, minor dieback, sap exuding from trunk, burning bush adjacent
135	Austrian pine	22	F/G	No leader, slight trunk lean, dead lower branches, multiple branches from same point of attachment
136	Austrian pine	20	F	Slight trunk lean, needle dieback
137	Norway maple	7	P	Decay at base, stunted, narrow branch angles with included bark, multiple branches from same point of attachment
138	Norway maple	19	F	Column of decay extends down trunk, girdling roots, multiple branches from same point of attachment, narrow branch angles with included bark
139	Colorado blue spruce	20	G/E	
140	Colorado blue spruce	23	G/E	Small dead branches
141	Norway maple	15	G	Exposed roots with decay, multiple branches from same point of attachment, narrow branch angles with included bark
142	Norway maple	12	F	Girdling roots, narrow branch angles with included bark, multiple branches from same point of attachment, adventitious shoots at base, canopy extends to overhead wires
143	red oak	7	F	Slightly stunted, numerous adventitious shoots, narrow branch angles, O-pipe at base
144	red oak	7	F	Slightly stunted, numerous adventitious shoots, narrow branch angles, O-pipe at base
145	red oak	7	F	Trunk lean, slightly stunted, numerous adventitious shoots, narrow branch angles, O-pipe at base
146	Norway maple	11	F/G	Girdling roots, multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots
147	Norway maple	11	F/G	Decay on trunk, dead branches, crossing branches, multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots
148	Norway maple	10	F/G	Multiple branches from same point of attachment, narrow branch angles with included bark, small dead branches, adventitious shoots

Tree No.	Species	Size	Cond.	Comments
149	Norway maple	11	F/G	Girdling roots, multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots
150	Norway maple	8	F/G	Exposed roots, girdling roots, canopy slightly one-sided, narrow branch angles with included bark, multiple branches from same point of attachment, adventitious shoots
151	Norway maple	8	F	Canopy slightly sparse, twine wrapped around trunk, dead branches, narrow branch angles with included bark
152	Norway maple	7	G	Multiple branches from same point of attachment, narrow branch angles with included bark
153	red oak	5	F/G	Leader crooked, small dead branches, adventitious shoots
154	red oak	7	G	Adventitious shoots
155	red oak	7	F/G	Decay at base, small dead branches, adventitious shoots
156	red oak	7	F	Decay at base, decay on lateral branches, narrow branch angles with included bark, adventitious shoots
157	red oak	6	F/G	Decay at base of lateral branch, narrow branch angles, adventitious shoots
158	red oak	6	G	Multiple branches from same point of attachment, few adventitious shoots
159	Norway maple	7	G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots at base
160	Norway maple	6	F/G	Trunk lean, multiple branches from same point of attachment at top of canopy, narrow branch angles with included bark, adventitious shoots
161	Norway maple	7	G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots at base
162	Norway maple	7	G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots at base
163	Norway maple	7	F/G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots
164	Scots pine	39	F/P	Canopy one-sided and sparse, dead branches
165	lilac (*Syringa vulgaris*)	21	G	Decay on branches, multiple branches from same point of attachment, adventitious shoots
166	Colorado blue spruce	47	G	Lower branches pruned, small dead branches, tip dieback, adventitious shoots, overhead wires extend through canopy
167	Colorado spruce	30	P	One-sided canopy, trunk lean, overhead wires extend through canopy
168	Freeman maple (*Acer x freemanii*)	5	F	Low branching, narrow growth form, slightly stunted, narrow branch angles with included bark, adventitious shoots, staked
169	Freeman maple	5	F	Low branching, narrow growth form, slightly stunted, narrow branch angles with included bark, adventitious shoots, staked

Tree No.	Species	Size	Cond.	Comments
170	Freeman maple	4	F	Low branching, narrow growth form, slightly stunted, narrow branch angles with included bark, adventitious shoots, staked
171	Freeman maple	5	F	Low branching, narrow growth form, slightly stunted, narrow branch angles with included bark, adventitious shoots, staked
172	Freeman maple	5	F	Low branching, narrow growth form, slightly stunted, narrow branch angles with included bark, adventitious shoots, staked
173	crack willow (*Salix fragilis*)	30 & 45 & 45	F/P	3 codominant leaders at base, failed branches, dead branches, extensive adventitious shoots
174	crack willow	30 – 40	F	6 trunks from base, adventitious trunk leaning out from centre, dead branches, adjacent new wall with recent gravel fill over roots
175	crack will	30 – 45	F/P	5 trunks at base, trunks lean out from centre, extensive adventitious girdling roots, dieback, failed branches, dead branches
176	crack willow	20 – 40	F	7 trunks at base, trunks lean, dieback, dead branches
177	crack willow	20 – 40	F	4 trunks at base, trunks lean out from centre, dead branches, narrow branch angles
178	crack willow	10 – 35	F/P	6 trunks at base, failed branches, dieback, overhead wires extend through canopy, adventitious shoots
179	Norway spruce (*Picea abies*)	51	F/P	Dieback, dead branches, sparse canopy
180	Norway spruce	47	F/P	Dieback, dead branches, sparse canopy
181	American elm (*Ulmus americana*)	14	F/P	Grape vine suppressing canopy
182	ash	15	D	
183	crack willow	38, 34, 22, 33	F/P	4 trees, dieback, dead branches, adventitious shoots, overhead wires extend through canopy adjacent watercourse
184	Norway spruce	~30	F/G	
185	mountain ash (*Sorbus aucuparia*)	5	F/G	Narrow branch angles with included bark, small dead branches
186	Freeman maple	5	F	Low branching, multiple branches from same point of attachment, narrow branch angles with included bark, stunted
187	Freeman maple	5	F/G	Low branching, multiple branches from same point of attachment, narrow branch angles with included bark, stunted
188	Freeman maple	5	F/G	Low branching, multiple branches from same point of attachment, narrow branch angles with included bark, stunted

Tree No.	Species	Size	Cond.	Comments
189	mountain ash	4	G	Crossing branches, narrow branch angles with included bark, small dead branches
190	mountain ash	5	G	Crossing branches, narrow branch angles with included bark
191	mountain ash	4	G	Crossing branches, narrow branch angles with included bark
192	Freeman maple	4	F	Low branching, narrow branch angles with included bark, adventitious shoots, stunted
193	Freeman maple	4	F	Low branching, narrow branch angles with included bark, adventitious shoots, stunted
194	ash	54	P	Failed branches, codominant leaders, dieback, infested with emerald ash borer
195	ash	43	VP	Extensive dieback, numerous failed branches, infested with emerald ash borer
196	ash	50	VP	Failed branches, dieback, dead branches, infested with emerald ash borer
197	ash	60	P	Failed branches, dieback, dead branches, infested with emerald ash borer
198	ash	65	F/P	Multiple branches from same point of attachment, failed branches, infested with emerald ash borer
199	ash	43	P	Codominant leaders, failed branches, dieback, infested with emerald ash borer
200	cypress (*Cupressus sp.*)	14 & 10	F/P	Codominant leaders at base, one-sided canopy, dieback, failed branches
201	white birch (*Betula papyrifera*)	16 & 13 & 13 & 12 & 11	F	5 codominant leaders, dieback, dead branches, adventitious shoots
202	red cedar (*Juniperus virginiana*)	8	VP	Canopy very sparse
203	Colorado blue spruce	10	P	Canopy sparse
204	ash	16	P	Dieback, one-sided canopy, sapsucker holes in trunk
205	Freeman maple	31	VP	Failed
206	ash	12	F	Crooked trunk, suppressed by adjacent tree
207	ash	27	P	Failed branches, decay on trunk, dead branches, sapsucker holes in trunk
208	Freeman maple	27	F	Trunk lean, dead branch stubs
209	ash	24	VP	Decay on trunk, dieback, failed branches, sapsucker holes in trunk
210	Freeman maple	16	VP	Severe lean, extensive dieback
211	ash	23	P	Dieback, narrow branch angles, adventitious shoots, numerous sapsucker holes in trunk
212	Freeman maple	23	P	Failed codominant leaders, dead adventitious trunk, sparse canopy
213	ash	12	F	Decay on trunk, crooked trunk, canopy suppressed, few sapsucker holes in trunk

Tree No.	Species	Size	Cond.	Comments
214	Freeman maple	18	P	Failed codominant leaders, trunk lean, sparse canopy
215	ash	15	F	One-sided canopy, dieback, narrow branch angles, small dead branches
216	Freeman maple	19	F	Trunk lean, codominant leaders
217	Norway maple	15 & 19	F/G	Codominant leaders at 1m height, decay on codominant leaders, one-sided canopy, narrow branch angles with included bark, guy wire extends through canopy
218	honeylocust	32	F/G	Low branches, failed branches, multiple branches from same point of attachment, crossing branches, small dead branches
219	Russian olive	14	F/P	Failed branches, dieback, dead branches
220	trembling aspen (*Populus tremuloides*)	12	G	One-sided canopy
221	trembling aspen	18	G	Small dead branches
222	trembling aspen	3 – 20	G	Approximately 60 trees spaced at <1m, additional 15 dead trees
223	bur oak (*Quercus macrocarpa*)	23	F/P	Stunted, adventitious growth
224	Norway spruce	45	F/P	Dead leader, one-sided canopy
225	bur oak	101	F/P	Dieback, failed branches, dead branches, live growth adventitious shoots
226	honeylocust	~45	F	Dieback, failed branches, multiple branches from same point of attachment, crossing branches
227	Freeman maple	7	G	Decay at base, narrow branch angles with included bark, adventitious shoots
228	Norway maple	14	G	Multiple branches from same point of attachment, crossing branches, narrow branch angles with included bark
229	Norway maple	12	G	Multiple branches from same point of attachment, narrow branch angles with included bark, juniper at base, garden <1m behind with Colorado blue spruce and ornamental shrubs
230	red oak	8	F/G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots, garden <1m behind with Colorado blue spruce and ornamental shrubs
231	red oak	6	F/G	Multiple branches from same point of attachment, narrow branch angles with included bark, adventitious shoots, garden <1m behind with Colorado blue spruce and ornamental shrubs
232	red oak	5	VP	Twist tie girdling trunk, all growth adventitious shoots, stunted, garden <1m behind with Colorado blue spruce and ornamental shrubs
233	red oak	5	F	No leader, multiple branches from same point of attachment, adventitious shoots, garden <1m behind with Colorado blue spruce and ornamental shrubs

Tree No.	Species	Size	Cond.	Comments
234	red oak	8	F	One-sided canopy, narrow branch angles with included bark, adventitious shoots, garden <1m behind with Colorado blue spruce and ornamental shrubs
235	Norway maple	7	F	Decay at base, garden <1m behind with Colorado blue spruce and ornamental shrubs
236	Norway maple	11	P	Failed leader
237	white spruce	5	F/G	Needle dieback, small dead branches, staked
238	white spruce	5	F/G	Needle dieback, small dead branches, staked
239	white spruce	4	F	Dieback, dead branches, staked
240	red oak	5	F/G	Adventitious shoots
241	red oak	6	F	Numerous adventitious shoots
242	red oak	6	F	Canopy one-sided and slightly sparse, adventitious shoots
243	linden (*Tilia cordata*)	6	F	One-sided canopy, burls on trunk, narrow branch angles with included bark, multiple branches from same point of attachment, rusted wire basket exposed at base
244	linden	6	F	Exposed roots, narrow branch angles with included bark, multiple branches from same point of attachment, small dead branches, adventitious shoots
245	linden	18 & 22	P	Decay at pruning wounds, codominant leaders at base, stunted, failed branches, dieback, adventitious shoots
246	linden	20	F/P	Pruned codominant leader, decay at base, failed branches, crossing branches, small dead branches, dead branches
247	linden	24	P	Dieback, one-sided canopy, stunted, decay at pruning wounds, adventitious shoots

Discussion

There are many social, economic, and environmental benefits associated with trees in a community, including aesthetics, increased property value, improved air quality, and food and shelter for birds and other wildlife. The trees along the street contribute significantly to the character of this area, and it is important to minimize damage to existing trees. New tree plantings should be considered to increase the aesthetic appeal and the urban canopy.

Biotic and Abiotic Disorders

Many biotic and abiotic disorders and structural defects are listed in the notes section of the tree inventory table. Structural defects are often harmless when a tree is young, but can pose a problem when a tree grows larger and the weight of branches puts added stress on defects that cause weakness. Also, the branches of larger trees have the potential to cause more damage should they fail.
Following is an explanation of some of the problems outlined in the Notes section of the above table and how they can affect trees over time.

Girdling roots are roots that are crossing over each other or around the trunk of the tree. As the roots grow larger, they can restrict the uptake of water and nutrients. Norway maple trees are particularly prone to girdling roots. *Exposed surface roots* are often a result of erosion and soil compaction combined with increase root diameter. Exposed roots need protection from pedestrian and vehicular traffic including lawn mowers. Damage or cutting of these roots can cause long term stress and damage to the tree.

Included bark is bark that has become embedded in a crotch between limbs, weakening the attachment of the branches. *Narrow branch angles*, especially when there is included bark, can be a problem when the tree grows larger because there is poor attachment of inner wood. As the trunk and branch increase in girth, the bark of the trunk and branch in the tight crotch begins to push apart and can eventually cause failure of the branch. This situation is worse when the narrow angle is between *co-dominant leaders* (branches of approximately the same size), or when there are *multiple branches from same point of attachment*. Strong branch attachments occur between 2 limbs of unequal size with enough space for branch enlargement and formation of the branch bark ridge.

Crossing branches can eventually girdle each other, and usually have narrow attachment angles.

Cankers and *wounds* on the trunk usually cause decay and reduce the strength of the wood. The severity of the defect depends on the extent and location of decay and the presence of other defects (for example trunk decay is more serious if the tree leans). If there is a reasonable thickness of wood for a significant portion of the circumference of the trunk, decay can be present with very little weakening of the trunk or branch.

Sunken areas under scaffold branches and *asymmetrical trunk cross-section* can be indications of internal decay.

Adventitious shoots emerge from dormant buds along the trunk or branch of a tree and this growth pattern usually arises as a result of an injury or pruning. Adventitious shoots can be indicative of stress as they act as a tree’s means of compensating for loss of canopy cover due to an environmental stimulus.

Tar spot is a common fungal disease of Norway maples. The fungus causes round to irregular black, tar-like spots on infected leaves. Fungi survive on fallen diseased leaves between seasons. Tar spot is seldom injurious to the tree as symptoms develop late in the season. Removing and destroying fallen leaves can help to reduce the amount of overwintering fungi.

Past failures are important to note, because trees that have failed in the past tend to continue to fail.

Ash Trees

The mature ash trees located at the northern limits of the study are show distinct evidence of being infected with Emerald Ash Borer (D-shaped exit holes). The additional ash trees inventoried do not show distinct evidence, but do show symptoms of being infected (sapsucker holes, dieback). With the known progression of the insect, it should be considered likely that all the ash trees will be infected and die within the next few years. This should be taken into consideration of the detailed design when considering tree preservation.

Tree Planting

Trees that will be removed or damaged during construction should be replaced where space is available. The proposed road work creates an opportunity to plant additional trees as part of the contract and create an improved diversity of age and species. Enhanced street tree planting helps to improve air quality and enhances the aesthetics of the roadway. Replacement planting within the right-of-way should include native tree species where appropriate, and species should be tolerant of road conditions.

CERTIFICATION

I certify that all the statements of fact in this assessment are true, complete, and correct to the best of my knowledge and belief, and that they are made in good faith.

JHarnden

Jesse Harnden, ISA Certified Arborist

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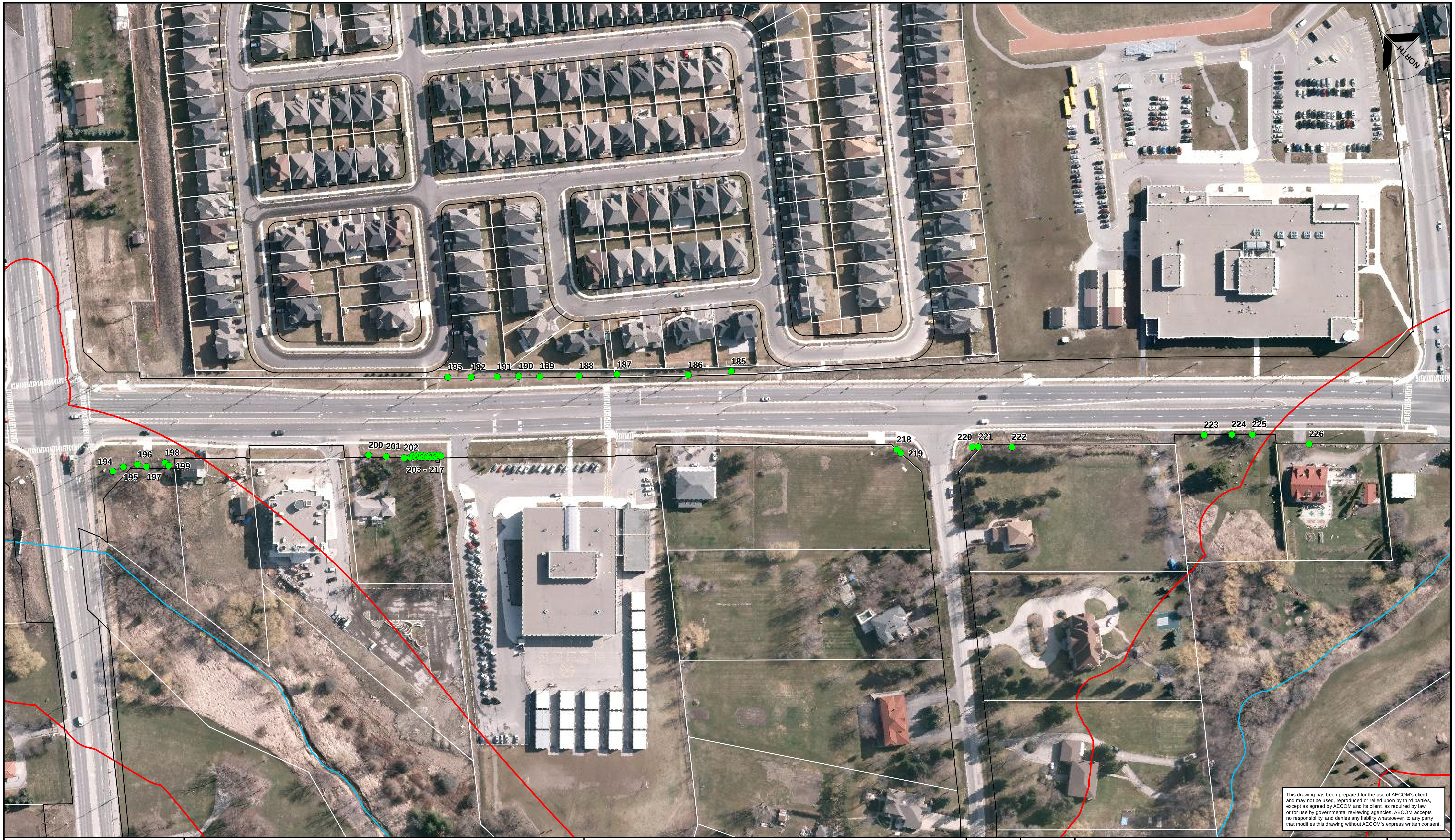

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T905.668.9363

LEGEND

- ● EXISTING TREE
- 〜 WATERCOURSE
- 〜 TRCA REGULATION LIMIT

CLIENT:
Region of Peel
Working for you

PREPARED BY: J. HARNDEN	CHECKED BY: ---
DESIGNED BY: ---	APPROVED BY: J. HARNDEN
SCALE: 1:2,000	DATE: MAY-2014

PROJECT:
THE GORE ROAD FROM QUEEN STREET
TO CASTLEMORE ROAD
MUNICIPAL CLASS EA

DRAWING:
TREE INVENTORY

PROJECT No.: 60311637

MAP: 1

Map Document: (C:\Program Files\ArcGIS\Bin\Templates\TSH Templates\11x17 TSH Standard - Landscape - Horizontal Block.mxt)
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LEGEND

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DRAWING:

TREE INVENTORY

PROJECT No.:
60311637

MAP:
2

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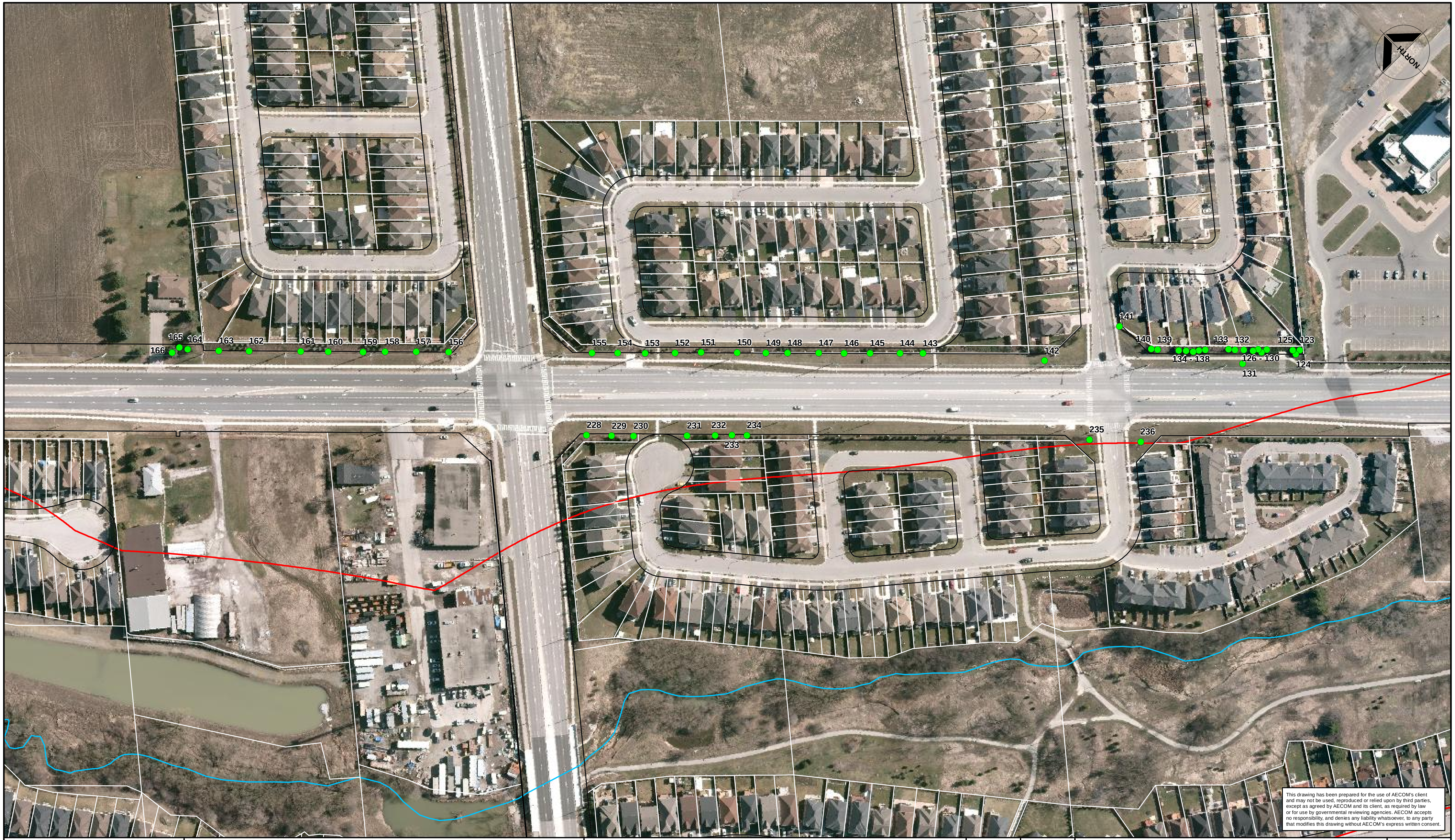

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LEGEND

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CLIENT:

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SCALE: 1:2,000	DATE: MAY-2014

PROJECT:

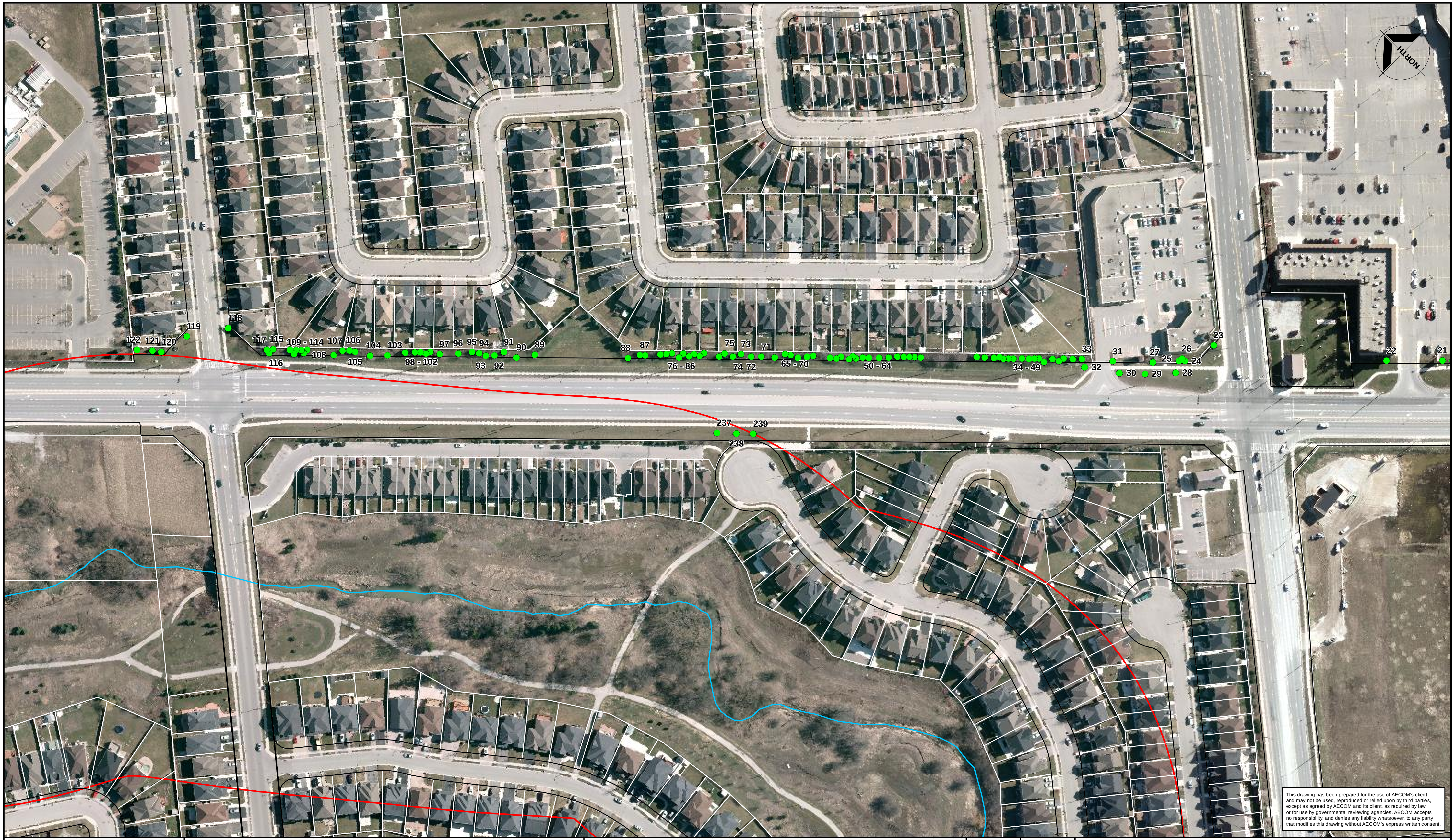
THE GORE ROAD FROM QUEEN STREET
TO CASTLEMORE ROAD
MUNICIPAL CLASS EA

DRAWING:

TREE INVENTORY

PROJECT No.: 60311637

MAP: 3



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LEGEND

- ● EXISTING TREE
- 〜 WATERCOURSE
- 〜 TRCA REGULATION LIMIT

CLIENT:

Region of Peel
Working for you

PREPARED BY: J. HARNDEN	CHECKED BY: ---
DESIGNED BY: ---	APPROVED BY: J. HARNDEN
SCALE: 1:2,000	DATE: MAY-2014

PROJECT:

THE GORE ROAD FROM QUEEN STREET
TO CASTLEMORE ROAD
MUNICIPAL CLASS EA

DRAWING:

TREE INVENTORY

PROJECT No.: 60311637

MAP: 4

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LEGEND

- ● EXISTING TREE
- 〰 WATERCOURSE
- 〰 TRCA REGULATION LIMIT

CLIENT:

Region of Peel
Working for you

PREPARED BY: J. HARNDEN	CHECKED BY: ---
DESIGNED BY: ---	APPROVED BY: J. HARNDEN
SCALE: 1:2,000	DATE: MAY-2014

PROJECT:
THE GORE ROAD FROM QUEEN STREET
TO CASTLEMORE ROAD
MUNICIPAL CLASS EA

DRAWING:
TREE INVENTORY

PROJECT No.:
60311637

MAP:
5

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Appendix H

Aquatic Investigations

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Memorandum

To	Karl Grueneis, Jessica Mollo	Page	1
CC			
Subject	The Gore Road Municipal Class Environmental: Existing Aquatic Conditions of the West Humber River Tributary		
From	Caroline Boros, Nick Hodges		
Date	October 14, 2014	Project Number	60311637

1. Introduction

AECOM has been retained by the Region of Peel to conduct a Schedule ‘C’ Class Environmental Assessment for The Gore Road from Queen Street to just north of Castlemore Road within the City of Brampton. The Gore Road runs north to south and includes a range of land uses including residential, institutional, commercial and agricultural (future urban development). A site visit was conducted to determine the existing aquatic conditions of the West Humber River Tributary within the study area. The following memorandum has been compiled using a combination of background information and field investigations pertaining to natural heritage.

1.1 Background

As part of assessing the existing natural environment conditions within The Gore Road study area, current and historical background information was collected and reviewed and applicable regulatory agencies were consulted regarding specific natural heritage data sources. Furthermore, field investigations have been conducted where data gaps were identified in the study area through the background information review. Initial site visits were conducted to characterize terrestrial and aquatic conditions in the late fall 2013 (i.e., December) and have been further supplemented with additional seasonal surveys during the summer (i.e., August) of 2014.

2. Methodology

2.1 Secondary Source Information

The following secondary information sources were reviewed:

- Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Resource Values Information System (NRVIS) mapping;
- Humber River Watershed and subwatershed studies;
- Conservation Ontario 2013 Aquatic Species at Risk distribution mapping;
- Toronto Region Conservation Authority (TRCA) Fish Collection Records; and

- Ontario Ministry of Natural Resources Species at Risk in Ontario website (http://www.mnr.gov.on.ca/en/Business/species/index.html).

In addition, correspondence was initiated with TRCA and MNRF to confirm that the information presented in this report is current and to request any additional relevant natural heritage information.

Toronto and Region Conservation Authority

On February 5, 2014 an information request was sent to Elyssa Elton and Joe Halloran, Planning Ecologists with TRCA pertaining to the following information: natural areas (Environmentally Sensitive Areas (ESA), Provincially Significant Wetlands (PSW), Areas of Natural and Scientific Interest (ANSI), Significant Woodlands); recovery strategies; presences of critical habitat; Species at Risk; and evaluated wetlands including wetland evaluation records.

A response was received from Sharon Lingertat, Senior Planner of the TRCA on February 13, 2014. The following information was provided:

- Shapefiles pertaining to natural cover and terrestrial natural heritage system;
- Flood line mapping;
- Fish records collected along The Gore Road between Castlemore Road and Queen Street East; and
- TRCA Regulation limits.

Ministry of Natural Resources and Forestry – Aurora District

On February 5, 2014 an information request was sent to Jackie Burkart, District Planner with the Aurora District MNRF pertaining to the following information: natural areas (ESA, PSW, ANSI, Significant Woodlands); recovery strategies; presence of critical habitat; Species at Risk; evaluated wetlands including wetland evaluation records; watercourse thermal regimes; and fish records.

On April 8, 2014 a meeting was held with Mark Heaton, Species at Risk biologist with MNRF, to clarify potential species at risk presence. Details regarding the meeting are found in Section 3.2.

2.2 Field Investigations

Field investigations were conducted in two seasons: late fall (December 5, 2013) and summer (August 26, 2014). Field investigations focused on visual observations of various habitat features to identify factors that may influence fish community composition within the study reach. These features included:

- In-stream cover;
- Bank stability;
- Substrate composition;
- Stream morphology;
- Barriers to fish movement;
- Canopy cover;
- Aquatic vegetation; and

- Riparian vegetation.

Documentation of these features were completed in order to identify critical aquatic habitat within the study reach such as spawning, nursery, feeding and migratory habitat. The identification of critical habitat is necessary in determining the proposed projects risk to fish and fish habitat.

There is sufficient and appropriate information provided within existing secondary source data to characterize the fish community within the study area; accordingly primary collection of fish community data (e.g. fish sampling) was not conducted.

3. Results

3.1 Existing Conditions

3.1.1 Aquatic Environment

The study area is situated within the West Humber River subwatershed which covers a drainage area of approximately 203 kilometers square (km^2) of the greater Humber River watershed which is approximately 910 km^2 (Fisheries Management Plan, 2005). The watersheds are under the jurisdiction of the TRCA and Aurora District MNRF. The West Humber River originates in Caledon, in the rolling hills of the South Slope, and flows 45 kilometres over the Peel Plain in Brampton before joining the Main Humber River in Toronto.

The portion of watercourse in the study area is identified as the West Humber River Tributary, which flows as a permanent warmwater stream. This system has been identified as lacking natural riparian cover, and somewhat degraded aquatic habitats in urban stretches (Humber River Watershed Plan, 2008). Further information on fish community and habitat management for the West Humber River branch can be found in the TRCA Watercourse Crossing Guidelines (2007), Humber River Watershed Plan (2008), and the Humber River Fisheries Management Plan, Draft (2005). This available information should be reviewed during detail design to help facilitate the impact assessment.

3.1.2 Fish and Fish Habitat

3.1.2.1 Fish habitat

Field investigations were conducted by AECOM ecologists at two locations on the West Humber River Tributary along The Gore Road: 1) west of Castlemore Road; and 2) at the northbound and southbound bridges (as seen on **Figure 1**).

<u>December 2013</u>

Preliminary site investigations conducted by AECOM ecologists in December 2013 were limited by seasonal weather conditions and public corridor access. Limited habitat features were described at the two identified locations. Habitat characteristics were assessed from the road right-of-way (ROW) at each crossing. The West Humber River Tributary located within the study area was determined to be uniform run morphology with well-defined banks. No apparent barriers to fish passage were observed from the ROW. Habitat characteristics such as in-stream cover; substrate composition; canopy cover, riparian and aquatic vegetation were not documented due to seasonal and private land access limitations.

August 2014

Additional site investigations were conducted by AECOM ecologists in August 2014 to provide additional detailed information on the two reaches in the study area. Outlined below is the detailed assessment for both locations.

Reach 1

The West Humber River Tributary reach west of Castlemore Road (Field Investigation Reach 1) was assessed 100m north and south of The Gore Road. The general surrounding land use was residential on the north side of The Gore Road and agricultural crop fields on the south side. These land uses can contribute a variety of potential stressors to aquatic habitats and could include agricultural runoff (e.g. nutrients, pesticides, etc.), road salt, and garbage. At the time of assessment the tributary had stagnant water pooled north of the culvert for approximately 30m, and then dry channel north of that for approximately 70m. This dry section of channel can be considered a low flow barrier to fish migration and movement. Downstream the watercourse was more narrowed and confined and had slow flowing water. The overall mean wetted width downstream of The Gore Road was approximately 2m, and the mean wetted depth was 0.22m. The morphology of the system contained pools (20%) and flats (80%). Banks were slightly unstable throughout the reach, with evidence of some bank erosion. There was a layer of algae covering the substrates which was dominated by gravel, followed cobble, silt and clay. Instream cover was moderate overall (65%) and dominated by submergent and emergent aquatic vegetation (milfoil, cattails and grasses), followed by cobble and some woody debris. Canopy cover was high (75% closed) and dominated by deciduous trees followed by grasses and cattails.

During the investigation the north road side ditch contained shallow flowing water that fed into the West Humber River Tributary at the culvert area. The wetted width of the ditch was approximately 1m, and the wetted depth was approximately 0.06m. The substrate was a mix of gravel and sand with an algae layer on top. Instream vegetation was present and consisted mainly of cattails. Of note, young-of-year Cyprindae (e.g., minnows) were observed in a corrugated steel pipe (CSP) culvert used in the adjacent driveway access.

Reach 2

The West Humber River tributary reach, found north and south Wiley Road Bridges (Field Investigation Reach 2), was assessed for a total length of 200m. The watercourse had a narrow riparian area approximately 5-10m wide of natural meadow and forest before the surrounding landuses of residential and public school buildings. The watercourses crossed The Gore Road in twice - it meandered flowing from the southern side, to the northern side, crossing back again to the southern side. At the time of the August 2014 assessment the water was slowly flowing and water levels were below bankfull. The water had a brown tinge but was clear and transparent. The meandering watercourse is comprised of riffles (15%), runs (70%) and pools (15%). The banks were slightly unstable with evidence of undercutting throughout the reach. The approximate wetted width was 2m, and approximate wetted depth was 0.17m. The substrate varied slightly from section to section with a softer substrate upstream (a mix of organics, silt, sand, clay and gravel) moving into a mix of cobble, gravel with some muck, silt and clay through the middle and the downstream portions. Instream cover was moderate (60%) and was dominated by aquatic vegetation (grasses, red and green algae) followed by organic debris, small woody debris, undercut banks and cobble. Canopy cover was high (80%) and dominated by trees, followed by grasses. Fish of the Cyprinidae family (e.g., minnows), were observed throughout the reach.

3.1.2.2 Fish Community

A total of 16 fish species were recorded at four monitoring stations along West Humber River between 1972 and 1983 according to TRCA fish community data. The majority of the species are representative of a mixed cool and warmwater fish community of intermediate tolerance to environmental stressors. Common fish species include White Sucker (*Catostomus commersonii*), Northern Hog Sucker (*Hypentelium nigricans*), Common Shiner (*Luxilus cornutus*), Blackchin Shiner (*Notropis heterodon*), Rosyface Shiner (*Notropis rubellus*), Bluntnose Minnow (*Pimephales notatus*), Fathead minnow (*Pimephales promelas*), Blacknose Dace (*Rhinichthys atratulus*), Creek Chub (*Semotilus atromaculatus*), Brown bullhead (*Ameiurus nebulosus*), Rock Bass (*Ambloplites rupestris*), Pumpkinseed *(Lepomis gibbosus*), Largemouth Bass (*Micropterus salmoides*), Yellow Perch (*Perca flavescens*), Rainbow Darter (*Etheostoma caeruleum*) and Johnny Darter (*Etheostoma nigrum*).

Based on a review of the TRCA fish community data, none of the species are listed on the provincial Species at Risk in Ontario (SARO) list, or with the Committee on the Status of Species at Risk in Ontario (COSSARO), the federal *Species at Risk Act* (*SARA*), or the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). However, these records are over 30 years old and are considered historical. More recent fish community records are documented and have been formally requested and are anticipated to be provided by MNRF.

3.2 Aquatic Species at Risk

The 2007 *Endangered Species Act* (*ESA*) is a provincial act and provides a protection and recovery strategy for SARO. Methods of protection include protection of SAR habitat; support for private and public organizations; recovery of species; and strict enforcement (Ontario, 2012). The *ESA* regulation applies to extirpated, endangered and threatened species. Species of Special Concern are not protected under the *ESA*.

The Region of Peel is known to provide suitable habitat for Redside Dace (*Clinostomus elongatus*). Redside Dace is listed as Endangered on the provincial SARO list, and is protected under the *Endangered Species Act*. Monitoring indicates that Redside Dace populations in the Humber River are primarily limited to the East and West Humber subwatersheds in which the study area is located. In Ontario, Redside Dace generally inhabit slow moving sections of streams. Redside Dace are most commonly found in stream sections flowing through open meadows with scattered trees and shrubs. These streams are typically partially covered by overhanging vegetation, banks, submerged branches and logs. The overhanging vegetation is important both as a source of cover that shades the water and protects the Redside Dace from predators, and as habitat for the insects that Redside Dace eat. The stream bottoms generally include gravel and/or sand or other coarse sediment which provides the spawning habitat. Redside Dace require clear water in order to see their prey, and are sensitive to turbidity, although they have been found in some streams with moderate turbidity. Redside Dace are a cool water species, preferring temperatures less than 24°C and dissolved oxygen concentrations of at least 7 mg/L (MNRF 2010).

New urban growth, which is anticipated in East and West Humber subwatersheds, will likely affect known Redside Dace habitats, making the protection of this species and its habitat a high priority.

Through initial correspondence with the MNRF regarding potential aquatic Species at Risk they indicated there were no known Species at Risk within the study area. However, given that Redside

Dace are known to occur in the region a preliminary consultation meeting with MNR was held on April 8, 2014, in advance of spring and/or summer field surveys to specifically determine the likelihood of Redside Dace presence and the suitability of the habitat for their use within the study area. Mark Heaton, Species at Risk biologist with MNRF confirmed on April 8, 2014 that there is no occupied or recovery reaches for Redside Dace within the study area.

Additionally, a review of 2014 DFO online SAR mapping does not identify SAR species in the study area.

4. Summary

The West Humber River Tributary is classified as a permanent warmwater system which supports a mixed warm/coolwater baitfish community. This tributary appears to have been impacted by urban development and although it contains moderately degraded aquatic habitat it still continues to directly support a resident forage fish community.

According to the TRCA Fisheries Management Plan, in-water works and activities are allowed between July 1 – March 31; however, this timing window should be confirmed by the Aurora MNRF prior to the start of any works.

Through discussions with MNRF it has been confirmed that there is no occupied or recovery reaches for Redside Dace within the study area.

5. References

Toronto Region Conservation Authority, 2008:
Humber River Watershed Plan.

Toronto Region Conservation Authority, 2005:
Humber River Fisheries Management Plan, Draft.

Appendix I

Fluvial Geomorphology Report

AECOM

Region of Peel

Fluvial Geomorphological Assessment– Schedule ‘C’ Class Environmental Assessment for The Gore Road

Report

Region of Peel

Fluvial Geomorphological Assessment– Schedule ‘C’ Class Environmental Assessment for The Gore Road

Prepared by:

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Project Number:

60311637

Date:

February, 2015

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Appendices

1. Introduction

The Gore Road is a 4-lane major arterial road which extends from Queen Street to north of Castlemore Road in the City of Brampton. In the 2012 Long Range Transportation Plan (LRTP), the Region of Peel identified a need for additional capacity along a 4.2 km corridor from Queen Street to Castlemore Road. The report recommended upgrading the existing 4-lane cross-section to a 6-lane cross section. AECOM has been retained to complete a Schedule 'C' Municipal Environmental Assessment (EA) Study for The Gore Road widening project.

The 4.2 km study corridor crosses Wylie Creek, a tributary of the West Humber River, at three locations. As part of the EA Study, a fluvial geomorphological assessment of Wylie Creek is required with emphasis placed on existing geomorphological conditions at each of the three crossings. The assessment is intended to review relevant background information, identify historic rates and trajectories of channel change in proximity to the road, document existing channel conditions on a reach and site level, and identify active channel processes (e.g., erosion, widening, planform migration) that could affect, or be affected by, road widening. Results of the fluvial geomorphological assessment will identify opportunities and constraints for road widening, inform the evaluation of alternatives, and inform development of the functional drawings as it relates to any required channel relocations or channel design (e.g., within culvert).

1.1 Study Area

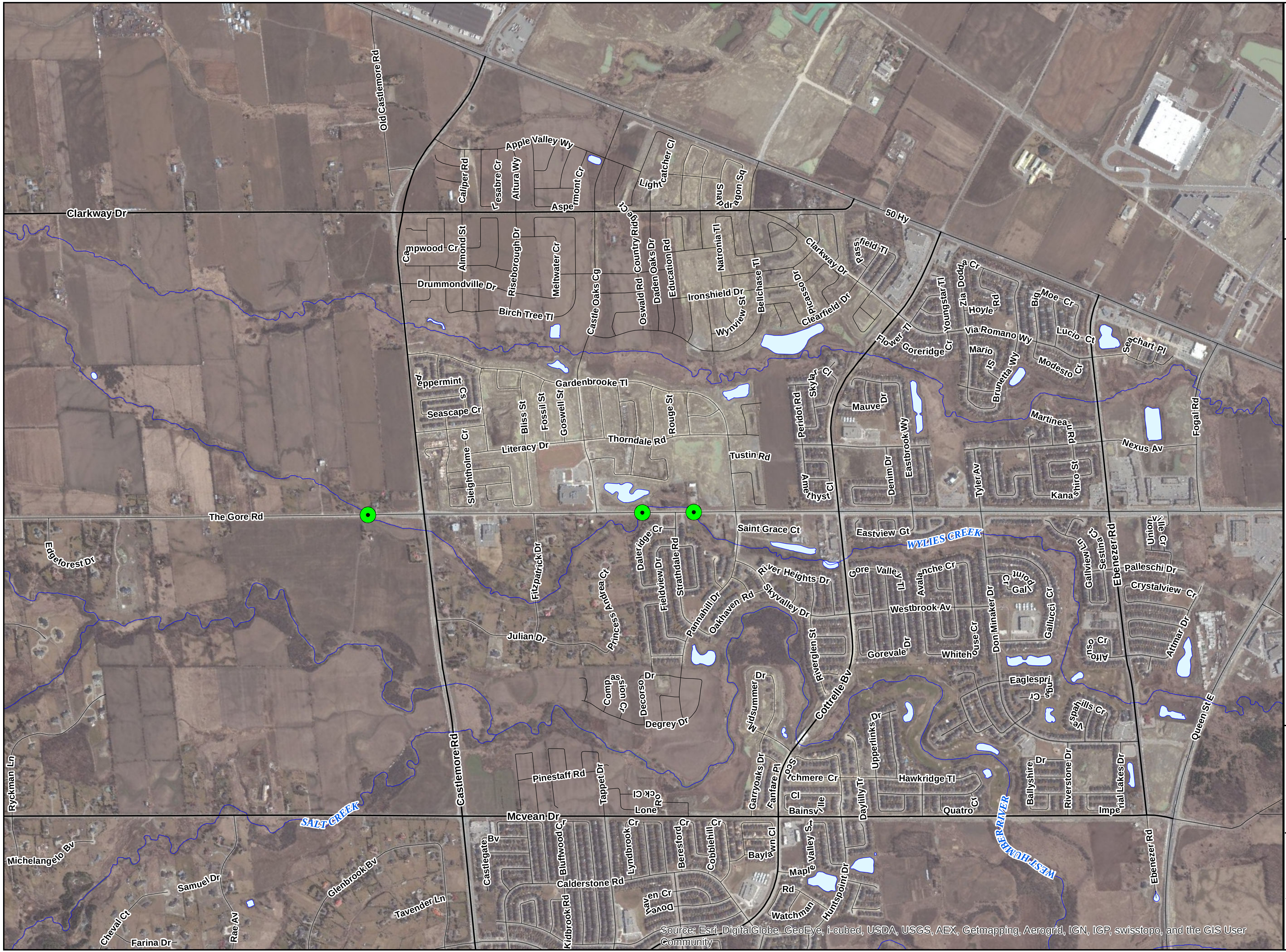
The project is located along a 4.2 km stretch of The Gore Road extending from Queen Street to Castlemore Road in the City of Brampton. The three locations where Wylie Creek crosses the Gore Road can be observed in **Figure 1.1**.

1.2 Aims and Objectives

The aim of this report is to review existing relevant information and characterize current conditions at the crossing sites in terms of fluvial geomorphology.

Specific objectives of the fluvial geomorphology assessment are:

- Geomorphic data collection including bed material characterization (e.g., pebble counts) and observation of existing channel processes both within and adjacent to the three crossings
- Determine meander belts in proximity of The Gore Road that would account for existing and future channel migration processes
- Determine erosion hazard area in proximity to the crossings
- Update existing HEC-RAS model with field collected cross-section data to ensure reasonable representation
- Identify opportunities and constraints for the road widening
- Provide recommendations on natural channel design and crossing dimensions
- Inform the development of functional drawings at it relates to channel realignments or natural channel design



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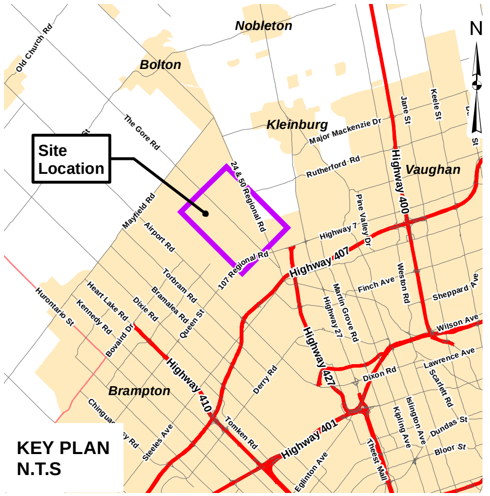

KEY PLAN
N.T.S

Legend

● Crossing Locations

Roads

━	Major Road
─	Local Road
▭	Waterbody
─	Watercourse

Basemapping Provided by: Toronto Regional Conservatiion Authority (TRCA)
Orthoimagery: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.

Region of Peel
The Gore Road from Queen Street to Castlemore Road Municipal Class EA

Figure 1-1
Crossing Locations

Meters
0 200 400 600

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2. Background Review

2.1 Existing Information

The following information was reviewed in this fluvial geomorphological study:

Previous Studies

- AECOM (2007) Gore Road Widening Hydraulic Analysis. Submitted to Toronto Region Conservation, July, 2007.
- Shaheen and Peaker Ltd (2003) Geotechnical Investigation: Proposed Widening of Wylie's North Bridge, Wylie's South Bridge, and Bridge North of Castlemore Road. Submitted to AECOM, December, 2003.
- TRCA (2007) Listen to Your River: A Report Card on the Health of the Humber River Watershed, Toronto Region Conservation, Toronto, ON.
- TRCA (2008a) Humber River State of the Watershed Report, Toronto Region Conservation, Toronto, ON.
- TRCA (2008b) Humber River Watershed Plan, Toronto Region Conservation, Toronto, ON.
- URS (2000) The Gore Road Class Environmental Assessment From Queen Street East to Castlemore Road. Submitted to the Regional Municipality of Peel, November 2000.

Mapping and Data

- Ministry of Natural Resources, Ontario Base Mapping, Topographic Maps
- Ontario Geological Survey, Mineral Resources Division, Surficial Geology Mapping
- Southern Ontario Land Resource Information System

2.2 Watershed Characteristics

The Gore Road study area lies within the Humber River watershed, which is located within the Greater Toronto Area and is within the Toronto Region Conservation Authority's jurisdiction. The headwaters are located on top of the Niagara Escarpment and Oak Ridge Moraine. From here the main branches and their tributaries flow southwards through natural, rural, agricultural, and urban lands before meeting its confluence with Lake Ontario within the City of Toronto. The resulting watershed drains approximately 903 km^2 with a total stream length of 2032 km. The majority (78%) of channels within the watershed consist of small tributaries with Strahler stream numbers less than 3 (TRCA, 2008). As well, the Humber River watershed contains five distinct sub-watersheds: The Gore Road study area is located in the West Humber River subwatershed (TRCA, 2008).

A review of physiography, topography, surficial geology, and land use provides context for consideration of fluvial geomorphology and drainage characteristics at crossings within The Gore Road study area.

2.2.1 Physiography and Topography

Along its length, the Humber River watershed extends across seven key physiographic regions. The headwaters run through the Niagara Escarpment, Horseshoe Moraine, Guelph Drumlin Field and Oak Ridges Moraine. The lower subwatersheds are within the South Slope, the Peel Plain, and the Iroquois Plain. Channels on the Escarpment have steep slopes while the remainder of the watershed is characterized by gentle slopes (TRCA, 2008b). Most of the West Humber subwatershed, including The Gore Road study area, is located in the Peel Plain. The Peel Plain is an undulating tract of clay soils, overlying shale and limestone till (Chapman and Putnam, 1984). The clay was presumably carried by meltwater from limestone regions to the east and north and deposited in a temporary lake in the Ontario basin. The predominance of poorly drained clay and clay till in the Peel Plain results in low baseflow in the West Humber tributaries.

The watershed sits within a deep bedrock valley system that has eroded over millions of years (TRCA, 2008b). In localized areas of the Humber River watershed the irregular geology and hummocky topography have created an irregular drainage network and numerous groundwater discharge locations (TRCA, 2008a). The West Humber River subwatershed has a relatively regular drainage network due to resistant till layer and uniform landscape slope which has created relatively straight channels that are oriented in the same northwest-southeast direction. Topography within the vicinity of the Gore Road can be observed in **Figure 2.1**.

2.2.2 Surficial Geology

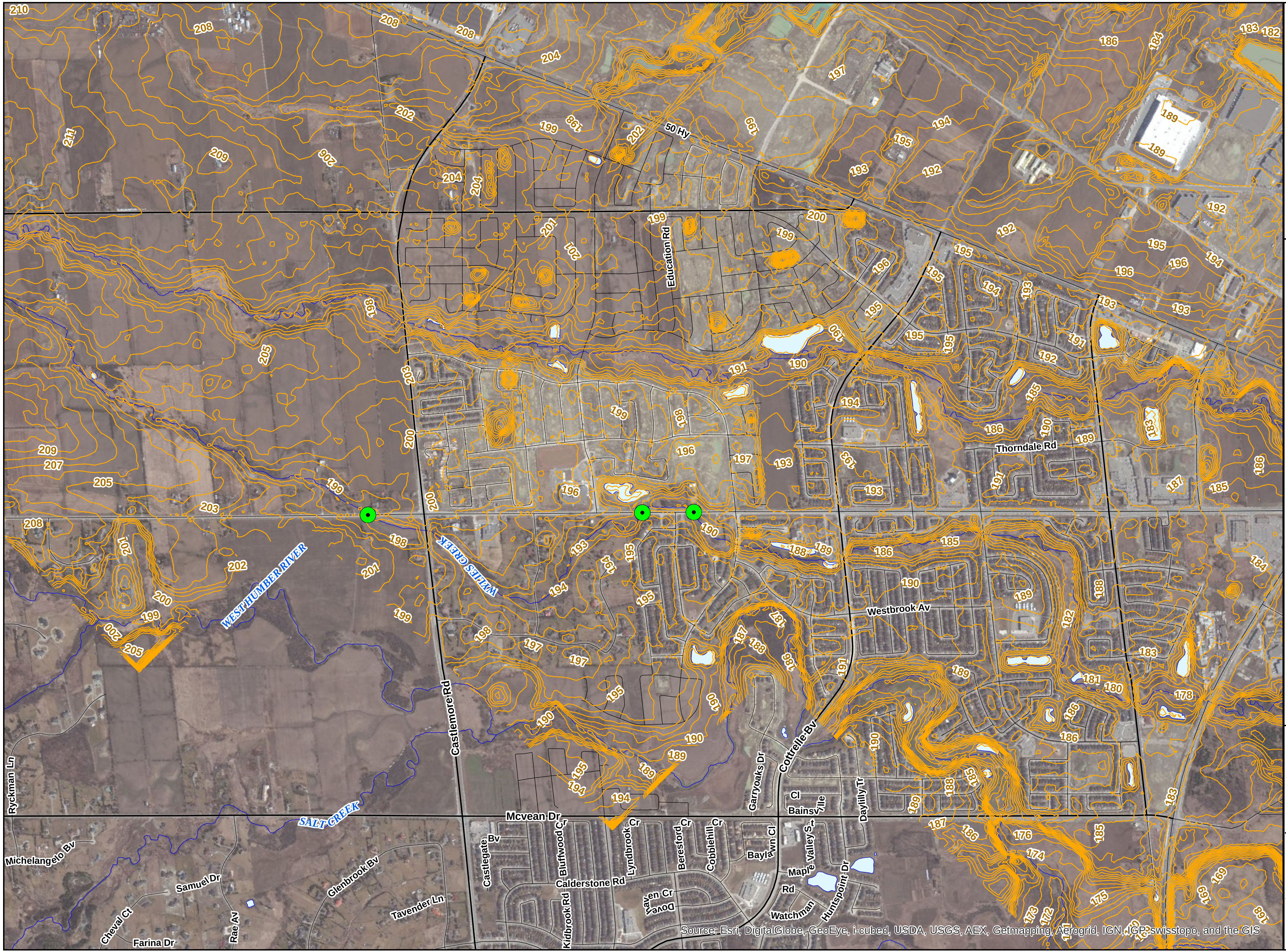
Surficial material controlling channel form in the Humber River watershed includes glacial till, glacial lake and pond deposits and glacial outwash material. In the headwaters, there is a thick layer of sand and gravel associated with the Oak Ridge Moraine. The remainder of the watershed is dominated by clay and silt till of the Halton Till Formation. These deposits originated from glacial Lake Iroquois in the southern areas of the watershed or glaciolacustrine ponding in the northern sections of the watershed. The uppermost glaciolacustrine sediments usually form a thin layer over underlying deposits but can be up to several meters thick locally. The channels in the watershed are underlain by modern alluvial deposits, layered down in the river valleys cutting through till and glaciolacustrine deposits (TRCA, 2008a). The surficial geology within the vicinity of the Gore Road can be observed in **Figure 2.2**.

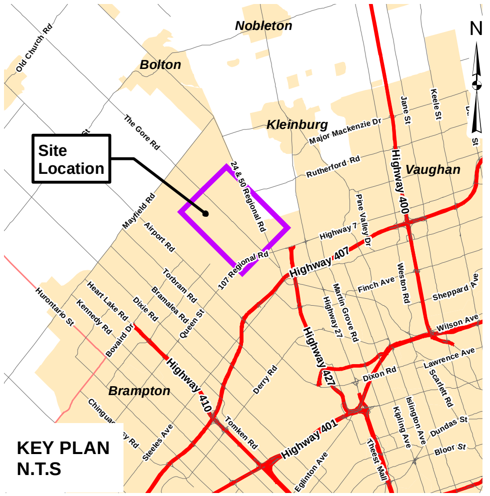
2.2.3 Soils

The soils of the Humber River watershed are dominated largely by a combination of till material, specifically the Halton Till. Dominant soil types in the watershed are sand, diamicton, and clay silt. The Gore Road study area is located in an area dominated by clay silt (TRCA, 2008a).

2.2.4 Land use

The Humber River watershed is divided amongst three major land uses: urban (27%), rural (40%), and natural land cover (32%). The greatest urban concentrations are in the southern areas of the watershed near Lake Ontario. The middle area of the watershed is in the process of urbanizing while the headwater regions in the north are predominately agricultural land. The area surrounding Gore Road is a combination or urban, agricultural, and meadow areas. There has been rapid Population growth throughout the watershed. Between 1995 and 2001 the population grew by 37% to 670,000. An additional 8845 hectares of urban development have been approved for the watershed, which will increase urbanized area from 27% to 36% (TRCA, 2008b). Land use within the vicinity of the Gore Road can be observed in **Figure 2.3**.





KEY PLAN
N.T.S

Legend

● Crossing Locations

〰 Contours (1m Interval)

Roads

— Major Road

— Local Road

— Watercourse

▭ Waterbody

Basemapping Provided by: Toronto Regional Conservatiion Authority (TRCA)
Orthoimagery: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.

Region of Peel
The Gore Road from Queen Street to Castlemore Road Municipal Class EA

Figure 2-1
Topography

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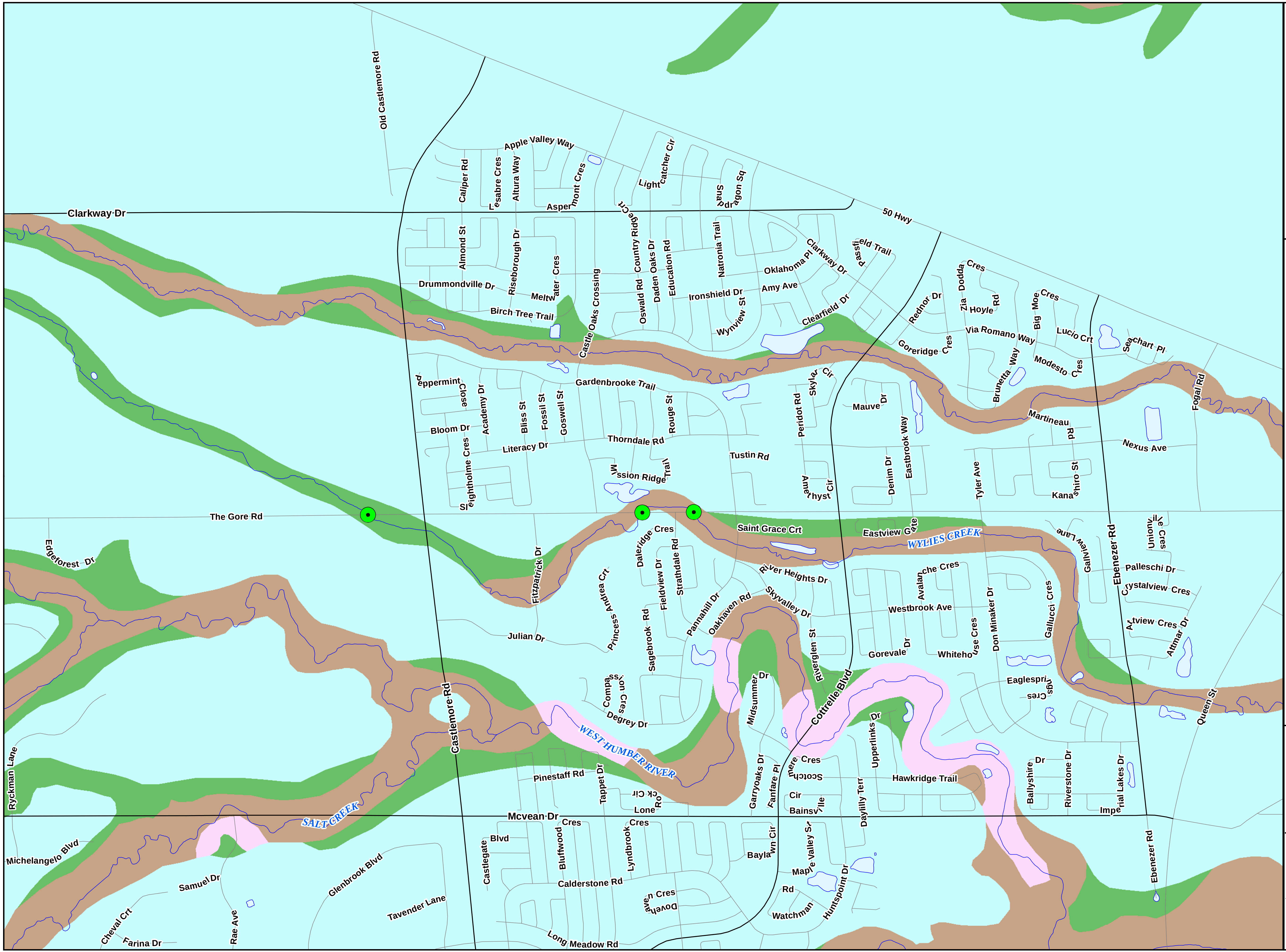

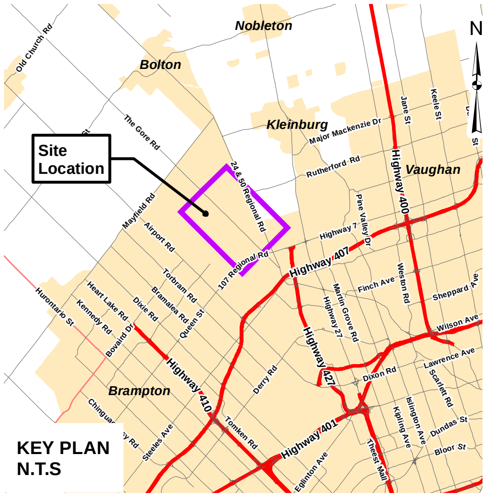

Legend

● Crossing Locations

Roads

— Major Road

— Local Road

— Watercourse

▭ Waterbody

Surficial Geology

🟫 19: Modern alluvial deposits

🟫 12: Older alluvial deposits

🟦 8b: Interbedded flow till, rainout deposits and silt and clay

🟩 5d: Glaciolacustrine-derived silty to clayey till

🟪 3: Paleozoic bedrock

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Basemapping Provided by: Toronto Regional Conservatiion Authority (TRCA)
Orthoimagery:

Region of Peel
The Gore Road from
Queen Street to Castlemore Road
Municipal Class EA

Figure 2-2
Surficial Geology

Meters
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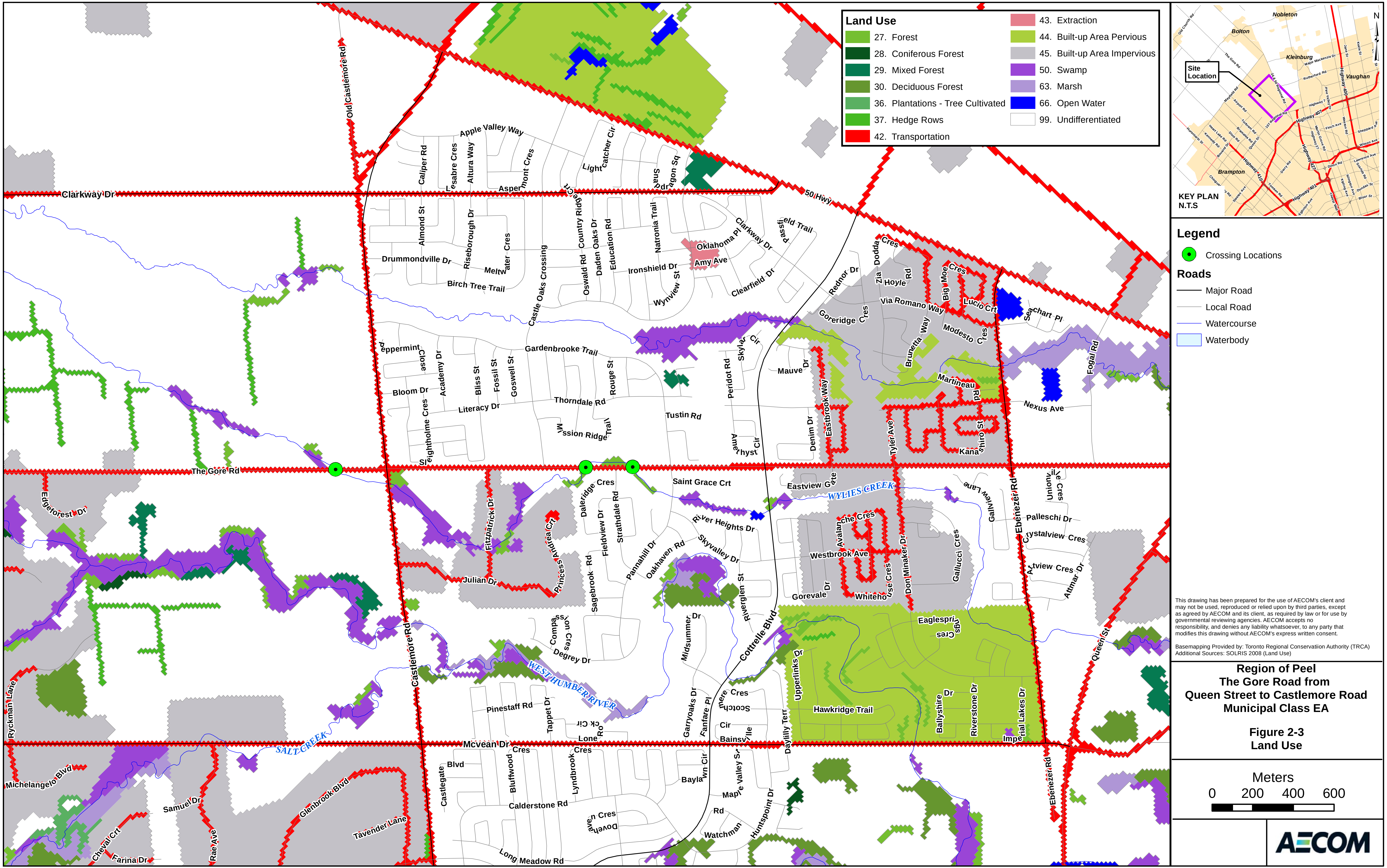

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Basemapping Provided by: Toronto Regional Conservation Authority (TRCA)
Additional Sources: SOLRIS 2008 (Land Use)

Region of Peel
The Gore Road from Queen Street to Castlemore Road
Municipal Class EA

Figure 2-3
Land Use

Meters
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2.3 Previous Relevant Studies

2.3.1 The Gore Road Class Environmental Assessment From Queen Street East to Castlemore Road. Submitted to the Regional Municipality of Peel (2000).

URS undertook a Schedule “C” Class Environmental Assessment for the widening of Gore Road from 2-lane cross-section to a 5-lane cross-section along the same 4.2 km long corridor used in the current EA. Existing traffic conditions were observed and future capacity needs were predicted in conjunction with the forecasted land use change in the study area. URS recommended a rural cross-section with four lanes plus a continuous center left turn lane. The three Wylie Creek crossings required widening to accommodate the change in cross-section.

The EA determined that there were no vulnerable, threatened, and endangered species despite redside dace being historically present in many small riverine habitats in the watershed. No specific wildlife habitat was observed. Furthermore, there was no natural forest cover within or immediately adjacent to the ROW. A sparse row of mature trees lined some areas of the channel. All three crossing structures were in satisfactory condition at the time of the EA, with only repairs to the sidewalk and parapet walls projected over the next 10 to 15 years. It was suggested that in-water works were to be avoided and a variety of construction procedures were recommended that minimized the negative impact on the environment at the three crossings. The EA did not include a fluvial geomorphological assessment.

2.3.2 Gore Road Widening Hydraulic Analysis (2007)

A hydraulic analysis was completed at the three crossings along The Gore Road as part of the detailed design of the most recent road expansion. The hydraulic analysis detailed the adequacy of the three structures under current and proposed conditions. The proposed conditions were to lengthen each structure (i.e. do not replace). TRCA required that the road widening minimized fill within the floodplain and therefore the existing roadway profile was to be maintained.

The current (circa 2007) and proposed bridge dimensions are summarized in **Table 2-1**. The low flow channel through each crossing spanned the entire crossing due to lack of vegetation under the bridge which inhibited bank formation.

Table 2-1. Current and proposed bridge dimensions

Bridge Name	Approximate Chainage (m)	Structural Span (m)	Skew	Waterway Span (m)	Existing Flow Path Length (m)	Proposed Flow Path Length (m)
Bridge North of Castlemore	14+243	9.3	35°	7.62	19.6	25.63
Wylie North Bridge	13+020	8.8	30°	7.62	15.1	25.13
Wylie South Bridge	12+818	8.8	30°	7.62	15.5	25.13

The road would be overtopped during the regional storm event at all three crossings. As well, all three crossings did not meet the > 1 m freeboard and soffit elevation clearance regulations for both current and proposed 100-year hydraulic criteria. In order for the crossings to meet the freeboard and soffit elevation clearance regulations a replacement structure would be required, which would significantly complicate the road design. Thus, the hydraulic analysis simply recommended extending the current structures. Expansion of the existing structures would have negligible impacts on upstream flood levels and although the regional flood will overtop the structures the water depth on top of the structure will still allow for safe passage of emergency vehicles. Expansion of Wylie North Bridge and Wylie South Bridge would only occur to the west side due to the presence of Wylie Creek to the east of Gore Road.

2.3.3 Geotechnical Investigation: Proposed Widening of Wylie's North Bridge, Wylie's South Bridge, and Bridge North of Castlemore Road (2003)

Four bore holes were drilled at three crossings impacted by The Gore Road widening to determine subsurface conditions. The findings were used to make recommendations on the design and construction of the lengthened structures. **Table 2-2** summarizes the results of the geotechnical analysis.

Table 2-2. Findings of the geotechnical investigation at 3 watercourse crossings along Gore Road

Crossings	Subsurface Material
Bridge North of Castlemore	• Upper layer is glaciolacustrine till • Major deposit of sand till at depths 2.9 m to 4.4 m
Wylie North Bridge	• Upper layer is glaciolacustrine till • Competent till/shale at depths 0.9 m to 1.8 m • Shale bedrock occurs 2.0 m to 2.1 m below ground
Wylie South Bridge	• Upper layer is glaciolacustrine till • Competent till/shale at depths 1.4 m to 2.4 m • Shale bedrock occurs 3.4 m to 4.7 m below ground

2.3.4 Humber River Watershed Plan (2008)

The Humber River Watershed Plan was created to "inform and guide municipalities, provincial and federal governments, Toronto and Region Conservation (TRCA), non-governmental organizations and private landowners as they update their policies and practices for environmental protection and stewardship" (TRCA, 2008b). The plan documents existing environmental and relevant social and economic conditions, predicts future environmental conditions, and outlines strategies and implementation plans to ensure the overall wellbeing of the Humber River watershed.

It was noted that many watercourse crossings in the Humber River watershed were designed without fully considering the environmental impact of the crossings. Many crossings do not accommodate regional storm flood flows, wildlife passage, and/or the natural meander belt of the stream. These crossings are commonly damaged by flooding and erosion, which are typically addressed through hard engineering approaches which further degrade the natural habitat and disrupt the flow regime.

The Watershed Plan also reported the following relevant information regarding the West Humber River watershed:

- Many streams within the West Humber watershed are standing pools or completely dry during the summer months
- Wylie Creek is considered flood prone within the vicinity of The Gore Road
- The Gore Road study area is located within Claireville Heritage District
- Reaches within the West Humber watershed have little to no riparian cover

Strategies were presented to remediate degraded channels, maintain or improve biodiversity, and restore a more natural water balance. The following are strategies relevant to channel morphology and watercourse crossing in the Humber River watershed:

- Adopt and implement the Greater Golden Horseshoe Conservation Authorities' *Erosion and Sediment Control Guidelines for Urban Construction* (2006)
- Restore natural cover in drainage areas upstream of flood vulnerable areas to help attenuate flood flows
- Naturalization of reaches within the West Humber subwatershed to improve aquatic habitat and mitigate erosion issues
- Road crossings over watercourses should be situated appropriately to minimize potential for alterations to channel form and allow for natural movement of the channel within the floodplain
- Protect natural stream form, using TRCA's Valley and Stream Corridor Management Program and *Ontario Regulation 166/06*, municipal official plan policies, the *Fisheries Act*, the *Oak Ridges Moraine Conservation Plan*, the *Greenbelt Plan*, and the *Niagara Escarpment Plan*.

2.3.5 Humber River State of the Watershed Report (2008)

The State of the Watershed presents available data collected through the Regional Watershed Monitoring Program (RWMP) and detailed studies conducted by watershed partners. TRCA's objective for watersheds within their jurisdiction is that "the natural form and function of the Humber River Corridors are protected and regenerated". In order to meet this objective they have specified fluvial geomorphological indicators and associated targets as specified in **Table 2-3**.

Table 2-3. TRCA's fluvial geomorphology indicators and targets (Source: TRCA, 2008)

Indicators	Targets
Channel Morphology	• Maintain or restore natural channel structure and rates of morphological change (initial reference condition as per 2001 longitudinal profile survey, migration rates and substrate characterization data at RWMP sites)
Flow Regime and Erosion Potential	• Maintain baseline erosion index where stream banks are stable and decrease and/or restore to baseline erosion index where stream banks are unstable (measured at stream flow gauge sites; initial reference condition as per RWMP data 2001) • Maintain baseline stream bank erosion rate (cross-sectional analysis; initial reference condition as per RWMP data 2001)
Stream Corridor Integrity and Continuity	• By 2025, 75% of the riparian zone should contain natural cover
Risk to Public and Private Property from channel evolution and change	• Reduce or eliminate buildings, infrastructure, and private property at risk from channel evolution

Channels within the Humber River watershed are reacting to urban development and are becoming increasingly unstable as they adjust to changes in hydrological regime, sediment supply and transport, and riparian vegetation dynamics. Traditional hard engineering approaches that were designed to limit the impact of peak flow events are often causing further instability. For instance, stormwater detention facilities have not been sufficient and managing the morphological impacts to watercourses stemming from land use changes in the watershed. Renewed efforts are being made to restore channel to a more natural function.

Furthermore, channels in the West Humber subwatershed have been highly modified due to the loss of natural forest cover, construction of agricultural drains, culvert and bridge construction, and channel re-alignment. The report suggests that reaches within the West Humber River subwatershed are the only RWMP sites in the Humber River Watershed that exhibit moderate stability. The monitoring stations in the other subwatersheds were considered unstable or in the process of active adjustment.

As part of the TRCA Regional Watershed Monitoring Program a geomorphological monitoring station (GHU-8) was established ~2 km downstream of the Wylie Creek South crossing. There are no major tributaries and channel form appears to remain consistent between the crossing and the monitoring station. **Table 2-4** summarizes morphological conditions at GHU-8.

Table 2-4. Morphological characteristics at GHU-8 (Source: TRCA, 2008)

Variable	Value
Drainage Area (km^2)	11
Average Width (m)	5.22
Average Depth (m)	0.32
Slope (%)	0.74
Median Substrate (cm)	0.04
Critical Discharge (m^3/s)	0.03
Average Bank Height (m)	1

3. Desk-Based Assessment

Prior to field investigation, a desk-based assessment was conducted including:

- Delineation of geomorphological reaches,
- Historic assessment of landuse and channel changes
- Meander belt width assessment

3.1 Reach Delineation

Reaches can be defined as lengths of channel that display similar physical characteristics and have a setting that remains nearly constant along their length. Thus, in a reach, the controlling and modifying influences on the channel are similar, and are reflected in similar geomorphological form, function and processes within the reach. Reaches were defined based on desktop assessment of characteristics including sinuosity, valley setting, geology, gradient, land use and tributary confluences, using aerial photography, drainage network, geology and topographic mapping. The location and rationale of reach breaks can be observed in **Table 3-1**. As well, reach breaks are illustrated in **Figure 3-1**. Reach boundaries were confirmed during the field visit.

Table 3-1. Delineated Reaches of Wylie Creek within the vicinity of the Gore Road

Reach	Upstream Boundary		Downstream Boundary	
	Reason	**Coordinates**	**Reason**	**Coordinates**
1	Tributary Confluence	43°48.345' N 79°41.845' W	Transition from natural to straightened/realigned planform	43°47.826' N 79°41.633' W
2	Transition from natural to straightened/realigned planform	43°47.826' N 79°41.633' W	Transition from straightened/ realigned planform and grassland to natural planform and forested area	43°47.461' N 79°41.412' W
3	Transition from straightened/ realigned planform and grassland to natural planform and forested area	43°47.461' N 79°41.412' W	Transition from natural to straightened/realigned planform	43°47.187' N 79°41.025' W
4	Transition from natural to straightened/realigned planform	43°47.187' N 79°41.025' W	Transition from straightened/ realigned to natural planform	43°46.391' N 79°40.747' W
5	Transition from straightened/ realigned to natural planform	43°46.391' N 79°40.747' W	Outlet of storm water management ponds	43°46.713' N 79°40.566' W
6	Outlet of storm water management ponds	43°46.713' N 79°40.566' W	Outlet of storm water management pond	43°46.179' N 79°40.241`' W

3.2 Historic Assessment

Creeks and rivers are dynamic features that naturally change over time in terms of their configuration as part of meander development, and migration processes and are also subject to anthropogenic changes. Aerial photographs of the study area taken in 1946, 1951, 1960, 1977, 1983, 1993, 1999, 2002, and 2013 were reviewed to analyze changes in local land use and channel planform. The available mapping was georeferenced with a GIS and overlain with layers representing existing rivers and streams and the identified reaches. The historical aerial photographs were used in order to document changes in land use in the vicinity of each of the crossings. The historical channel configurations were digitized and analysed within the GIS in order to identify changes in channel planform over the time period 1946 to 2013. Land use change together and the resulting impacts to channel function and form are summarized in **Table 3-2**.

Table 3-2. Historic observations along Wylie Creek

Reach	Land Use Changes	Channel Characteristics and Changes
1	• **1946 – 1951: minimal change** • **1951 – 1960: minimal change** • **1960 – 1977: minimal change** • **1977 – 1983: minimal change** • **1983 – 1993: minimal change** • **1993 – 1999: minimal change** • **1999 – 2002: growth of mature riparian buffer in localized areas** • **2002 – 2013: minimal change**	• **1977 – 1983: there was a shift in the meander axis in localized areas**

Table 3-2. Historic observations along Wylie Creek

2	• **1946 – 1951: minimal change** • **1951 – 1960: minimal change** • **1960 – 1977: house and agricultural buildings constructed, the culvert north of Castlemore was moved further north to its current location** • **1977 – 1983: minimal change** • **1983 – 1993: minimal change** • **1993 – 1999: minimal change** • **1999 – 2002: minimal change** • **2002 – 2013: minimal change**	• **1946 – 1951: localized channel straightening** • **1951 – 1960: localized channel straightening** • **1960 – 1977: channel realignment throughout the reach** • **1983 – 1993: channel is wider upstream of The Gore Road and downstream of Castlemore Road** • **2002 – 2013: major channel realignment between The Gore Road and Castlemore Road**
3	• **1946 – 1951: minimal change** • **1951 – 1960: riparian vegetation removal** • **1960 – 1977: construction of Fitzpatrick and Julian Drives** • **1977 – 1983: residential and commercial density increases on both sides of the channel, construction of a walking trail and pedestrian bridge** • **1983 – 1993: minimal change** • **1993 – 1999: minimal change** • **1999 – 2002: minimal change** • **2002 – 2013: residential development east of Gore Road**	• **1960 – 1977: localized channel straightening** • **1977 – 1983: formation of meander cut-offs at two locations** • **2002 – 2013: loss of a tributary of Wylie Creek east of The Gore Road**
4	• **1946 – 1951: minimal change** • **1951 – 1960: minimal change** • **1960 – 1977: minimal change** • **1977 – 1983: minimal change** • **1983 – 1993: minimal change** • **1993 – 1999: minimal change** • **1999 – 2002: minimal change** • **2002 – 2013: residential development, construction of a school, and addition of a SWM pond east of Gore Road**	• **1960 – 1977: localized channel straightening**
5	• **1946 – 1951: minimal change** • **1951 – 1960: minimal change** • **1960 – 1977: construction of online SWM pond upstream of the Pannahill Drive** • **1977 – 1983: growth of industrial area along east bank (left bank) at the downstream end of the reach** • **1983 – 1993: further encroachment of industrial area along east bank** • **1993 – 1999: minimal change** • **1999 – 2002: growth of mature riparian buffer in localized areas** • **2002 – 2013: construction of Pannahill Drive and addition of a SWM pond east of the channel**	• **1977 – 1983: channel outlet from SWM pond was moved**
6	• **1946 – 1951: minimal change** • **1951 – 1960: minimal change** • **1960 – 1977: minimal change** • **1977 – 1983: minimal change** • **1983 – 1993: minimal change** • **1993 – 1999: minimal change** • **1999 – 2002: extensive residential development along both banks, SWM pond added at downstream end of reach, construction of Don Minaker Drive** • **2002 – 2013: construction of Cottrelle Blvd**	• **1946 – 2013: local meander translation**

3.2.1 Land Use Change

The area surrounding Wylie Creek was predominately agricultural lands for the last half of the 20th century. There has been accelerated urbanization since 2002. Urbanization has resulted in wider roads, the addition of SWM infrastructure, and loss of riparian vegetation in localized areas. The shift away from agriculture has allowed for re-establishment of riparian vegetation in other areas, notably Reaches 1 and 3.

3.2.2 Channel Changes

Prior to the extensive urbanization within the study area, there was noticeable channel straightening within agricultural fields, especially in Reach 2. The 1946 aerial photos contain a channel planform that appears to have been previously straightened suggesting alteration of Wylie Creek has been occurring for over 70 years. Following urbanization, there has been further channel straightening (especially in the vicinity of road crossings), addition of on-line SWM ponds, and a loss of a tributary (east of the Gore Road, North of the Cardinal Ambrozic Catholic High School).

3.3 Meander Belt Width Assessment

The associated erosion and deposition that occurs as a result of meander development and migration processes can cause loss or damage to private property and/or infrastructure. For this reason, it is desirable to delimit a corridor that contains the natural meander and migration tendencies of the channel. Outside of this corridor, it is assumed that private property and structures will be beyond the area at risk from fluvial erosion. The space that a meandering watercourse occupies on its floodplain, and in which all associated natural channel processes occur, is commonly referred to as the meander belt. It is typical to consider the meander belt width when replacing or modifying river crossings.

3.3.1 Unconfined, Partially Confined, and Confined Systems

Approaches to defining meander belt widths vary depending on whether the reach is unconfined, partially confined, or confined by valley walls. Unconfined watercourses have no limits on the spatial occupation of the floodplain. Partially confined watercourses come into contact with the valley wall on one side of the channel which restricts meander migration. There are no limits to meander migration on the side of the channel that is not restricted by a valley wall. Confined watercourses come into contact with the valley wall on both sides of the channel which restricts channel migration. Thus, valley walls restrict the channel from occupying its potential meander belt (Parish Geomorphic Ltd.). Topographic mapping was reviewed during the desktop assessment to determine the location of valley walls and their proximity to the Wylie Creek for each reach. Reaches 1 through 4 are deemed to be unconfined while Reaches 5 and 6 are partially confined (restricted by valley contact along one bank). The findings of the desktop assessment were confirmed during the site visit.

3.3.2 Meander Belt Delineation Procedures

The guidance publication “Belt Width Delineation Procedures” provides protocols for delimiting appropriate meander belt widths for unconfined and confined systems (Parish Geomorphic Ltd., 2004). Where the channel planform has not been significantly modified, delineation of the meander belt can be undertaken as recommended by Leopold and Wolman (1960) and described in Parish Geomorphic Ltd (2004). This approach involves drawing tangential lines, parallel to the meander axis (i.e., valley axis), along the outside bends of meanders that are situated at the edge of the floodplain. The distance, perpendicularly, between these two lines represents the meander belt width.

The assessment was conducted according to the guidance document, using digital aerial photography, topographic mapping and historic channel positions in a Geographic Information System. Using the TRCA guidelines (Parish, 2004), the meander belt axis (the general down valley trend in planform pattern) was delineated. The axis serves as the centre line for the meander belt boundary. The protocol for delineating meander width boundaries is dependent on valley setting.

Unconfined

For a unconfined reach, preliminary meander belt limits are defined as tangential lines on the outer edge of the most laterally extreme meander on the floodplain (i.e. meander that is further from the axis). To account for bank erosion and channel migration over time, an erosion setback representing 10% of the preliminary meander belt width was applied to either side of the channel

Partially Confined

For a partially confined reach, preliminary meander belt limits are defined as tangential lines on the outer edge of the most laterally extreme meander on the floodplain. The valley wall constrains meander migration and thus it serves at the meander belt limit. The meander limit on the side of the watercourse that is adjacent to the valley wall is subsequently modified to reflect the position of the valley wall at locations where the valley wall is closer to the meander axis then the original position of the meander limit. The meander belt limit is adjusted to account for irregularities in the valley wall and it placed approximately half way between the base and the top of the valley wall. Note that defining the meander belt in this manner does not consider any slope stability issues. A geotechnical investigation is required to assess the stable slope.

3.3.3 Natural and disturbed planform

Measuring the meander belt width based on historic aerial photography is appropriate for watercourses that display some form of natural planform. Reaches 1, 3, 5, and 6 have undergone some alteration, but for the most part they still display a natural meandering planform. Reaches 2 and 4 are been heavily modified due to agriculture and urbanization. The outer limits of Reach 2 were still delineated using the methodology described above. However, the determined meander belt width is the lateral limits of anthropogenic modification as opposed to natural meander. Reach 4 has been modified and confined since the construction of The Gore Road, which predates our aerial photographs. As such, Reach 3, which still displays natural channel planform, was used as a surrogate for Reach 4. Empirical meander belt assessment will also be conducted for the heavily disturbed reaches (2 and 4).

3.3.4 Meander Belt Widths

The delineated meander belt widths defined for each reach can be observed in **Figure 3-1** (note, the meander belt widths illustrated on the figure are the measured meander belt widths and do not take into account the empirical results). For Reaches 1 through 4, unconfined reaches, the width is reported as a single value, incorporating an allowance of 10% of the meander belt width on both banks for 100 year erosion processes. There was a lack of meander bends to conduct a proper 100 year erosion rate assessment due mostly to channel modification, hence, the 10% factor of safety on either side of the channel. For Reaches 5 and 6, partially confined reaches, the meander belt width varies longitudinally due to the influence of the valley walls. As stated in the “Belt Width Delineation Procedures” (Parish Geomorphic Ltd., 2004), the maximum width is used to represent the meander belt width in these reaches. Meander belt widths are summarized in **Table 3-3**.

It should be noted that these meander belt widths do not take into account geotechnical or slope stability issues.

Table 3-3. Meander belt widths for Wylie Creek within the vicinity of the Gore Road

Reach	Valley Setting	Preliminary Meander Belt Width (m)	Final Meander Belt Width (m)
1	Unconfined	84	100.8[1]
2	Unconfined	104	124.8[1]
3	Unconfined	114	136.8
4	Unconfined	As Reach 4	As Reach 4
5	Partially Confined	88 (range: 64 – 88)	96.8[2] (range: 72.8 – 96.8)
6	Partially Confined	76 (range: 50.6 – 76)	83.6[2] (range: 58.2 – 83.6)

1 – Meander belt width after applying a 10% setback to both sides of the channel

2 – Meander belt width after applying a 10% setback to the unconfined side of the channel

3.3.5 Empirical Meander Belt Assessment

Due to the heavily modified channel planform in Reaches 2 and 4, empirical meander belt assessments were conducted. These methods estimate meander belt width based on established relationships and certain channel parameters, such as drainage area, channel gradient, discharge, bankfull dimensions, and substrate characteristics. Due to a lack of environmental information, the empirical meander belt assessment was limited to formulae with the following input variables: bankfull depth (D), bankfull width (W), and maximum depth (D_{max}). The results for Reach 2 and Reach 4 can be observed in **Table 3-4** and **Table 3-5**, respectively.

Table 3-4. Empirical meander belt assessment for Reach 2

Source	*Equation*	*Meander Belt Width (m)*
Collinson (1978) - maximum depth (m)	$65.6D_{max}^{1.57}$	46.2
Lorenz and Heinze (1985) - width (m)	$7.53W^{1.01}$	22.8
Williams (1986)- width (m)	$4.3W^{1.12}$	14.7
Williams (1986)- channel area (m)	$18(W^*D)^{0.65}$	26.4
Williams(1986) - hydraulic depth (m)	$148D^{1.52}$	68.1
Malavio et al. (1998) - width (m)	$10W$	30.0
Bridge and Mackey (1993) - hydraulic depth (m)	$59.9D^{1.8}$	23.9
Ward et al. (2002)- width (ft) - w/ factor of safety	$6W^{1.12}$	23.7
	Average	**32.0**

Table 3-5. Empirical meander belt assessment for Reach 4

Source	*Equation*	*Meander Belt Width (m)*
Collinson (1978) - maximum depth (m)	$65.6D_{max}^{1.57}$	65.6
Lorenz and Heinze (1985) - width (m)	$7.53W^{1.01}$	22.8
Williams (1986)- width (m)	$4.3W^{1.12}$	14.7
Williams (1986)- channel area (m)	$18(W^*D)^{0.65}$	31.8
Williams(1986) - hydraulic depth (m)	$148D^{1.52}$	105.4
Malavio et al. (1998) - width (m)	$10W$	30.0

Table 3-5. Empirical meander belt assessment for Reach 4

Bridge and Mackey (1993) - hydraulic depth (m)	$59.9D^{1.8}$	40.1
Ward et al. (2002)- width (ft) - w/ factor of safety	$6W^{1.12}$	23.7
	Average	**41.8**

There is significant deviation between the measured meander belt widths and the empirical results. Part of the deviation (albeit a very small part) is due to the use of a factor of safety in the measured results. Furthermore, Wylie Creek is a low-gradient, narrow, sand bed channel. The empirical formulae, for the most part, were developed on larger gravel bed rivers would could lead to deviation between the measured and calculated values. As well, the riparian disturbance (i.e. episodes of removal) along Wylie Creek has led meander propagating further laterally than they would have under natural forested conditions.

For Reach 2, the measured meander belt width is based on anthropogenic realignment and not natural conditions. As well, the empirical meander belt width (32.0 m) appears to be undersized for this reach. Thus, using the measured meander belt width from Reach 1 (100.8 m) as a surrogate for Reach 2 is recommended. Reach 1 has historically displayed a natural planform and contains similar channel dimensions, bed gradient, boundary materials, and valley setting to that of Reach 2.

For Reach 4, a measured meander belt width was not calculated as the channel has been confined by The Gore Road and surrounding development prior to 1946 (the earliest aerial photograph). Like Reach 2, the empirical meander belt width (41.8 m) appears to be undersized for this reach. Although it is a very conservative approach, using the measured meander belt width from Reach 3 (136.8 m) as a surrogate for Reach 2 is recommended.

3.3.6 Local Meander Pattern

It is often important to determine local meander pattern (amplitude, radius of curvature, etc.) directly upstream of a crossing as these meander can translate downstream to the crossing. Within the vicinity of all three crossings, Wylie Creek has been straightened and realigned to accommodate The Gore Road. The 1946 aerial photo displayed some natural planform near the crossings and will be used to identify local meander amplitudes.

3.3.6.1 Crossing North of Castlemore

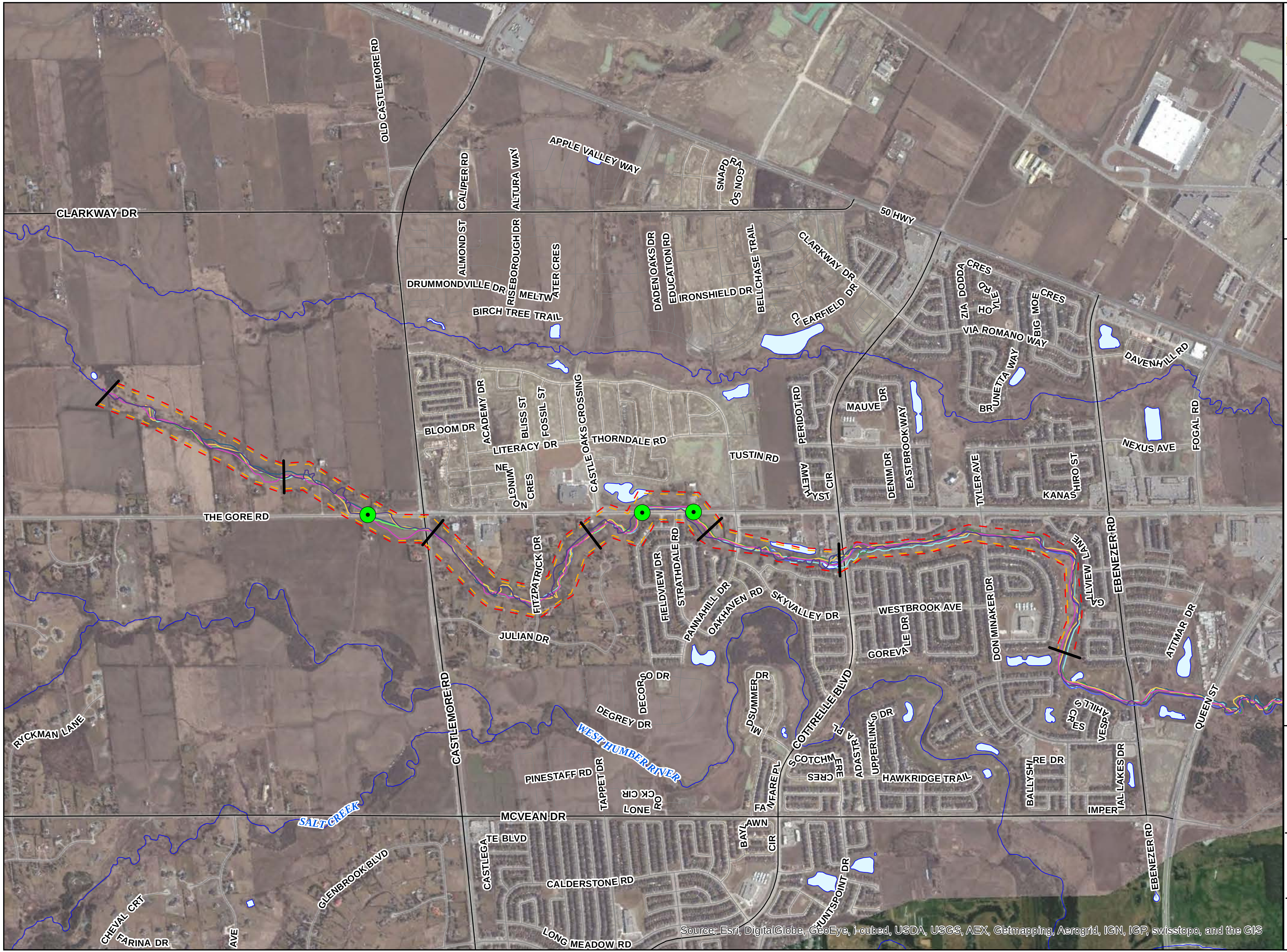
The current location of the crossing North of Castlemore was established between 1960 and 1977. Upstream of the crossing, the 1946 planform contained noticeable meanders. Since 1946, the channel has been extensively straightened upstream of the crossing. Downstream of the crossing, the channel was realigned to accommodate the change in crossing location between 1960 and 1977. Moreover, there was significant channel realignment downstream of the crossing between 2009 and 2013, resulting in the channel moving further west. AECOM requested formal documentation of the channel realignment from TRCA. However, TRCA was unable to locate the relevant documents. Based on the 1946 channel configuration, the local meander amplitude at the crossing was determined to be 26 m using GIS.

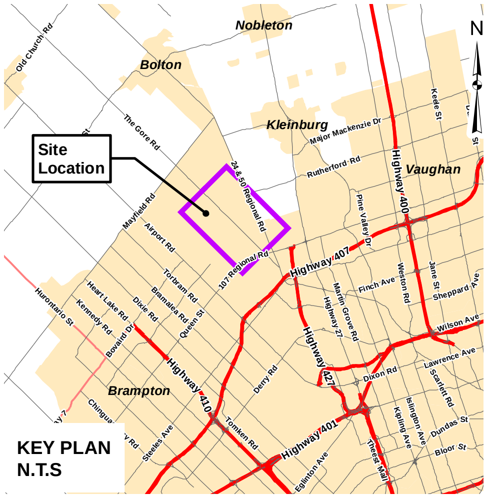
3.3.6.2 Wylie North

The current location of the Wylie North crossing was established between 1946 and 1951. The 1946 imagery suggests there was a crossing slightly north (within ~10 m) of the current configuration. The 1946 configuration showed evidence of channel straightening upstream and downstream of the crossing. When the crossing was moved to its current location the channel was further straightened within the vicinity of the crossing and was shifted to the south. The channel has shown minimal lateral migration since the crossing location moved. Based on the 1946 channel configuration, the local meander amplitude was determined to be 39 m using GIS.

3.3.6.3 Wylie South

The current location of the Wylie South crossing was established between 1946 and 1951. The 1946 imagery suggests there was a crossing slightly north (within ~10 m) of the current configuration. The 1946 configuration showed evidence of channel straightening upstream and downstream of the crossing. When the crossing was moved to its current location the channel was further straightened within the vicinity of the crossing and was shifted to the south. The channel has shown minimal lateral migration since the crossing location moved. Based on the 1946 channel configuration, the channel was less sinuous at Wylie South than Wylie North resulting in a local meander amplitude of 18 m.





KEY PLAN
N.T.S

Legend

● Crossing Locations

Meander Belt Assessment

Preliminary Meander Belt

Final Meander Belt

Reach Breaks

Wylies Creek Historical Timeline

Hist_Year

1946

1951

1960

1977

1983

1993

1999

2002

2013

Roads

Major Road

Local Road

Watercourse

Waterbody

Basemapping Provided by: Toronto Regional Conservatiion Authority (TRCA)
Orthoimagery: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Region of Peel
The Gore Road from
Queen Street to Castlemore Road
Municipal Class EA
Figure 3-1
Wylies Creek Meander Belt
Assessment

Meters

0 200 400 600

AECOM

4. Field Reconnaissance

Field reconnaissance was completed on August 26, 2014 in order to assess local geomorphological form and function, existing conditions at the Wylie Creek crossing sites, and verify the findings of the desk-based assessment. Geomorphological conditions were assessed for Reaches 2, 3, and 4.

4.1 Survey Methodology

The geomorphological field reconnaissance survey comprised the following components:

- Basic geomorphological characterisation
- Rapid geomorphological assessment
- Watercourse crossing assessment
- Detailed geomorphological data (cross-sections and bed sediment characterisation)
- Photographic record

4.1.1 Basic geomorphological characterisation

Basic geomorphological reach data was recorded as part of the reconnaissance survey, including typical bankfull dimensions, bank and bed materials, land use and the influence of vegetation, locations of confinement by valley sides and their stability, degree of channel-floodplain connectivity and location of erosion and channel modifications.

4.1.2 Rapid Geomorphological Assessment

The Rapid Geomorphic Assessment (RGA) was designed by the Ontario Ministry of Environment (1999) to assess reaches in urban channels. This technique is a presence/absence methodology designed to document evidence of channel instability. The various indicators are grouped into four categories indicating a specific geomorphic process: Aggradation, Degradation, Channel Widening and Planimetric Form Adjustment.

Over the course of the survey, the existing geomorphic conditions of each reach are noted and individual geomorphic indicators are documented. Upon completion of the field inspection, these indicators are tallied by category and used to calculate an overall reach stability index, which corresponds to their relative sensitivity to altered sediment and flow regimes (**Table 4-1**).

Table 4-1. RGA Classification (Source: Ontario Ministry of Environment, 2003 – App. C3)

Factor Value	Classification	*Interpretation*
≤0.20	In Regime or Stable (Least Sensitive)	*Channel morphology is within a range of variance for streams of similar hydrographic characteristics – evidence of instability is isolated or associated with normal river meander propagation processes*
0.21-0.40	Transitional or Stressed (Moderately Sensitive)	*Channel morphology is within the range of variance for streams of similar hydrographic characteristics but the evidence of instability is frequent*
≥0.41	In Adjustment (Most Sensitive)	*Channel morphology is not within the range of variance and evidence of instability is wide spread*

4.1.3 Watercourse Crossing Assessment

The Watercourse Crossing Assessment was undertaken in order to collect data relating specifically to the crossing in question. Information recorded included

- Hydraulic characteristics of the structure including span, height, inlet and outlet characteristics, skew, top of road and construction material
- Structural condition
- Assessment of potential issues relating to the crossing (e.g. bank erosion, bed scour, debris trapping and fish passage).

Photographs were also taken to illustrate bridge inlet and outlet features as well as typical channel conditions upstream and downstream.

4.1.4 Detailed Geomorphological Data

4.1.4.1 Cross-section dimensions

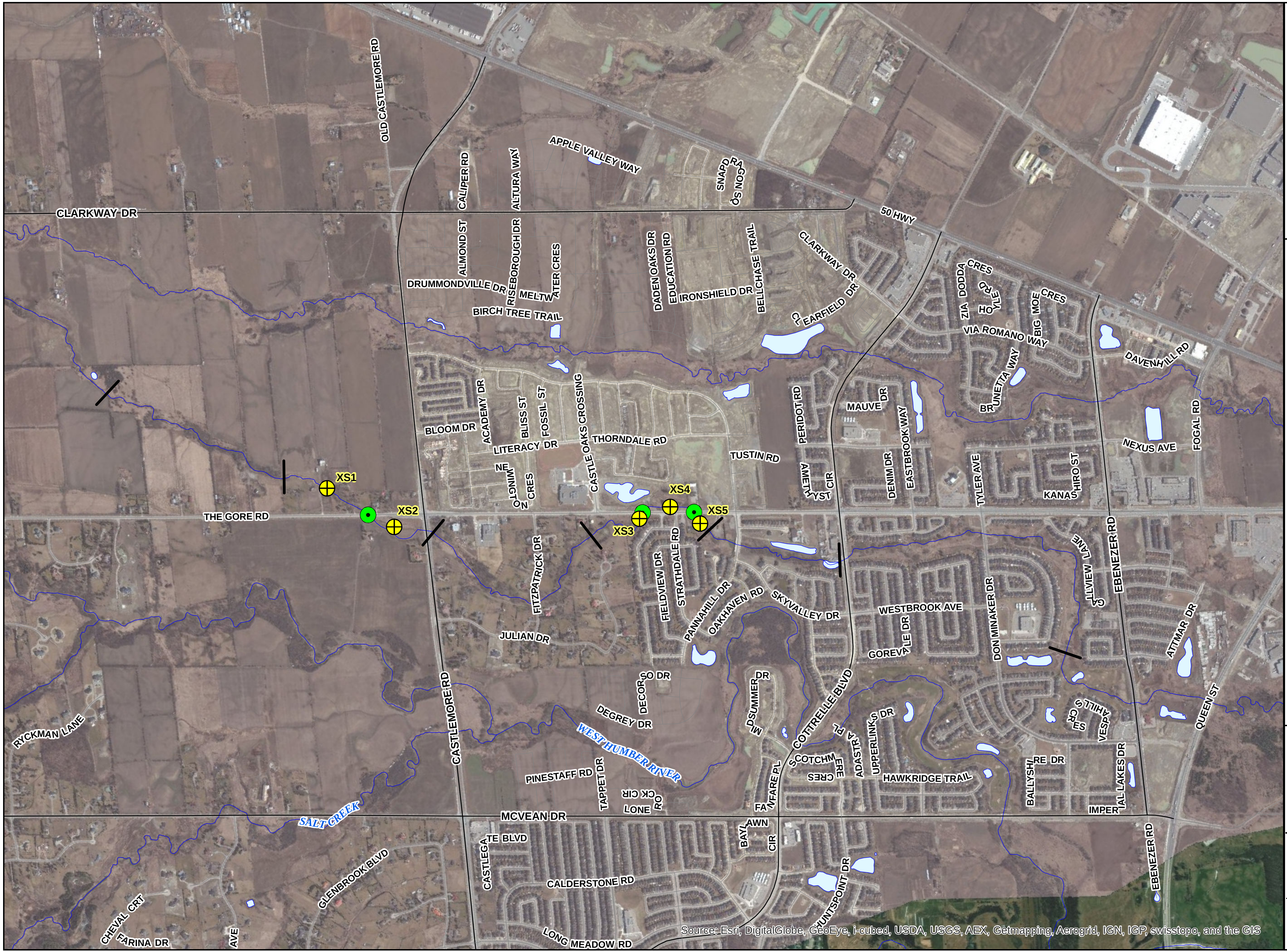
Five cross-sections were measured within Reaches 2, 3, and 4 to identify bankfull channel dimensions. The location of the cross-sections can be observed in **Figure 4.1**. Cross-sections were measured using a five-point system that identified the relative elevations at bankfull conditions for each bank, the bottom of each bank, and channel thalweg. Two cross-sections were measured within Reach 2 – one upstream and one downstream of the bridge north of Castlemore. Three cross-sections were measured within Reach 4 – one upstream of the Wylie North crossing, one downstream of the Wylie South Bridge, and one in between Wylie North and Wylie South. This information will asset in the analysis of sediment transport analysis.

4.1.4.2 Bed sediment characterisation

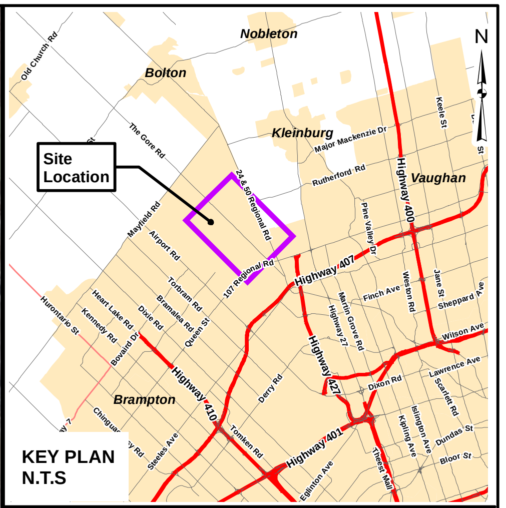
The grain size distribution influences sediment transport and flow resistance within a given reach. A Wolman (1954) pebble count was completed at each cross-section with the exception of cross-section 2, which was comprised of fine substrate (i.e. no gravel). Pebble counts used a modified Wentworth (1922) grain size scale to classify particles into discrete groupings. A step-toe procedure was used to select 50 grains along each cross-section. The b-axis of each selected stone was measured with a ruler. Grains that were less than 2 mm were assigned to fine sediment categories according to a modified Wentworth grain size scale. At cross-section 2 the relative proportion of clay, silt, and sand was estimated in the field from four grab samples.

4.1.5 Photographic Record

Photographs were taken within all three reaches to document channel dimensions, bank and bed materials, riparian vegetation, valley walls, and floodplain dynamics. In addition, photographs were taken of specific locations of geomorphological importance including bank erosion sites, channel modifications, presence of bank protection, and large woody debris jams.



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS



KEY PLAN
N.T.S

Legend

● Crossing Locations

⊕ Cross-Section Locations

— Reach Breaks

Roads

— Major Road

— Local Road

— Watercourse

▭ Waterbody

Basemapping Provided by: Toronto Regional Conservatiion Authority (TRCA)
Orthoimagery: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Region of Peel
The Gore Road from Queen Street to Castlemore Road Municipal Class EA

Figure 4-1
Cross-Section Locations

Meters
0 200 400 600

AECOM

Document Path: P:\60311637\900-Work\920-929 (GIS-Graphics)\Maps\Working\60311637_Fig4_1_Cross-SectionLocations.mxd

4.2 Results

Results from the field reconnaissance are located in the following appendices and discussed, together with their implications for geomorphological form and function, below:

- Fluvial Geomorphological Reach Description Sheets - **Appendix A**.
- Watercourse Crossing Structure Field Assessment Sheet - **Appendix B.**
- Photographic Record **– Appendix C**

4.2.1 Reach Characterisation

Reach 2 (Forested area to south of Castlemore Road)

Reach-averaged bankfull width is 3 m and bankfull depth is 0.6 m. The channel has a low gradient. Channel sinuosity is low due to previous straightening/realignment. The bed morphology is a poorly defined pool-riffle sequence. The substrate is mostly fine material. The riparian vegetation is mostly grasses, with some localized areas where maintained lawns abut the channel. The reach has been extensively modified throughout. Upstream of The Gore Road the channel has been historically straightened for agricultural and residential purposes. Downstream of The Gore Road the channel has been realigned on several occasions with the most recent alignment occurring in the last 5 years (exact date in unknown). The channel contains in-channel vegetation which is reducing water velocities and inducing sedimentation of fine material. There is no valley wall contact.

Reach 3 (South of Castlemore Road to the start of realigned/straightened channel west of The Gore Road)

Reach-averaged bankfull width is 4 m and bankfull depth is 0.6 m. The channel has a moderate gradient and moderate sinuosity. The bed morphology is a defined pool-riffle sequence. The substrate is a mixture of fines in the pools and gravel through the riffles. The riparian vegetation is a mix of mature and young deciduous trees and grasses and provides a strong rooting network in the banks. Reach 3 is relatively natural in comparison to Reaches 2 and 4. Historically, there appears to be some minor straightening as well as localized areas of riparian vegetation removal. There is no valley contact and the channel is moderately entrenched. There was some scouring noted on the outside of meander bends.

Reach 4 (Start of realigned/straightened channel west of The Gore Road to start of confined channel north of Pannahill Drive)

Reach-averaged bankfull width is 3 m and bankfull depth is 0.6 m. The channel has a moderate gradient. Channel sinuosity is low due to previous straightening/realignment. The bed morphology is a poorly defined pool-riffle sequence. The substrate is a mixture of fines in the pools and gravel through the riffles. The riparian vegetation is a mixture of mature and young deciduous trees and grasses. Reach 4 has been straightened, realigned, and artificially confined as a result of the construction of The Gore Road and residential development. Upstream of the Wylie North crossing there are debris jams causing some instability and leading to the formation of cut-off channels. In between Wylie South and Wylie North crossings, the channel has been straightened and is confined to the west by The Gore Road. Downstream of the Wylie South the riparian vegetation has been removed and the channel in moderately entrenched. The channel is showing signs of degradation (e.g. cut face on bar forms), especially upstream of Wylie North.

Results of the Rapid Geomorphological Assessment are summarized in **Table 4-2**. Reach 2 is considered “In Regime” while Reaches 3 and 4 are “Transitional or Stressed”. Aggradation was the dominant geomorphic process occurring in Reaches 2 and 3 while Reach 4 was dominant by degradation. Reach 4 had the highest RGA score which is likely attributed to extensive channel alteration over the past century. Reach 2 also was extensively altered over the past century but it has a very shallow channel gradient leading to small tractive forces.

Table 4-2. Rapid Geomorphological Assessment Results for Wylie Creek.

Reach	Factor Value				Stability Index	Condition
	Aggradation	Degradation	Widening	Planimetric adjustment		
2	0.29	0.14	0.23	0.14	0.17	In Regime
3	0.57	0	0.33	0.14	0.26	Transitional or Stressed
4	0.29	0.5	0.33	0.29	0.35	Transitional or Stressed

Note: Red values indicate dominant fluvial geomorphological process

4.2.2 Crossing Assessment

4.2.2.1 Crossing North of Castlemore

The current bridge has a crossing span of 7.62 m with a 35° skew. On the day of the site visit water velocity through the crossing was negligible (i.e. stagnant water) and the water depth was approximately 0.4 m. There is placed river stone throughout the crossing with a veneer layer of fine material on top. A substantial deposit of fine material was observed along the right bank (as defined looking downstream) abutment near the crossing outlet. River stone has been locally placed against both abutments ranging in width from 0 to ~1.5 m, which could be an attempt to mimic a meandering channel through the crossing.

Upstream of the crossing, the channel has been historically straightened. The riparian vegetation is mostly grass. The channel appeared to be stable with no excess bank or bed erosion. There are two drainage ditches that confluence the channel ~ 2 m upstream of the bridge inlet on either bank. The channel bends to the right as it enters the crossing. Downstream of the crossing the channel has been realigned in the past 5 years. There is dense aquatic vegetation in the channel which is inducing sedimentation of fine material. The channel bends to the left as it exits the culvert. There was scour observed on the right bank downstream of the crossing

The following should be considered during the detailed design of the crossing replacement/lengthening:

- Moving the crossing slightly south, increasing the span, or increasing the skew will make for a more natural transition at the crossing inlet and outlets (i.e. no sharp bends)

4.2.2.2 Wylie North

The current bridge has a crossing span of 7.62 m with a 30° skew. There was no defined channel through the crossing and there was placed angular rock against both abutments. On the day of the site visit water velocity through the crossing was negligible (i.e. stagnant water) and the water depth was approximately 0.5 m. There were some localized areas of deposition of fine material. This fine material would most likely be washed downstream during higher flow events.

Upstream of the crossing, the channel is moderately steep and shows signs of degradation (cut face on bar forms). There is a debris jam ~45 m upstream of the crossing which is causing some local instability. Undercut banks/slumping was observed on both banks upstream of the crossing. The riparian vegetation is mostly grasses with some mature deciduous trees. The channel turns slightly to the left as it enters the crossing. Downstream of the crossing the channel is narrow and deep. The riparian vegetation is mostly dense long grass. Undercut banks/slumping was observed on both banks. The channel is straight (probably artificially) as it exits the crossing.

The following should be considered during the detailed design of the crossing replacement/lengthening:

- Material being eroded upstream of the culvert could be deposited in the lower gradient crossing and immediately downstream of the crossing
- The channel appears to be degrading and widening in order to enlarge its cross-section

4.2.2.3 Wylie South

The current bridge has a crossing span of 7.62 m with a 30° skew. There was a defined channel beginning half way through the crossing. The channel banks in the downstream half of the crossing were comprised of river stone. The banks in the upstream half appeared to have been scoured by storm drains outletting on the abutments. On the day of the site visit water velocity through the crossing was negligible (i.e. stagnant water) and the water depth was approximately 0.6 m. The bed material throughout the culvert is placed river stone with a thin veneer layer of fine material on top.

Upstream of the crossing the channel is confined by The Gore Road to the west and a retaining wall to the east. The riparian vegetation is mostly grasses. There has been scour on the left bank upstream of the culvert resulting in displaced rock protection and a failed erosion blanket. There is also scour below an inactive CSP storm outlet on the left bank. The scour does not appear to be recent. The channel bends to the right as it enters the crossing. Downstream of the crossing there is placed angular stone on both banks. As well, in localized areas maintain lawns abut the channel. The channel bends to the left when it exits the crossing.

The following should be considered during the detailed design of the crossing replacement/lengthening:

- Substrate should be sized to account for additional discharge from storm drains outletting in the crossing
- Inactive storm outfall upstream of the inlet on left bank should be removed
- Avoid the use of channel hardening techniques on the banks near the inlet and outlets
- Moving the crossing slightly south, increasing the span, or increasing the skew will make for a more natural transition at the crossing inlet and outlets (i.e. no sharp bends)

4.2.3 Cross-sectional dimensions

The physical dimensions of the five measured cross-sections are summarized in **Table 4-3**. Cross-section 2, located in the recently realigned channel between The Gore Road and Castlemore Road, was significantly wider and shallower than the other four cross-sections.

Table 4-3. Summary of cross-sectional dimensions

Measure	***XS-1***	***XS-2***	***XS-3***	***XS-4***	***XS-5***	***Average***
Bankfull Width (m)	2.05	5.10	3.30	2.18	2.43	***3.01***
Average Bankfull Depth (m)	0.37	0.25	0.49	0.38	0.42	***0.38***
Maximum Bankfull Depth (m)	0.64	0.40	0.77	0.57	0.62	***0.60***
Bankfull Width:Depth	5.62	20.40	6.70	5.74	5.75	***8.84***
Cross-sectional Area (m^2)	0.75	1.29	1.90	0.98	1.24	***1.23***
Wetted Perimeter (m)	2.50	5.24	3.97	2.76	3.12	***3.52***

4.2.4 Bed Sediment Characterisation

The grain size distributions for all five cross-sections can be observed in **Figures 4.2** to **4.6**. The D_{16} (16% of the sample is equal to or smaller than), D_{50} (median grain size), and D_{84} (84% of the sample is equal to or smaller than) are summarized in **Table 4-3**.

Table 4-4. Summary statistics of pebble counts

Percentile	**Grain Size (mm)**					
	XS1	**XS2**	**XS3**	**XS4**	**XS5**	**Average**
D_{16}	0.004	0.001	1.20	0.003	0.35	0.31
D_{50}	9.80	0.002	20.75	0.63	14.60	9.16
D_{84}	16.47	0.005	55.33	11.00	40.00	24.56

The calibre of sediment at each cross-section is related to the local channel gradient. Cross-sections that had a low gradient, such as Cross-section 2, have low shear stresses resulting in the deposition of final material. Higher gradient cross-sections, such as Cross-section 3, contain higher shear stresses resulting in the entrainment and transport of fine material leaving behind a coarser bed.

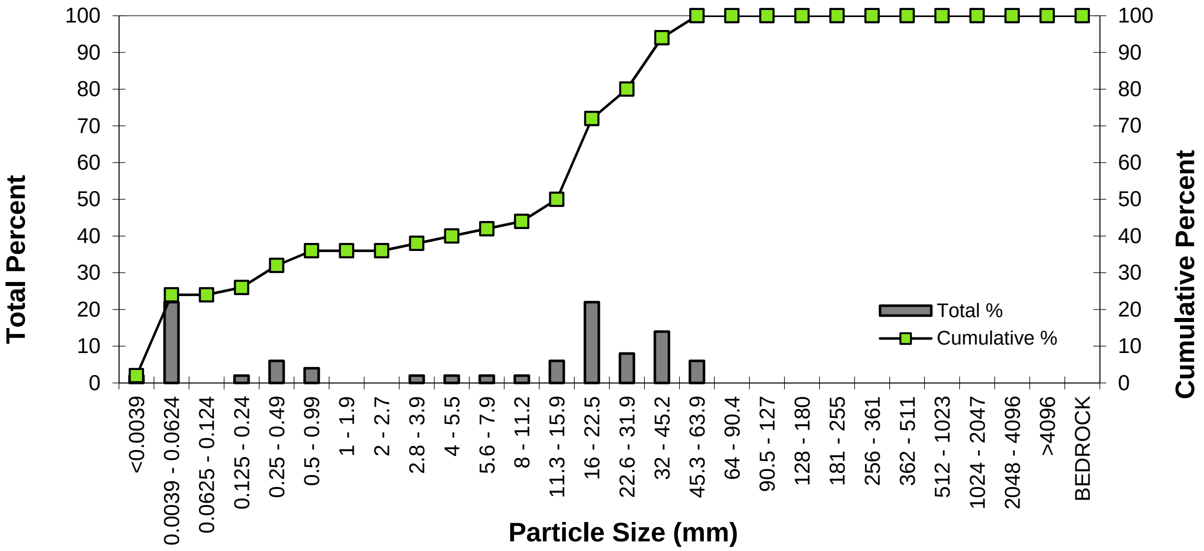


Figure 4-2. Grain size distribution at XS1

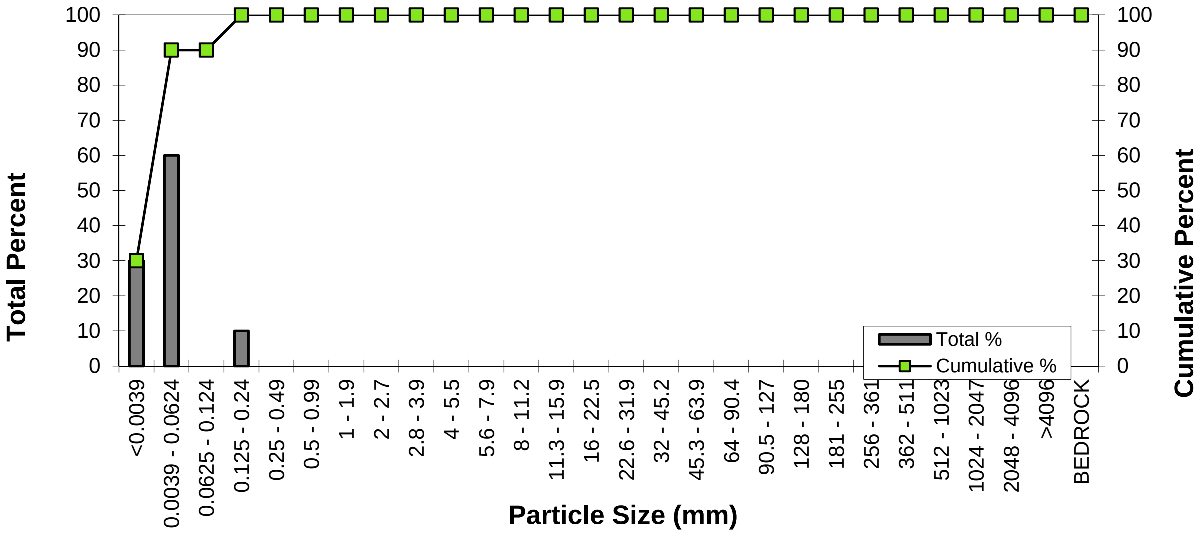


Figure 4-3. Grain size distribution at XS2

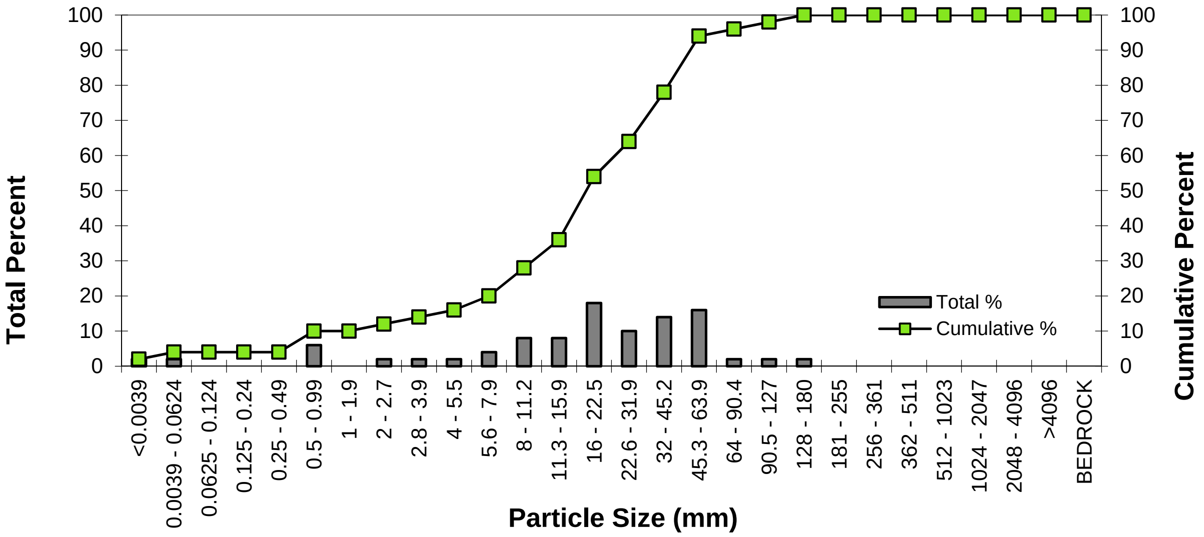


Figure 4-4. Grain size distribution at XS3

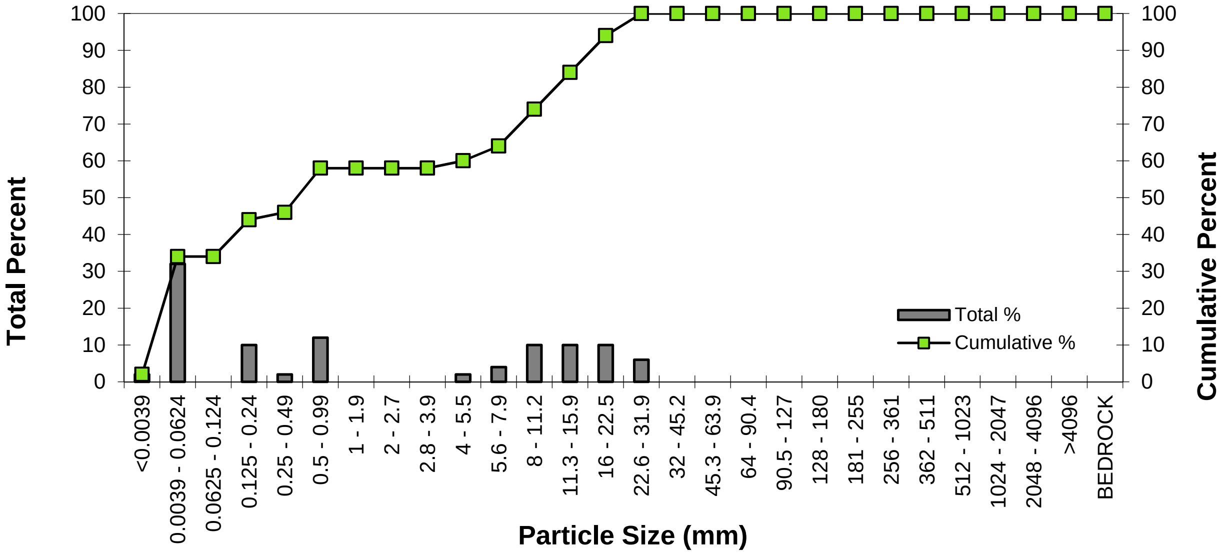


Figure 4-5. Grain size distribution at XS4

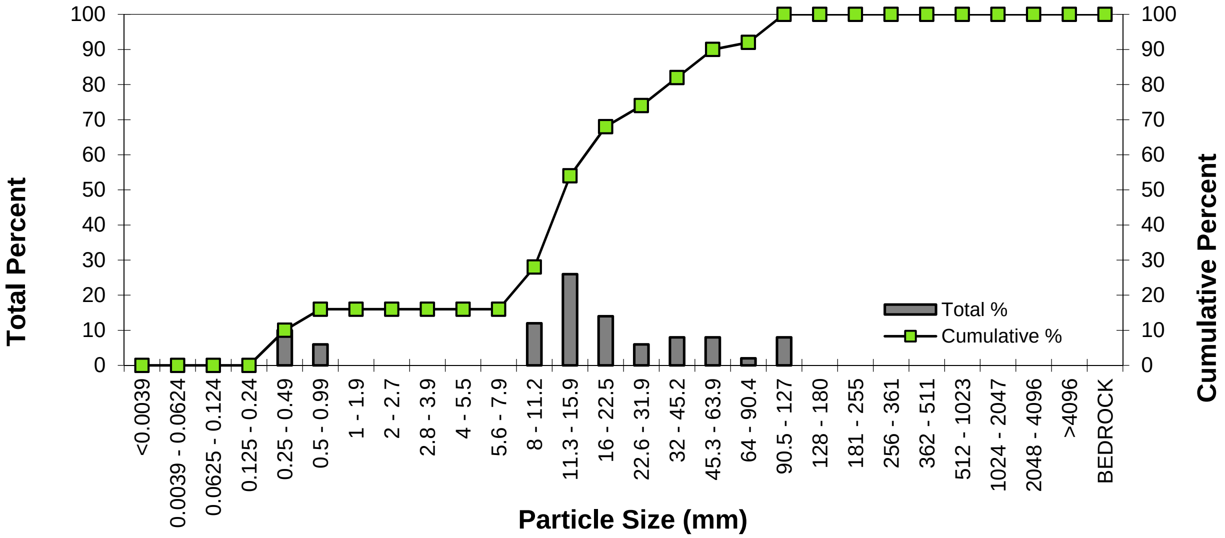


Figure 4-6. Grain size distribution at XS5

5. Watercourse Considerations and Constraints

When crossings are placed over a watercourse without due consideration of the processes that are occurring within the watercourse, then risks to the crossing structure and/or channel form and function may occur. Such risks could lead to the need for continual or emergency maintenance of the bridge or culvert and/or could adversely affect channel stability and both fish passage potential and aquatic habitat. Thus, if the three crossings under investigation are to be replaced careful consideration into crossing dimensions and substrate is required.

5.1 Risk to Crossings

Crossings placed over a watercourse may be at risk of failure due to channel processes occurring along the channel, both in proximity to the crossing location, and also along the drainage network. The extent of the risk will depend on the crossing type (e.g., bridge vs. culvert), the type and extent of engineering countermeasures in proximity to the crossing, and the nature of channel processes that are occurring which could interfere with the crossing structure. Some channel processes that could contribute to risk of a bridge or culvert structure include:

- Channel bed degradation/lowering – this can lead to undercutting of bridge/culvert abutments/footings.
- Channel migration – movement of meanders could cause erosion of culvert/bridge embankments.
- Channel expansion – enlargement of cross-section areas (e.g., in response to urban hydromodification may lead to increased stress around culvert entrance leading to outflanking of a culvert and flow constriction.
- Knickpoint regression along the channel bed profile.

In many situations, risk to the crossing structure can be avoided by ensuring that the span is sufficiently wide as to minimize impacts to channel functions. Similarly, risk can be avoided by ensuring that the location of the crossing structure considers the existing and anticipated future planform configuration and position on the floodplain. The crossing type (open or closed) may also influence the risk from fluvial processes on structural integrity.

5.2 Crossing Risk to Watercourse and Aquatic Habitat

Crossings situated along a watercourse interact with, and exert an influence on, channel processes. The scientific literature has identified common impacts of watercourse crossings both on channel functions and on aquatic species. Common impacts include destabilization of channel form and function, impediments to fish migration, and destruction of aquatic habitat. In some situations, impacts of a crossing on the channel result in a risk to the crossing. Typical adverse effects attributed to crossings include:

- Scour of banks at culvert inlet/outlet – due to flow contraction/expansion
- Establishment of a local base level control point (e.g., closed bottom culvert) that affects channel bed profile development
- Perched culvert – affecting channel profile and fish passage
- Sediment deposition – due to a loss of sediment transport capacity upstream or within the culvert
- Sediment loading – at road crossings due to the wash of road based sediment into the channel
- Channel bed degradation
- Channel bed instability

Reduction in potential impacts of crossing structures can be accomplished by minimizing the number of crossings that occur along a watercourse. Further reductions in potential risk to the watercourses and aquatic habitat can occur through proper design and placement of crossing structures along the watercourse. This requires consideration of channel sensitivity and processes at each proposed crossing location.

5.3 Crossing Design Approaches

Different approaches are available to assess appropriate watercourse crossing designs on a geomorphological basis. These are primarily Meander Pattern Design, Mobile Bed Design and Engineered Substrate Design (as described within AECOM, 2012). The adoption of these approaches typically considers an increasingly smaller spanned structure, but entails potentially greater impacts on geomorphological processes and fish passage.

Option 1: Meander Pattern Design
The Meander Pattern Design approach involves design of the watercourse crossing to span the entire meander belt width and account for future (100-year) channel migration processes. Channel and floodplain functions are maintained or replicated and no adverse impact on fish passage and fish habitat occurs. This approach is the one that produces recommendations for the largest spans, but entails the least future risk in terms of erosional risk to the structure and potential impacts on fish habitat.

Option 2: Mobile Bed Design
The Mobile Substrate Design approach is used to determine a crossing span equivalent to, or greater than, the bankfull channel width, that maintains or replicates pre-crossing natural sediment transport potential and fish passage characteristics.

Option 3: Engineered Substrate Design
The Engineered Substrate Design approach is used to determine a crossing span equivalent to, or greater than, the bankfull channel width, that results in flow conditions mimicking the natural stream between the 3-day delay flow (high and low) with a 1:10 return period (3Q10). Engineered substrate is placed within the crossing to form a low flow channel and provide roughness, which slows the water flow and provides areas of slower moving water for fish to rest.

The spans recommended according to all of the design approaches described above are at least equivalent to the bankfull channel width, which forms the minimum requirement from a geomorphological perspective. Crossings that are narrower than the bankfull channel width may have an adverse impact on geomorphological processes and be subject to erosion risk in the future.

5.4 Crossing Design Recommendations

The Meander Pattern Design approach for Wylie Creek is inappropriate as the meander belt is very large in comparison to the size of the channel due to historic straightening/realignment and lack of riparian vegetation. Furthermore, a Mobile Bed Design is difficult to implement at the crossings because the flow regime and sediment supply will undoubtedly evolve over the coming decades due to upstream changes in land use. An engineered substrate design will minimize the risk to the crossing structure while maintaining watercourse stability and fish passage.

Crossing specific design considerations are provided in Section 4.2. The following are general crossing design considerations/recommendations:

- The crossing span should be at minimum 3x bankfull width at all three crossings. Bankfull width was determined to be ~3 m at each crossing resulting in a 9 m crossing span. A crossing span 3x bankfull width will accommodate future geomorphological processes including localized lateral channel translation and cross-sectional enlargement resulting from future changes in the magnitude and timing of channel inputs (e.g. water, sediment).
- The substrate through the crossing should be round stone (i.e. river stone) to minimize harm to fish. The substrate should be sized to remain stable during the 50 year storm event.
- All crossings should contain a trapezoidal cross-section with a bottom width at least 1 m wide. The trapezoidal cross-section will ensure flow is concentrated to the centre of the channel during low flow conditions and thus facilitating fish passage. The side slopes of the trapezoid should be less than 3:1 (horizontal:vertical).
- The skew of the crossings should ensure a smooth transition at the inlet and outlet (i.e. no tight bends).

5.5 Natural Channel Design Opportunity

Between the Wylie North and Wylie South crossings, the creek is a channelized ditch that runs parallel to The Gore Road. If The Gore Road is widened to the east this would provide a good opportunity to apply the principles of natural channel design to this altered stretch of channel in order to improve morphological and ecological channel function. This would likely be achieved through channel realignment and incorporation of a sinuous planform if conditions permit.

6. Summary

AECOM has been retained to complete an EA for the widening of The Gore Road along a 4.2 km stretch from Queen Street to Castlemore Road in the City of Brampton. A fluvial geomorphological assessment was conducted along Wylie Creek, a tributary of the West Humber River, which crosses The Gore Road at three locations within the study area. The fluvial geomorphological assessments included a background review or relevant literature, desktop analyses to determine historical changes and predict future channel trajectories, and a field reconnaissance visit to determine local geomorphological conditions within the vicinity of the three crossings. The channel and riparian area within the vicinity of The Gore Road have been extensively modified including straightening and realignment since 1946 as a result of agricultural practices and urbanization.

The following are key summary points of the existing geomorphological conditions at the three crossings:

Bridge North of Castlemore

- There has been significant channel realignment downstream of the bridge north of Castlemore within the past 5 years
- Upstream of the crossing, the channel has been historically straightened and appears to be morphological stable
- The was minor scour on the right bank downstream of the crossing
- The reach containing the crossing contained a surrogate meander belt width of 100.8 m and an empirical meander belt width of 32.0 m
- The local meander amplitude at the crossing was 26 m

Wylie Creek North

- Wylie Creek within the vicinity of the crossing had a moderate gradient and showed evidence of degradation (i.e. downcutting)
- Undercut banks were noted both upstream and downstream of the crossing suggesting the channel is trying to widen
- The reach containing the crossing had a surrogate meander belt width of 136.8 m and an empirical meander belt width of 41.8 m
- The local meander amplitude at the crossing was 39 m

Wylie Creek South

- Wylie Creek within the vicinity of the crossing had a low gradient and showed evidence of instability (i.e. failed bank treatments, bank scour)
- The left bank/valley wall upstream of the crossing has been extensively modified
- The reach containing the crossing had a surrogate meander belt width of 136.8 m and an empirical meander belt width of 41.8 m
- The local meander amplitude at the crossing was 18 m

The following are general recommendations for replacement crossings as well as natural channel design opportunities:

- Crossing spans should be at minimum 3x bankfull width at all three crossings. Bankfull width was determined to be ~3 m at each crossing resulting in a 9 m crossing span.
- The substrate through the crossing should be round stone (i.e. river stone) to minimize harm to fish. The substrate should be sized to remain stable during the 50 year storm event.
- All crossings should contain a trapezoidal cross-section with a bottom width at least 1 m wide. The side slopes of the trapezoid should be less than 3:1 (horizontal:vertical).
- The skew of the crossings should ensure a smooth transition at the inlet and outlet (i.e. no tight bends).
- If the road is widened to the east, there is potential for channel realignment and natural channel design along the channelized section between the Wylie North and Wylie South crossings.

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Appendix A

Fluvial Geomorphological Reach Description Sheets

Watercourse : Wylie Creek

Reach : 2

Upper Limit : Forested Area
Lower Limit : Forested Area
Section Length : ~ 850 m

Grade : Low
Sinuosity : Low – previously straigtened
Environment : Modified (agricultural, residential)

↑Looking downstream in the upstream portion of the reach

↑Looking downstream in the downstream portion (realigned) of the reach

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Reach Characterization:

Reach 2 has been extensively modified. Upstream of The Gore Road, the channel has been historically straightened for agricultural and residential purposes. Downstream of The Gore Road, the channel has been realigned on several occasions with the most recent alignment occurring in the last 5 years (exact date in unknown). The channel contains in-channel vegetation which is reducing water velocities and inducing sedimentation of fine material. The channel is a low-gradient system that was dry in some areas. There is no valley wall contact.

Channel		*Banks*		*Bed*	
Bankfull width:	3 m (range: 1 to 5 m)	Height :	~0.8 to 1.2 m	Variable or uniform?	uniform
Bankfull depth:	0.6 m (range: 0.4 to 1 m)	Bank Angle: variable		Substrate Riffle :	sand, gravel
Bankfull flow below bank height? Yes		Material: sand and silt till		Substrate Pool:	clay, silt
		Vegetation :	grasses		

Modification:

-The Gore Road
-Three residential crossings upstream of The Gore Road
-Historic channel straightening upstream of the Gore Road
-Channel Realignment downstream of The Gore Road
-Bank hardening (placed concrete and stone) on banks and against abutments upstream of The Gore Road

Stability (Rapid Geomorphological Assessment)

RGA Score: 0.17
Stability: In regime
Dominant Process: Aggradation

Management Issues:

-Exposed bridge footings at most upstream residential crossings
-Debris jam at inlet and scour pool at the outlet of most downstream residential crossing
-Construction near right bank downstream of The Gore Road – sediment delivery to the channel should be monitored

Watercourse :	Wylie Creek		
Reach :	3		
Upper Limit :	Forested Area	Grade :	Moderate
Lower Limit :	Beginning of channel modification	Sinuosity :	Moderate
Section Length :	~1050 m	Environment :	Grassland and Forest

↑ Looking upstream in the upper portion of the reach

↑ Looking downstream in the lower portion of the reach

Reach Characterization:

Reach 3 is relatively natural in comparison to Reaches 2 and 4. Historically there appears to be some minor straightening. The channel is moderately sinuous with a steeper gradient than Reach 2. The riparian vegetation is dense and provides a strong rooting network in the banks. There is no valley contact and the channel is moderately entrenched. There is some scouring on the outside of meander bends.

Channel		*Banks*		*Bed*	
Bankfull width:	4 m	Height :	1 m	Variable or uniform?	Variable
Bankfull depth:	0.6 m	Bank Angle:	~45°	Substrate Riffle :	gravel, boulder
Bankfull flow below bank height?	Yes	Material:	sand and silt till	Substrate Pool:	fines
		Vegetation :	Trees, grass, herbs		

Modification:
-pedestrian bridge
-Fitzpatrick Dr. road bridge

Stability (Rapid Geomorphological Assessment)

RGA Score:	0.26
Stability:	In Transition
Dominant Process:	Aggradation

Management Issues:

-monitor lateral migration to ensure the integrity of pedestrian bridge and walking trail to the west of the channel

Watercourse :	Wylie Creek		
Reach :	4		
Upper Limit :	Channel modification west of Gore	Grade :	Moderate
Lower Limit :	Channel confinement west of Gore	Sinuosity :	Low
Section Length :	~700 m	Environment :	Modified (Gore Road, residential)


↑Looking upstream in the upper portion of the reach


↑ Looking upstream between Wylie North and South crossings

Reach Characterization:

Reach 4 has been straightened, realigned, and artificially confined as a result of the construction of The Gore Road and residential development. Upstream of the Wylie North crossing there are debris jams causing some instability and leading to the formation of cut-off channels. In between Wylie South and Wylie North crossings, the channel has been straightened and it confined to the west by The Gore Road. Downstream of the Wylie South the riparian vegetation has been removed and the channel in moderately entrenched. The channel is showing signs of degradation (e.g. cut face on bar forms, channel worn into bedrock), especially upstream of Wylie North.

Channel		*Banks*		*Bed*	
Bankfull width:	3 m (range: 2 – 6 m)	Height :	0.8 – 1.2 m	Variable or uniform?	no
Bankfull depth:	0.6 m (0.6 – 1.0 m)	Bank Angle:	> 45°	Substrate Riffle :	sand, gravel
Bankfull flow below bank height? yes		Material:	silt and sand till	Substrate Pool:	silt and clay
		Vegetation :	grasses and trees		

Modification:

-Two Gore Road Crossings
-Channel realignment throughout reach
-SWM Pond to the east of the channel
-Bank hardening both upstream and downstream of Wylie South crossing
-Hydro poles in channel between Wylie North and South

Stability (Rapid Geomorphological Assessment)

RGA Score:	0.35
Stability:	In Transition
Dominant Process:	Degradation

Management Issues:

-bank protection failure on LB upstream of Wylie South crossing
-riparian vegetation has been removed downstream of Wylie South crossing
-debris jams ~70 m upstream of Wylie North is causing channel instability

Appendix B

Water Crossing Assessment Sheet

Watercourse Crossing Assessment Sheet

Crew: Dan McParland, Jay Cashubec

Date: August 26, 2014

Location: Bridge North of Castlemore

Watercourse Crossing Structure			
Type: Bridge box	Bottom: open	Material: concrete	
Span Piers: single span			
Flow Conditions: stagnant	Backwater from riffle: no	Water Depth: 0.4 m	
Crossing Span: 7.62 m	Span (>, =, <) W_{BF}: >	Bend Amplitude in Xing: NA	Belt Width in Xing: NA
Inlet: headwall	Outlet: headwall		
Defined Channel: yes	Channel Width: BF	Channel Depth: 0.8 m	
Distance Between Channel Bank and Abutment: LB 0 - 1.5 m RB 0 - 1.5 m			
Bed Morphology in Crossing: pool			
Bed Material through Crossing: placed river stone sa si cl gr			
Degradation or Dredging: no	Aggradation or Deposition: yes – fine material		
Planform Configuration at Crossing: bend (approach to left)			
Thalweg Approach: mid-channel	Thalweg in culvert: middle		
Perched: no	Height to Bed: NA	Height to Water Level: NA	
Undercut: no	Outflanked Structure: no		
Erosion: no	Upstream: NA	Downstream: minor - RB	
Scour Damage: no	Bed Scour: no		

Comments (impediment to fish, cause of scour, etc.):

-drainage ditches confluence with channel with ~ 2m upstream of the crossing inlet on both banks

-35° skew

General Setting	Upstream	Downstream
Valley Setting (valley walls proximal/distal–distance < 2, 2- 5, 5-10,>10m)	>10	>10
Floodplain Process: (terracing, scroll bars, channel cut-off, chutes etc.)	NA	NA
Floodplain Connectivity/Entrenchment	moderate	good
Floodplain Vegetation	grasses	herbaceous
Bankfull Depth (m)	0.8	0.6
Bankfull Width (m)	3	4
Dominant Process (widening, planform, degradation, aggradation)	Agg	Agg
Stability (stable / moderately stable / unstable)	Stable	Stable
D_{50} Estimate	9.8 mm	Silt

Legend:		
AL .... alluvial	E .... engineered	RBB ... rock bed and bank
AS....... armourstone	Gab..... gabion	RBC ... rock bed channel
CB....... clay bed	ISOL ... isolated	RR...... rip rap
CBB .... clay bed and bank	LB .... left bank	RS...... riverstone
Con ..... concrete	MOD ... modified	SAC ... semi-alluvial clay
CSP .... corrugated steel pipe	N/A ..... not applicable	SAS.... semi-alluvial structure
CTS .... continuous	N .... no	U/S..... upstream
D/S...... downstream	NAT .... natural	US...... upstream
DCTS.. discontinuous	PI .... placed	W_{BF} .... bankfull width
DS....... downstream	RB ...... right bank	Y .... yes

Looking downstream through crossing ↓

Looking upstream through crossing ↓

Watercourse Crossing Assessment Sheet

Channel Morphology	Upstream	Downstream
Channel Form: natural, modified-specify	modified	modified
Boundary Material	AL	AL
Bed Morphology Poorly defined, Pool-riffle, other:	Poorly defined	Mostly pool
Bed Materials (natural, placed-type) Alluvial, till, bedrock: cts, dcts, isol / Approximate D50	Pool: AL – fines Riffle: AL – sand	Pool: AL – fines Riffle: AL – fines
Profile (knickpoint–dist to culvert; step height: material; relative grades)	Low gradient	Low gradient
Exposed Subsurface Infrastructure If yes: top exposed, half exposed, undermined	no	no
Depositional Bars (lateral, medial, point)	no	no
Excess Bed Scour?	no	no
Comments	Previously straightened with pedestrian and road crossings upstream	Realigned channel

Summary / Interpretation
-very low gradient channel US, DS, and through the crossing -dense in-channel vegetation DS of the crossing -placed river stone through crossing -gravel on bed through crossings with deposition of fine material in localized areas -fines would be flushed through the crossing at higher flows -channel appears to be relatively stable US, DS, and through crossing -no major morphological concerns

Channel Bank Assessment	Upstream		Downstream	
	Left	*Right*	*Left*	*Right*
Bank Form: NAT MOD-type?	Modified	Modified	Natural	Natural
Bank Material at Culvert Junction Engineered hard hybrid, natural	Eng. Rip-rap	Eng. Rip-rap	Natural	Natural
Transition from Culvert to Bank	smooth	smooth	smooth	smooth
Transition from treatment to Bank	smooth	smooth	smooth	smooth
Bank Materials: number of units:				
Lower unit	Silt	Silt	Silt	Silt
Middle unit				
Upper unit	Sand	Sand	Sand	Sand
Bank Shape: vertical, sloped (H:V)	2:1	2:1	3:1	1:1
Bank Erosion : undercut(amount): (general)	NA	NA	NA	Exposed till/slumping
Riparian vegetation:	Grass, tree	Grass, tree	Grass	Grass
Bankface (general):	vegetated	vegetated	vegetated	bare
% cover	90	90	100	20
Vegetation Type	Grass	Grass	Grass	Grass
Rooting Influence (fine, coarse)	low fine	low fine	high fine	low fine
Seeps?	N	N	N	N
Proximal Infrastructure Manhole contact? Or distance to bank Outfalls – outflanked, undercut	Yes Drainage ditch/outlet	Yes Drainage ditch/outlet	No	No
Observations/Interpretation (widening, migration)	Stable	Stable	Stable	Minor scour

↑ Looking upstream from bridge deck

↑ Looking downstream from bridge deck

↑ Crossing outlet

↑ Undercut RB DS of crossing

Watercourse Crossing Assessment Sheet

Crew: Dan McParland, Jay Cashubec

Date: August 26, 2014

Location: Wylie North

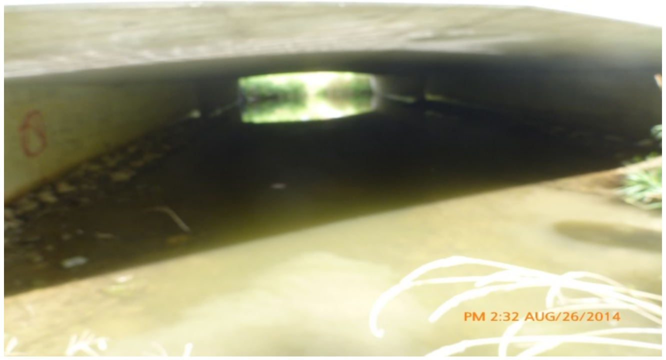
Watercourse Crossing Structure			
Type: Bridge box		Bottom: open	Material: concrete
Span Piers: single span			
Flow Conditions: stagnant		Backwater from riffle: no	Water Depth: 0.5 m
Crossing Span: 7.62 m	Span (>, =, <) W**BF:** >	Bend Amplitude in Xing: NA	Belt Width in Xing: NA
Inlet: headwall		Outlet: headwall	
Defined Channel: no	Channel Width: BF		Channel Depth: 0.5 m
Distance Between Channel Bank and Abutment: NA			
Bed Morphology in Crossing: pool			
Bed Material through Crossing: placed river stone sa si cl gr			
Degradation or Dredging: no		Aggradation or Deposition: yes – fine material	
Planform Configuration at Crossing: bend (approach to right)			
Thalweg Approach: mid-channel		Thalweg in culvert: middle	
Perched: no	Height to Bed: NA		Height to Water Level: NA
Undercut: no		Outflanked Structure: no	
Erosion: no	Upstream: NA		Downstream: NA
Scour Damage: no	Bed Scour: no		
Comments (impediment to fish, cause of scour, etc.): -30° skew -some coarse angular material through crossing -SWM pond ~45 m downstream of outlet -placed rock against both abutments through crossing			

General Setting	Upstream	Downstream
Valley Setting (valley walls proximal/distal–distance < 2, 2- 5, 5-10,>10m)	5-10	>10
Floodplain Process: (terracing, scroll bars, channel cut-off, chutes etc.)	terracing	NA
Floodplain Connectivity/Entrenchment	moderate	moderate
Floodplain Vegetation	Tree/grass	Tree/grass
Bankfull Depth (m)	1	1
Bankfull Width (m)	4	2
Dominant Process (widening, planform, degradation, aggradation)	Deg	Deg
Stability (stable / moderately stable / unstable)	moderate	moderate
D_{50} Estimate	20.8 mm	Sand

Legend:

AL .... alluvial	E .... engineered	RBB ... rock bed and bank
AS....... armourstone	Gab..... gabion	RBC ... rock bed channel
CB....... clay bed	ISOL ... isolated	RR...... rip rap
CBB .... clay bed and bank	LB .... left bank	RS...... riverstone
Con ..... concrete	MOD ... modified	SAC ... semi-alluvial clay
CSP .... corrugated steel pipe	N/A ..... not applicable	SAS.... semi-alluvial structure
CTS .... continuous	N......... no	U/S..... upstream
D/S...... downstream	NAT .... natural	US...... upstream
DCTS.. discontinuous	PI .... placed	W_{BF} .... bankfull width
DS....... downstream	RB ...... right bank	Y .... yes

Looking downstream through crossing ↓



Looking upstream through crossing ↓

Watercourse Crossing Assessment Sheet

Channel Morphology	Upstream	Downstream
Channel Form: natural, modified-specify	natural	Modified - SWM
Boundary Material	AL	AL
Bed Morphology Poorly defined, Pool-riffle, other:	Pool-riffle	run
Bed Materials (natural, placed-type) Alluvial, till, bedrock: cts, dcts, isol / Approximate D50	Pool: AL – fines Riffle: AL – gravel	Pool: AL – fines Riffle: AL – sand
Profile (knickpoint–dist to culvert; step height: material; relative grades)	moderate gradient	Low gradient
Exposed Subsurface Infrastructure If yes: top exposed, half exposed, undermined	no	no
Depositional Bars (lateral, medial, point)	yes	no
Excess Bed Scour?	no	no
Comments	Sinuous, LWD jams, cut-off channels	Modified to accommodate SWM pond

Summary / Interpretation

-well vegetated banks US and DS of crossing

-LWD jam US of crossing is causing some widening/cutoff channels

-steeper gradient US of crossing than DS

-channel is showing evidence of downcutting/entrenchment

-no major morphological concerns

Channel Bank Assessment	Upstream		Downstream	
	Left	*Right*	*Left*	*Right*
Bank Form: NAT MOD-type?	Natural	Natural	Natural	Natural
Bank Material at Culvert Junction Engineered hard hybrid, natural	Natural	Natural	Natural	Natural
Transition from Culvert to Bank	smooth	smooth	smooth	smooth
Transition from treatment to Bank	smooth	smooth	smooth	smooth
Bank Materials: number of units:				
Lower unit	gravel	gravel	gravel	gravel
Middle unit	silt	silt	silt	silt
Upper unit	sand	sand	sand	sand
Bank Shape: vertical, sloped (H:V)	1:1	1:1	1:1	1:1
Bank Erosion : undercut(amount): (general)	Exposed till/slumping	Exposed till/slumping	Exposed till/slumping	Exposed till/slumping
Riparian vegetation:	Grass, tree	Grass, tree	Grass	Grass
Bankface (general):	vegetated	vegetated	vegetated	vegetated
% cover	75	75	100	100
Vegetation Type	Grass	Grass	Grass	Grass
Rooting Influence (fine, coarse)	high coarse	high coarse	high fine	high fine
Seeps?	N	N	N	N
Proximal Infrastructure Manhole contact? Or distance to bank Outfalls – outflanked, undercut	No	No	No	No
Observations/Interpretation (widening, migration)	Degradation	Degradation	Degradation	Degradation

↑ **Crossing Inlet**

↑ **Looking upstream from bridge deck**

↑ **Looking downstream from bridge deck**

↑ **Placed stone against LB abutment (similar stone placed against RB abutment)**

Watercourse Crossing Assessment Sheet

Crew: Dan McParland, Jay Cashubec
Date: August 26, 2014
Location: Wylie South

Watercourse Crossing Structure

Type: Bridge box | Bottom: open | Material: concrete
Span Piers: single span
Flow Conditions: stagnant | Backwater from riffle: no | Water Depth: 0.6 m
Crossing Span: 7.62 m | Span (>, =, <) W_{BF}: > | Bend Amplitude in Xing: NA | Belt Width in Xing: NA
Inlet: headwall | Outlet: headwall
Defined Channel: yes – near outlet | Channel Width: BF | Channel Depth: 0.8 m
Distance Between Channel Bank and Abutment: up to ~1.5 m both banks
Bed Morphology in Crossing: mostly pool with a riffle near outlet
Bed Material through Crossing: placed river stone sa si cl gr
Degradation or Dredging: yes – near inlet | Aggradation or Deposition: yes – near outlet
Planform Configuration at Crossing: bend (approach to left)
Thalweg Approach: mid-channel | Thalweg in culvert: middle
Perched: no | Height to Bed: NA | Height to Water Level: NA
Undercut: no | Outflanked Structure: no
Erosion: no | Upstream: LB | Downstream: NA
Scour Damage: no | Bed Scour: no

Comments (impediment to fish, cause of scour, etc.):
-30° skew
-scour on LB US of inlet (~3 m) near inactive outfall
-armourstone wall ~20 US on LB
-placed rock and erosion blanket on LB (~4 m)
-storm outfalls on top of both banks DS of crossing

General Setting	Upstream	Downstream
Valley Setting (valley walls proximal/distal–distance < 2, 2- 5, 5-10,>10m)	5-10	>10
Floodplain Process: (terracing, scroll bars, channel cut-off, chutes etc.)	terracing	NA
Floodplain Connectivity/Entrenchment	moderate	moderate
Floodplain Vegetation	Tree/grass	Tree/grass
Bankfull Depth (m)	0.8	0.6
Bankfull Width (m)	2.5	4
Dominant Process (widening, planform, degradation, aggradation)	Deg	Deg
Stability (stable / moderately stable / unstable)	moderate	moderate
D_{50} Estimate	Sand	14.6 mm

Legend:

AL	alluvial	E	engineered	RBB	rock bed and bank
AS	armourstone	Gab	gabion	RBC	rock bed channel
CB	clay bed	ISOL	isolated	RR	rip rap
CBB	clay bed and bank	LB	left bank	RS	riverstone
Con	concrete	MOD	modified	SAC	semi-alluvial clay
CSP	corrugated steel pipe	N/A	not applicable	SAS	semi-alluvial structure
CTS	continuous	N	no	U/S	upstream
D/S	downstream	NAT	natural	US	upstream
DCTS	discontinuous	Pl	placed	W_{BF}	bankfull width
DS	downstream	RB	right bank	Y	yes

Looking downstream through crossing ↓

Looking upstream through crossing ↓

Watercourse Crossing Assessment Sheet

Channel Morphology	Upstream	Downstream
Channel Form: natural, modified-specify	Modified – Gore Road	Modified – hardened banks
Boundary Material	Engineered – rip-rap	Engineered – placed stone
Bed Morphology Poorly defined, Pool-riffle, other:	Pool-riffle	Pool-riffle
Bed Materials (natural, placed-type) Alluvial, till, bedrock: cts, dcts, isol / Approximate D50	Pool: AL – fines Riffle: AL – sand	Pool: AL – fines Riffle: AL – gravel
Profile (knickpoint–dist to culvert; step height: material; relative grades)	low gradient	low gradient
Exposed Subsurface Infrastructure If yes: top exposed, half exposed, undermined	no	no
Depositional Bars (lateral, medial, point)	yes	no
Excess Bed Scour?	no	no
Comments	Modified left bank	Hardened banks and removed riparian vegetation

Summary / Interpretation
-placed rock in US half of the culvert appears to have been washed downstream by storm drains outletting on abutments -lack of channel form in US half but there is noticeable channel form in DS half -LB scour US of crossing appears to be old. Possibly caused by overland flow -channel confined in artificial valley (Gore Road and commercial property) US of crossing -bio-engineering techniques should be utilized on LB US of inlet -storm drains inputs should be accounted for when sizing substrate through culvert

Channel Bank Assessment	Upstream		Downstream	
	Left	*Right*	*Left*	*Right*
Bank Form: NAT MOD-type? Bank Material at Culvert Junction Engineered hard hybrid, natural	Modified Engineered	Modified Engineered	Modified Engineered	Modified Engineered
Transition from Culvert to Bank Transition from treatment to Bank	scour scour	smooth smooth	smooth smooth	smooth smooth
Bank Materials: number of units: Lower unit Middle unit Upper unit	gravel silt sand	gravel silt sand	gravel silt sand	gravel silt sand
Bank Shape: vertical, sloped (H:V)	2:1	1:1	4:1	4:1
Bank Erosion : undercut(amount): (general)	Exposed till/slumping	NA	NA	NA
Riparian vegetation:	Grass, shrub	Grass, shrub	Grass	Grass
Bankface (general): % cover Vegetation Type Rooting Influence (fine, coarse) Seeps?	bare 20 Grass, shrub low fine N	vegetated 100 Grass, shrub low fine N	vegetated 100 Grass high fine N	vegetated 100 Grass high fine N
Proximal Infrastructure Manhole contact? Or distance to bank Outfalls – outflanked, undercut	Yes Old outfall	No	Yes Manhole	No
Observations/Interpretation (widening, migration)	Bank scour	Stable	Stable	Stable

↑ **Looking upstream from bridge deck**

↑ **Looking downstream from bridge deck**

↑ **Looking downstream at crossing outlet**

↑ **Failed placed stone, erosion blanket, and inactive CSP outfall on US LB**

Appendix C

Photographic Record

Appendix C:

Photograph 1. ↑
Looking upstream in upper portion of Reach 2.

Photograph 2. ↑
Looking downstream in residential property upstream of the Gore Road in Reach 2.

Photograph 3. ↑
Debris accumulation of outlet of private crossing upstream of the Gore Road in Reach 2.

Photograph 4. ↑
Looking downstream in the recently realigned portion of the channel between the Gore Road and Castlemore Road in Reach 2. Note the construction on the right bank.

Photograph 5. ↑
Looking downstream at debris accumulation in the upper portion of Reach 3.

Photograph 6. ↑
Looking upstream from the pedestrian bridge in the upper portion of Reach 3.

Photograph 7. ↑
Looking upstream in the mid portion of Reach 3.

Photograph 8. ↑
Looking downstream from Fitzpatrick Dr. in Reach 3.

Photograph 9. ↑
Looking downstream at debris jam and cut-off channels upstream of the Wylie North crossing in Reach 4.

Photograph 10. ↑
Looking downstream between Wylie North and Wylie South crossings in Reach 4.

Photograph 11. ↑
Looking downstream between Wylie North and Wylie South crossings in Reach 4.

Photograph 12. ↑
Looking downstream in the lower portion of the Reach 4 (i.e. downstream of the Wylie South crossing)

Appendix J

Cultural and Heritage Assessment Report

PRELIMINARY SUMMARY REPORT
THE GORE ROAD

MHBC
PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE

1.0 Introduction

MHBC Cultural Heritage Division was retained by AECOM to provide Cultural Heritage Services for the Schedule C Municipal Class Environmental Assessment for the proposed widening of The Gore Road between Queen Street and Castlemore Road in Brampton, Region of Peel, Ontario.

MHBC was retained to undertake the following tasks, as provided by AECOM:

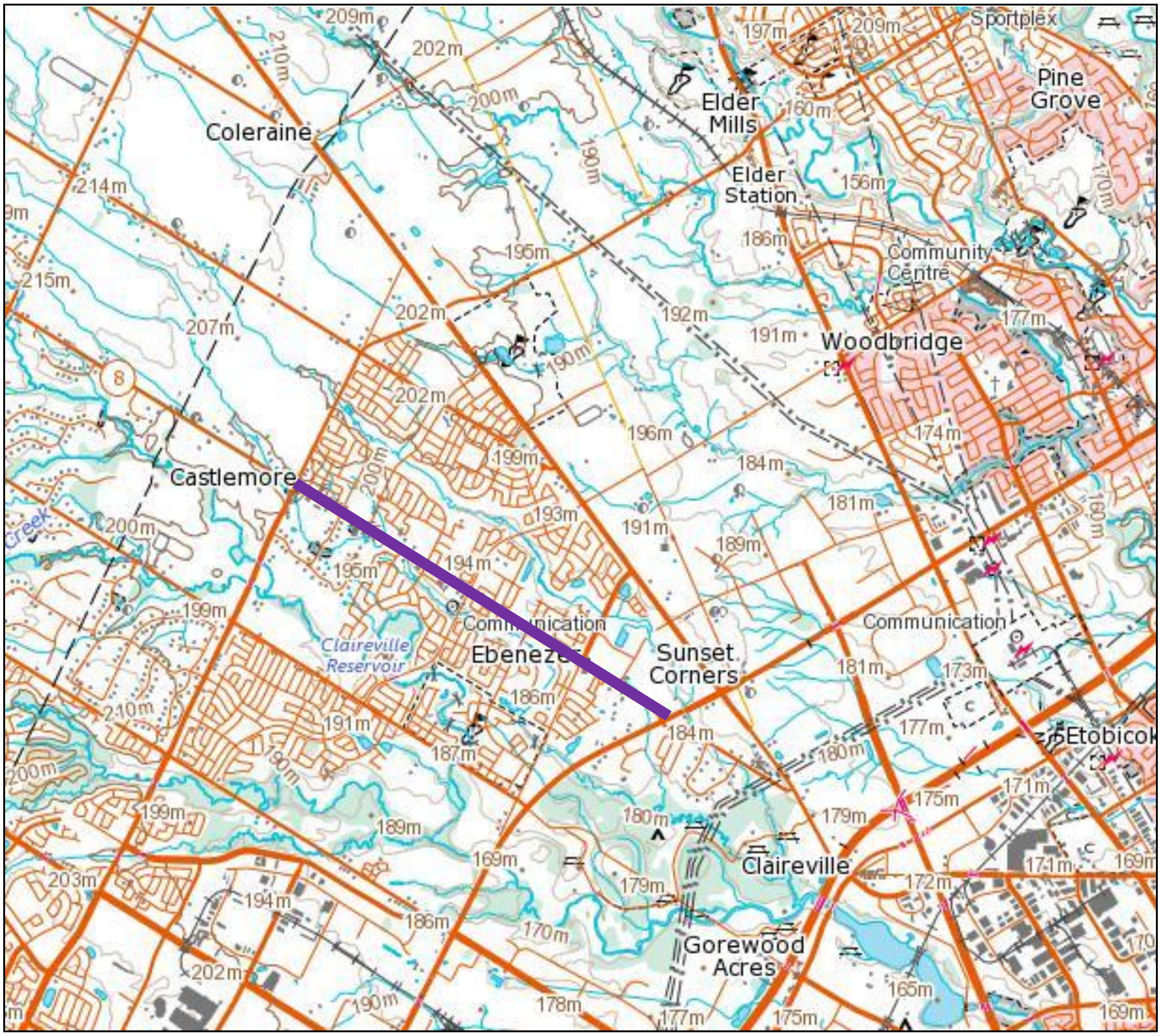
Cultural and Built Heritage Assessment Report

1. Conduct on-site survey to confirm existing conditions and heritages resources within the study area. Examine cultural heritage resources and identification of potential cultural resources;
2. Prepare a summary report to document the findings of the assessment;
3. Secure approval from the MTCS and identify the need for any additional work, such as a Heritage Impact Report;
4. Review existing cultural heritage background information. Complete background historical research to confirm settlement history. Complete map and aerial photography research;
5. Prepare an existing conditions brief, locating cultural heritage resources and sensitivities. Contact the area municipality regarding municipally inventoried or designated properties in the study area; and
6. Prepare a report identifying cultural heritage resources with mapping as required. Prepare an assessment of alternatives. Provide mitigation measures if necessary and secure approval from the concerned authority.

The work completed to date includes items 1 and 2 above, and part of item 3, identifying the need for any additional work, such as a Heritage Impact Report (in consultation with the Ministry of Tourism, Culture and Sport). This Preliminary Summary Report contains a summary of the results of fieldwork undertaken on March 17, 2014 and background research to identify known or potential cultural heritage resources within or adjacent to the study area.

This report is not a Heritage Impact Assessment, but serves to identify whether a heritage impact assessment may be required as part of the Environmental Assessment Process, based on the proximity and potential for impacts to cultural heritage resources within or adjacent to the study area.

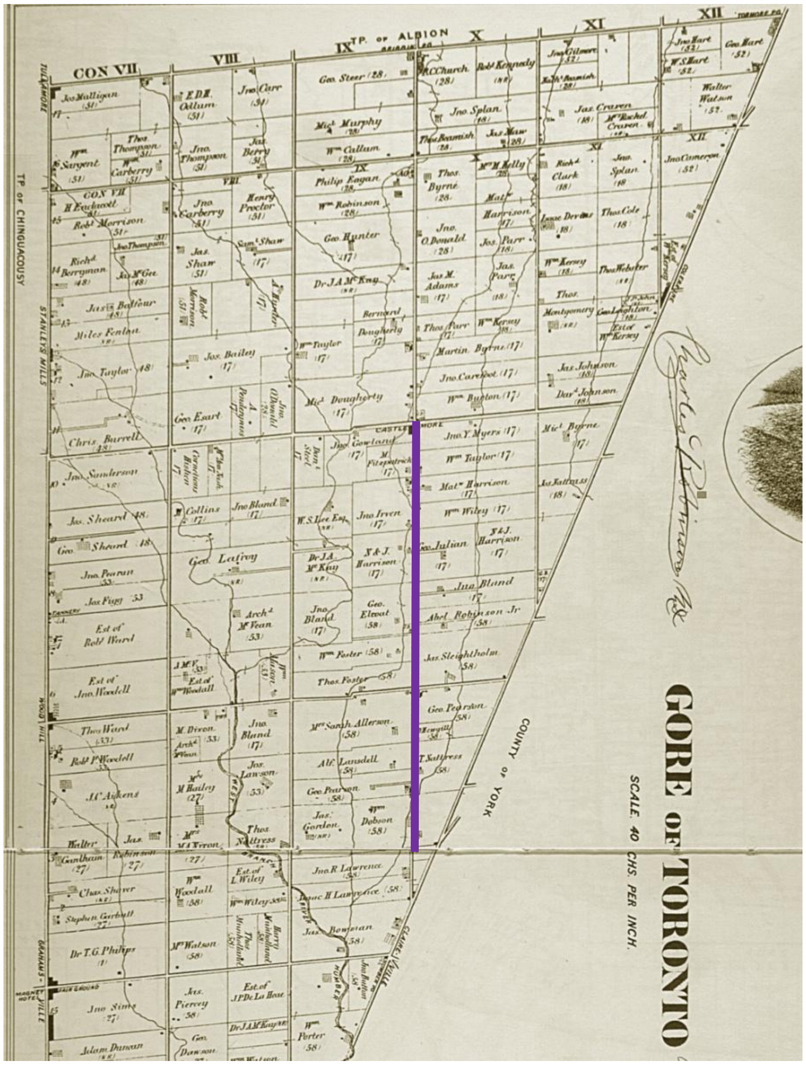
A map of the location of the study area is provided below:



Excerpt from topographic showing location of The Gore Road study area (in violet). Source: National Atlas of Canada online http://atlas.nrcan.gc.ca/site/english/toporama/ (2013).

2.0 Background

The study area was once part of Gore Township. The township was first established when it was separated from Chinguacousy Township in 1831, originally part of York County. In 1867 York County was split to create Peel County, of which Gore Township became a part. The southern portion of the township was annexed to Toronto Township, and in 1973, the remainder of the Township was incorporated into the City of Brampton.



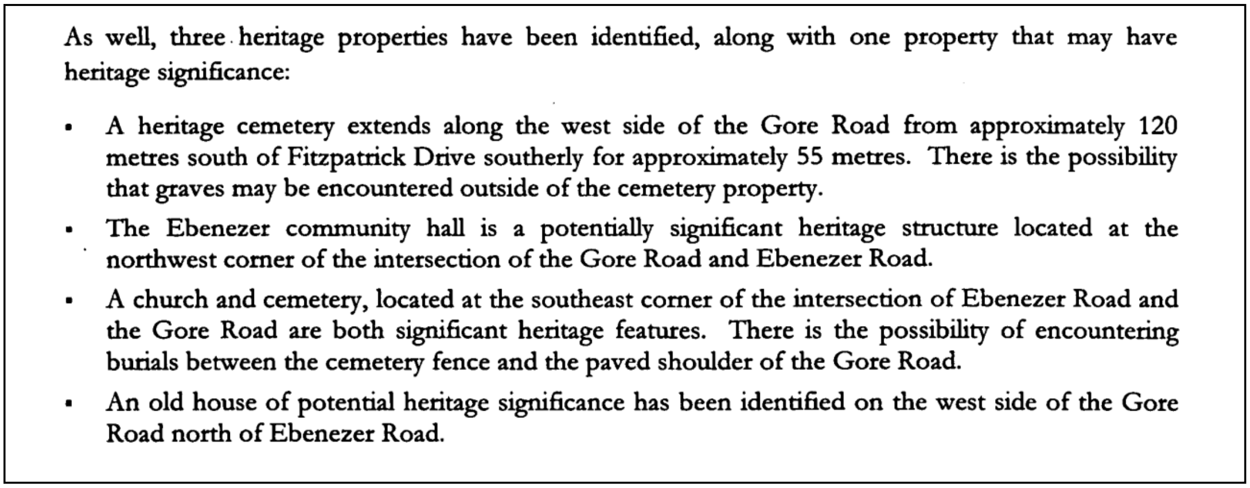
Excerpt from County Atlas showing location of The Gore Road study area (in violet). Source: The Canadian County Atlas online http://digital.library.mcgill.ca/countyatlas/peel.htm (1877).

Gore Road (substantially modified in its present state) was a historical settlement road that was part of the survey grid of the township established in the 19th century. The road travelled in a straight line across the township, between the angular boundary line at York County (now Queen Street) and continued through Albion Township to the County line at Simcoe County.

Historically, the road was located in a rural area with the small crossroad communities of Castlemore and Mason's Corners (Ebenezer Road). The study area is now part of a major suburban centre in Brampton, recently developed with residential subdivisions, schools, commercial, and community institutions including a Hindu temple and other religious or cultural centres. A small number of residential properties with c.1960s-1990s dwellings face on to The Gore Road. The recently constructed residential subdivisions, schools, commercial plazas, community and religious institutions and the c.1960-1990s residential properties were not identified during the field visit to have potential cultural heritage value or interest because they are representative of modern planning practices for suburban subdivision development.

A search of the City of Brampton *Municipal Register of Cultural Heritage Resources 'Listed'* Heritage Properties (last updated January 2014) and the *Municipal Register of Cultural Heritage Resources Designated Under the Ontario Heritage Act Designated Properties* (last updated January 2014) revealed three listed properties and three designated properties in or adjacent to the study area.

A previous Environmental Assessment to consider road improvements on The Gore Road between Queen Street and Castlemore Road was completed in 2002. The Environmental Screening Report prepared by URS Cole, Sherman Consulting Engineers identified the following in regards to cultural heritage resources within the study area:



As well, three heritage properties have been identified, along with one property that may have heritage significance:

- A heritage cemetery extends along the west side of the Gore Road from approximately 120 metres south of Fitzpatrick Drive southerly for approximately 55 metres. There is the possibility that graves may be encountered outside of the cemetery property.
- The Ebenezer community hall is a potentially significant heritage structure located at the northwest corner of the intersection of the Gore Road and Ebenezer Road.
- A church and cemetery, located at the southeast corner of the intersection of Ebenezer Road and the Gore Road are both significant heritage features. There is the possibility of encountering burials between the cemetery fence and the paved shoulder of the Gore Road.
- An old house of potential heritage significance has been identified on the west side of the Gore Road north of Ebenezer Road.

There are historic associations with place names and building names in the area. Ebenezer churches were a vital part of the early life of settlers in Ontario.

The table in Section 3.0 outlines the identified and potential cultural heritage resources in or adjacent to the study area.

3.0 Summary of Cultural Heritage Resources

The Gore Road study area contains six identified cultural heritage resources. These resources were identified as being either listed on the City of Brampton's Municipal Heritage Register, or designated by the City under Part IV of the *Ontario Heritage Act*. An additional potential cultural heritage resource was identified during the site visit. The resources are described as follows:

Photo	Address	Status	Description
	4494 Ebenezer Road	Designated	The former Ebenezer schoolhouse, constructed in 1892. The schoolhouse was rotated and relocated slightly to its current location (facing Ebenezer Road) in 2010. The structure has been rehabilitated and is currently used as a community centre.
	8999 The Gore Road	Designated	The Ebenezer Primitive Methodist Chapel and Cemetery. Cemetery established in 1847, Chapel constructed 1858 on land donated by farmer James Sleightholme. It became part of the United Church congregation 1925. In 2001 the United Church donated the building to the Ebenezer Toronto Gore Historical Foundation, a non-profit organization that has preserved the building for community use. See Appendix A for the original plot locations in the Cemetery.
	9749 The Gore Road	Designated	The Harrison Hewgill Cemetery was established in the 1850s. Consists of a single grave and two markers for Ann Hewgill-Harrison and her infant child. A park setting, surrounding by board fencing from the neighbouring residences and decorative metal fencing has been established around the site, with tree and shrub plantings, benches, and stone piers marking the entrance.

	74 Mission Ridge Trail	Listed	Former Wiley farm house. The house collapsed while it was being relocated to be integrated with a subdivision. It was re-built according to architectural specifications of the City, to replicate the historic farmhouse.
	The Gore Road, south of Fitzpatrick	Listed (Recommended for designation in 2005, along with 26 other non-designated cemeteries and burial grounds in Brampton).	St. John's Cemetery, Castlemore. An Anglican cemetery established in 1844 on land donated by John Erwin. A church was previously located in the cemetery but was demolished 1989.
	10100 The Gore Road	Listed	The property is located outside of, but immediately north of the EA study area, and contains the Dougherty/Johnson farm.
	(PIN 142123650) No address, East of the Gore Road between Castle Oaks Crossing and Gardenbrooke Trail	Identified during fieldwork	This parcel of land is now part of the open space area/ SWM pond for the adjacent subdivision. The mature evergreen trees, noted in rows perpendicular and parallel to the road appear to have been part of the landscape setting for the former Wiley farm house (rebuilt as 74 Mission Ridge Trail).

4.0 Summary and recommendations

As previously outlined, there are 6 identified cultural heritage resources in or adjacent to the study area, as determined from the City of Brampton heritage inventories of listed and designated properties. One additional resource, the spruce treeline, which follows the historic layout of planting as a windbreak or boundary and is likely associated with the former farmstead, was identified during the March 2014 site visit.

The proximity of three identified cultural heritage resources and one potential cultural heritage resource to the existing right-of-way in The Gore Road study area warrants further study and attention in the form of a Heritage Impact Assessment:

- 8999 The Gore Road – Ebenezer Primitive Methodist Chapel and Cemetery (designated)
- 4494 Ebenezer Road – Ebenezer Schoolhouse (designated)
- The St. John's Castlemore Cemetery on west side of The Gore Road south of Fitzpatrick Drive.
- Mature spruce treelines at the subdivision SWM pond area on the east side of The Gore Road between Castle Oaks Crossing and Gardenbrooke Trail.

A Heritage Impact Assessment will identify whether the proposed undertaking of widening The Gore Road will have adverse impacts on these cultural heritage resources, and if so, what mitigation measures are necessary to reduce adverse impacts.

It is recommended that the Ministry of Culture, Tourism and Sport (MTCS) and the City of Brampton be notified of the need for a Heritage Impact Assessment as part of the Environmental Assessment Process. Approval of this summary report from both agencies will initiate the following:

1. Review existing cultural heritage background information. Complete background historical research to confirm settlement history. Complete map and aerial photography research;
2. Prepare an existing conditions brief, locating cultural heritage resources and sensitivities. Contact the area municipality regarding municipally inventoried or designated properties in the study area; and
3. Prepare a report identifying cultural heritage resources with mapping as required. Prepare an assessment of alternatives. Provide mitigation measures if necessary and secure approval from the concerned authority.

	Wendy Shearer
Lashia Jones, BA (Hons) MA,	Wendy Shearer, CAHP
Cultural Heritage Specialist, MHBC	Senior Cultural Landscape Specialist
Report preparation	Senior Review

5.0 Sources

City of Brampton. *List of Cemeteries.* No date.

City of Brampton and Brampton Heritage Board. *Municipal Register of Cultural Heritage Resources Designated Under the Ontario Heritage Act Designated Properties*. Last updated January 2014.

City of Brampton and Brampton Heritage Board. *Municipal Register of Cultural Heritage Resources 'Listed' Heritage Properties*. Last updated January 2014.

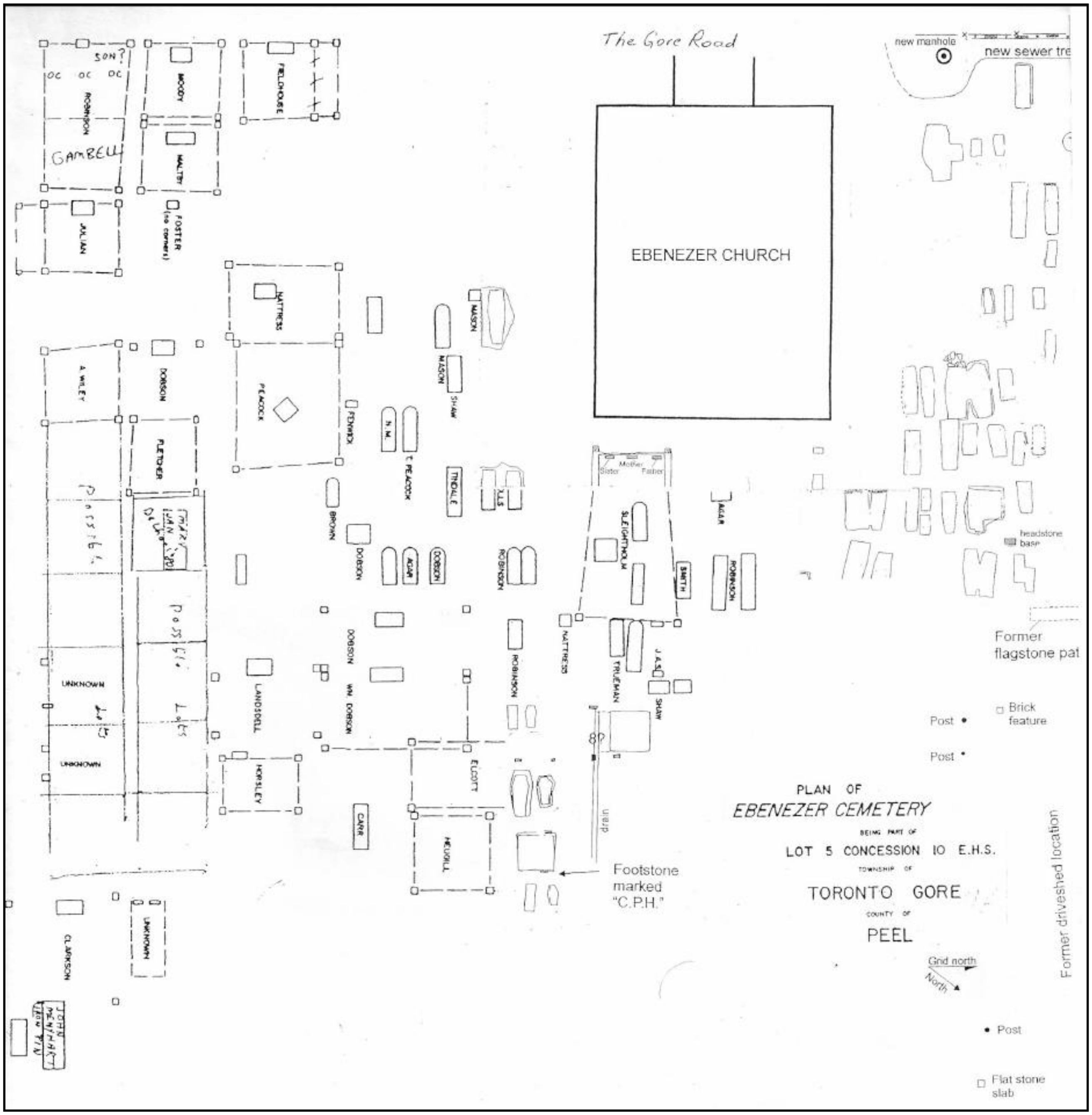
McGill University Digital Collections Program, Rare Books and Special Collections Division. *In Search of Your Canadian Past: The Canadian County Atlas Digital Project*. 2001. Online resource: http://digital.library.mcgill.ca/countyatlas/default.htm

Old Ebenezer Pioneer Chapel. *Original Plot Locations*. No date. Online resource: http://www.oldebenezerchapel.com/cemetery/mapoforiginalplots.pdf

Planning, Design and Development Committee. *Report: Heritage Designation of All Heritage Cemeteries in the City of Brampton*. May 31, 2005.

URS Cole Sherman Consulting Engineers. *The Gore Road Class Environmental Assessment From Queen Street to Castlemore Road*. November 2002.

Appendix A – Original Plot Locations



LEGEND

□ **Cultural Heritage Resources**

1 Ebenezer Primitive Methodist Chapel
89999 Gore Road
Designated Under Party IV

2 Ebenezer School House
4494 Ebenezer Road
Designated Under Part IV

3 Wiley Farm
74 Mission Ridge Trail
Listed on Municipal register

4 Mature evergreen tree lines identified during March 2014 Fieldwork
Approximately 9634 The Gore Road

5 Harison-Hewgill Harrison Family Cemetery
9749 Gore Road
Designated Under Part IV

6 St. Johns Cemetery Castlemore
Part of Lot 9, Concession 9. West of The Gore Road, south of Fitzpatrick Dr.
Listed on Municipal Register

7 Dougherty / Johnson Farm
10100 Gore Road
Listed on Municipal Register

north

K:\08155G_THE GORE ROAD\08155G_HERITAGE PROPERTIES.DWG

The Gore Rd. Brampton
Cultural Heritage Resources

DATE: March 21, 2014

SCALE : NTS

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON, N2B 3X9
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Appendix K

Stage 1 Archaeological Assessment

Region of Peel

Stage 1 Archaeological Assessment
The Gore Road Widening Various Lots, Concessions 9 and 10 Geographic Township of the Gore of Toronto, now City of Brampton, Regional Municipality of Peel, County of Peel, Ontario

Licensee: **Erik Phaneuf, MSc**
License: **P393**
PIF Number: **P393-0033-2014**

Prepared by:

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www.aecom.com

Project Number:
60311637

Date: August 8, 2016
REVISED REPORT

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the Region of Peel ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to Consultant which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

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Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

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This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

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Revision Log

Revision #	Revised By	Date	Issue / Revision Description

AECOM Signatures

Report Prepared By:

Adam Spargo, BSc

Report Reviewed By:

Adria Grant, BA, CAHP
Senior Archaeologist Archaeology Practice Lead

Executive Summary

AECOM was contracted by the Region of Peel to conduct a Stage 1 archaeological assessment for an approximate 4.6 km long and 200 m wide corridor of the Gore Road that extends from Queen Street (Highway 7) northerly to just north of Castlemore Road. The study area land is legally described as part of Lots 4 to 11, Concessions 9 and 10 in the Geographic Township of the Gore of Toronto, now the City of Brampton, Regional Municipality of Peel, Peel County, Ontario (Figure 1 and 2).

This Stage 1 archaeological assessment is being undertaken as part of the Gore Road Widening project in advance of a detail design and was triggered by the requirements of the *Environmental Assessment Act* and in accordance with subsection 11(1) was conducted during the planning stage of the project (Government of Ontario 1990a). This project is also subject to the *Ontario Heritage Act* (Government of Ontario 1990b) and the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The proposed project involves the widening of The Gore Road from a 2-lane cross-section to a 5-lane cross-section and the widening of the three structures at the three Humber River crossings within the project limits. This project was initiated as a result of the need for improvements to the roadway due to increased travel demand resulting from new development of the area. For the purposes of this Stage 1 background study, a buffer area of 100 m on either side of The Gore Road centreline was included in the study area in order to accommodate all possible alignment options. It should be noted that this study was completed in the early planning stages of the project and includes land that will not be affected in the final detail design.

The Stage 1 archaeological assessment has determined that there is high potential for the recovery of both First Nation and Euro-Canadian archaeological resources within parts of study area and a known archaeological site is within its limits. Due to extensive urban development some portions of the study area have been previously disturbed; however, areas of agricultural field, woodlot, and manicured lawn within the study area limits are included as areas where archaeological integrity could remain intact (Figure 7). **Stage 2 archaeological assessment is recommended for any areas of potentially undisturbed lands identified in this study as retaining archaeological potential.**

The Stage 2 archaeological assessment must be conducted by a licensed archaeologist and must follow the requirements set out in the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011), including:

- Pedestrian survey at 5 m intervals where ploughing is possible (e.g., agricultural fields). This assessment will occur when agricultural fields have been recently ploughed, weathered, and exhibit at least 80 % surface visibility;

- Test pit survey at 5 m intervals in all areas that will be impacted by the project and where ploughing is not possible (e.g., woodlots, overgrown areas, manicured lawns);

- Poorly drained areas, areas of steep slope and areas of previous disturbance (e.g., pipelines, railways, road ROWs, buildings) identified are to be mapped and photo-documented, but are not recommended for Stage 2 survey as they possess low to no archaeological potential.

During the background research, a historic church, schoolhouse, and two cemeteries were identified within The Gore Road study area. Special consideration and recommendations must be made for the Ebenezer Primitive Methodist Chapel and Cemetery and the St John’s Castlemore Cemetery as historic churches and associated cemeteries significantly increase the potential for finding unmarked burial locations, grave shafts, and/or the recovery of human remains. Though the Ebenezer Primitive Methodist Cemetery and the St. John's Castlemore Cemetery were previously investigated using GPR, these assessments were only conducted within the currently marked cemetery limits. Given the mid-19th century establishment of these cemeteries and their proximity to the Gore Road Municipal right of way, a high probability exists that unmarked graves and associated shafts may be present adjacent to, or within the right of way. Current fence line or boundaries do not necessarily represent the limits of the cemetery below ground.

As a precautionary measure, it is recommended that after Stage 2 archaeological assessments are completed, should any ground disturbing activities be required within 10 m of the historic cemeteries and/or church, the following fieldwork must be conducted to determine if any grave shafts are present:

- Stage 3 mechanical topsoil removal must be conducted for all lands subject to ground disturbance that fall within a 10 m buffer area of the known cemetery limits to determine the nature/limits of the two identified historic cemeteries within the study area limits. This includes the land between The Gore Road right of way and the marked cemetery limits;

- Mechanical topsoil removal must be completed using an excavator with a straight-edged ditching bucket and only under the supervision of a licensed archaeologist. It should be noted that the 10m buffer area subject to mechanical topsoil removal includes areas where modern infrastructure currently exists in proximity to the cemetery limits (i.e. existing parking lots, sidewalks, etc).

Should deeply buried sites be discovered, a Stage 2 assessment will be conducted according to the standards appropriate for survey in deeply buried conditions as per Section 2.1.7 in the Ontario MTCS *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011). If human remains are encountered during construction, work should cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer Services.

It should be noted that there are several alignment options as part of the proposed road widening in order to avoid lands within the cemetery limits. As such, the current design of this project will not affect any lands within either cemetery's limits; however, **should any future changes to detail design include lands within cemetery limits, additional archaeological work must be conducted in consultation with the Bereavement Authority of Ontario, the MTCS, and the Registrar of Cemeteries.**

The Ontario MTCS is asked to accept this report into the Ontario Public Register of Archaeological Reports and issue a letter of concurrence with the recommendations presented herein. As further archaeological assessments are required archaeological concerns under land use planning and development processes have not fully been addressed.

Project Personnel

Project Manager	Adria Grant, BA, CAHP (R131), Senior Archaeologist, Archaeology Practice Lead
Licensed Archaeologist	Erik Phaneuf, MSc (P393), Senior Archaeologist
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Researcher	Samantha Markham, MES (P438)
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Acknowledgements

Proponent Contact	Neal Smith, Project Manager; Region of Peel
Approval Authority	Ministry of the Environment
Ministry of Tourism, Culture and Sport	Robert von Bitter, Archaeological Data Coordinator

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1. Project Context

1.1 Development Context

AECOM was contracted by the Region of Peel to conduct a Stage 1 archaeological assessment for an approximate 4.6 km long and 200 m wide corridor of the Gore Road that extends from Queen Street (Highway 7) northerly to just north of Castlemore Road. The study area land is legally described as part of Lots 4 to 11, Concessions 9 and 10 in the Geographic Township of the Gore of Toronto, now the City of Brampton, Regional Municipality of Peel, Peel County, Ontario (Figure 1 and 2).

This Stage 1 archaeological assessment is being undertaken as part of the Gore Road Widening project in advance of a detail design and was triggered by the requirements of the *Environmental Assessment Act* and in accordance with subsection 11(1) was conducted during the planning stage of the project (Government of Ontario 1990a). This project is also subject to the *Ontario Heritage Act* (Government of Ontario 1990b) and the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The proposed project involves the widening of The Gore Road from a 2-lane cross-section to a 5-lane cross-section and the widening of the three structures at the three Humber River crossings within the project limits. This project was initiated as a result of the need for improvements to the roadway due to increased travel demand resulting from new development of the area. For the purposes of this Stage 1 background study, a buffer area of 100 m on either side of The Gore Road centreline was included in the study area in order to accommodate all possible alignment options. It should be noted that this study was completed in the early planning stages of the project and includes land that will not be affected in the final detail design.

Permission to access the study area for the visual inspection was provided by the Region of Peel and there were no limits placed on access.

1.1.1 Objectives

The Stage 1 archaeological assessment has been conducted to meet the requirements of the Ministry of Tourism, Culture and Sport's (MTCS) *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The objective of the Stage 1 background study is to document the archaeological and land use history and present conditions of the subject area. The Stage 1 research information will be drawn from:

- MTCS's Archaeological Sites Database (ASDB) for a listing of registered archaeological sites within a 1km radius of the study area;
- Reports of previous archaeological assessment within a radius of 50m around the property;
- Recent and historical maps of the property area;
- Archaeological management plans or other archaeological potential mapping when available;
- Commemorative plaques or monuments; and
- Visual inspection of the project area.

This information will be used to support recommendations regarding cultural heritage value or interest as well as assessment and mitigation strategies.

1.2 Historical Context

The study area consists of a 4.6 km long corridor of the Gore Road from 250 m north of Castlemore Rd to 250 m south of Queen St. The section of Gore Rd is legally described as part of Lots 4 to 11, Concessions 9 and 10 of the Geographic Township of the Gore of Toronto, Regional Municipality of Peel, Peel County Ontario. The history of settlement in this area is provided in the following sections.

1.2.1 Pre-Contact Aboriginal Settlement

It has been demonstrated that pre-contact Aboriginal people began occupying southwestern Ontario as the glaciers receded from the land, as early as 11,000 B.C. Table 1 provides a breakdown of the cultural and temporal history of past occupations of Peel County.

Table 1: Cultural Chronology for Peel County

Archaeological Period	Characteristics	Time Period	Comments
Early Paleo-Indian	Fluted Points	9000-8400 BC	Arctic tundra and spruce parkland, caribou hunters
Late Paleo-Indian	Holcombe, Hi-Lo and Lanceolate Points	8400-8000 BC	Slight reduction in territory size
Early Archaic	Notched and Bifurcate base Points	8000-6000 BC	Growing populations
Middle Archaic	Stemmed and Brewerton Points, Laurentian Development	6000-2500 BC	Increasing regionalization
Late Archaic	Narrow Point	2000-1800 BC	Environment similar to present
	Broad Point	1800-1500 BC	Large lithic tools
	Small Point	1500-1100 BC	Introduction of bow
Terminal Archaic	Hind Points, Glacial Kame Complex	1100-950 BC	Earliest true cemeteries
Early Woodland	Meadowood Points	950-400 BC	Introduction of pottery
Middle Woodland	Dentate/Pseudo-scallop Ceramics	400 BC – AD 500	Increased sedentism
	Princess Point	AD 550-900	Introduction of corn horticulture
Late Woodland	Early Ontario Iroquoian	AD 900-1300	Agricultural villages
	Middle Ontario Iroquoian	AD 1300-1400	Increased longhouse sizes
	Late Ontario Iroquoian	AD 1400-1650	Warring nations and displacement
Contact Aboriginal	Various Algonkian and Iroquoian Groups	AD 1600-1875	Early written records and treaties
Historic	French and English Euro-Canadian	AD 1749-present	European settlement

Note: taken from Ellis and Ferris, 1990

As Chapman and Putnam (1984) illustrate, the modern physiography of southern Ontario is largely a product of events of the last major glacial stage and the landscape is a complex mosaic of features and deposits produced during the last series of glacial retreats and advances prior to the withdrawal of the continental glaciers from the area. Southwestern Ontario was finally ice free by 12,500 years ago. With continuing ice retreat and lake regressions the land area of southern Ontario progressively increased while barriers to the influx of plants and animals steadily diminished (Karrow and Warner 1990).

The first human settlement can be traced back 11,000 years; these earliest well-documented groups are referred to as Paleo which literally means old or ancient Indians. Paleo people were non-agriculturalists who depended on hunting and gathering of wild food stuffs, they would have moved their encampments on a regular basis to be in the locations where these resources naturally became available and the size of the groups occupying any particular location would vary depending on the nature and size of the available food resources (Ellis and Deller 1990). The picture that has emerged for early and late Paleo people is of groups at low population densities who were residentially mobile and made use of large territories during annual cycles of resource exploitation (Ellis and Deller 1990).

The next major cultural period following the Paleo is termed the Archaic, which is broken temporally into the Early, Middle and Late. There is much debate on how the term Archaic is employed; general practice bases the designation off assemblage content as there are marked differences in artifact suites from the preceding Paleo and subsequent Woodland periods. As Ellis et al (1990) note, from an artifact and site characteristic perspective the Archaic is simply used to refer to non-Paleo manifestations that pre-date the introduction of ceramics. Throughout the Archaic period the natural environment warmed and vegetation changed from closed conifer-dominated vegetation cover, to mixed coniferous and deciduous forest to the mixed coniferous and deciduous forest in the north and deciduous vegetation in the south we see in Ontario today (Ellis et al 1900). During the Archaic period there are indications of increasing populations and decreasing size of territories exploited during annual rounds; fewer moves of residential camps throughout the year and longer occupations at seasonal campsites; continuous use of certain locations on a seasonal basis over many years; increasing attention to ritual associated with the deceased; and, long range exchange and trade systems for the purpose of obtaining valued and geographically localized resources (Ellis et al 1990).

In the 17th century two major language families, Algonquian and Iroquoian were represented by the diverse people of North America. Iroquoian speaking people were found in southern Ontario and New York State, with related dialects spoken in the mid-Atlantic and interior North Carolina, while Algonquian speaking peoples were located along the mid-Atlantic coast into the Maritimes, throughout the Canadian Shield of Ontario and Quebec and much of the central Great Lakes region (Ellis et al 1990). Linguists and anthropologists have attempted to trace the origin and development of these two language groups and usually place their genesis during the Archaic period (Ellis et al 1990).

The Early Woodland period is distinguished from the Late Archaic period primarily by the addition of ceramic technology, which provides a useful demarcation point for archaeologists but is expected to have made less difference in the lives of the Early Woodland peoples. The settlement and subsistence patterns of Early Woodland people shows much continuity with the earlier Archaic with seasonal camps occupied to exploit specific natural resources (Spence et al 1990). During the Middle Woodland well-defined territories containing several key environmental zones were exploited over the yearly subsistence cycle. Large sites with structures and substantial middens appear in the Middle Woodland associated with spring macro-band occupations focussed on utilizing fish resources and created by consistent returns to the same site (Spence et al 1990). Groups would come together into large macro-bands during the spring-summer at lakeshore or marshland areas to take advantage of spawning fish; in the fall inland sand plains and river valleys were occupied for deer and nut harvesting and groups split into small micro-bands for winter survival (Spence et al 1990). This is a departure from earlier Woodland times when macro-band aggregation is thought to have taken place in the winter (Ellis et al 1988; Granger 1978).

The period between the Middle and Late Woodland period was both technically and socially transitional for the ethnically diverse populations of southern Ontario and these developments laid the basis for the emergence of settled villages and agriculturally based lifestyles (Fox 1990). The Late Woodland period began with a shift in settlement and subsistence patterns involving an increasing reliance on corn horticulture. Corn may have been introduced into Southwestern Ontario from the American Midwest as early as 600 A.D. However, it did not become a dietary staple until at least three to four hundred years later. The first agricultural villages in southwestern Ontario date to the 10th century A.D. Unlike the riverine base camps of the Middle Woodland period, these sites are located in the uplands, on well-drained sandy soils. Categorized as "Early Ontario Iroquoian" (900-1300 A.D.), many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which inhabited Southwestern Ontario at the time of first European contact, to these early villagers

Village sites dating between 900 and 1300 A.D., share many attributes with the historically reported Iroquoian sites, including the presence of longhouses and sometimes palisades. However, these early longhouses were actually not all that large, averaging only 12.4 metres in length. It is also quite common to find the outlines of overlapping house structures, suggesting that these villages were occupied long enough to necessitate re-building. The Jesuits reported that the Huron moved their villages once every 10-15 years, when the nearby soils had been depleted by farming and conveniently collected firewood grew scarce. It seems likely that Early Ontario Iroquoians occupied their villages for considerably longer, as they relied less heavily on corn than did later groups, and their villages were much smaller, placing less demand on nearby resources.

Judging by the presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits, agriculture was becoming a vital part of the Early Ontario Iroquoian economy. However, it had not reached the level of importance it would in the Middle and Late Ontario Iroquoian periods. There is ample evidence to suggest that more traditional resources continued to be exploited, and comprised a large part of the subsistence economy. Seasonally occupied special purpose sites relating to deer procurement, nut collection, and fishing activities, have all been identified. While beans are known to have been cultivated later in the Late Woodland period, they have yet to be identified on Early Ontario Iroquoian sites. The Middle Ontario Iroquoian period (1300-1400 A.D.) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which averaged approximately 0.6 hectares in extent during the Early Ontario Iroquoian period, now consistently range between one and two hectares.

House lengths also change dramatically, more than doubling to an average of 30 metres, while houses of up to 45 metres have been documented. This radical increase in longhouse length has been variously interpreted. The simplest possibility is that increased house length is the result of a gradual, natural increase in population. However, this does not account for the sudden shift in longhouse lengths around 1300 A.D. Other possible explanations involve changes in economic and socio-political organization. One suggestion is that during the Middle Ontario Iroquoian period small villages were amalgamating to form larger communities for mutual defense. If this was the case, the more successful military leaders may have been able to absorb some of the smaller family groups into their households, thereby requiring longer structures. This hypothesis draws support from the fact that some sites had up to seven rows of palisades, indicating at least an occasional need for strong defensive measures. There are, however, other Middle Ontario Iroquoian villages which had no palisades present. Another researcher has suggested that the longest houses may be associated with families that were more successful in trade and other forms of economic activity. More research is required to evaluate these competing interpretations.

The lay-out of houses within villages also changes dramatically by 1300 A.D. During the Early Ontario Iroquoian period villages were haphazardly planned at best, with houses oriented in various directions. During the Middle Ontario Iroquoian period villages are organized into two or more discrete groups of tightly spaced, parallel aligned, longhouses. It has been suggested that this change in village organization may indicate the initial development of the clans which were a characteristic of the historically known Iroquoian people.

Initially at least, the Late Ontario Iroquoian period (1400-1650 A.D.) continues many of the trends which have been documented for the proceeding century. For instance, between 1400 and 1450 A.D. house lengths continue to grow, reaching an average length of 62 metres. One longhouse excavated on a site southwest of Kitchener stretched an incredible 123 metres. After 1450 A.D., house lengths begin to decrease, with houses dating between 1500-1580 A.D. averaging only 30 metres in length. Why house lengths decrease after 1450 A.D. is poorly understood, although it is believed that the even shorter houses witnessed on historic period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox.

Village size also continues to expand throughout the Late Ontario Iroquoian period, with many of the larger villages showing signs of periodic expansions. The Late Middle Ontario Iroquoian period and the first century of the Late Ontario Iroquoian period was a time of village amalgamation. One large village situated just north of Toronto has been shown to have expanded on no fewer than five occasions. These large villages were often heavily defended with numerous rows of wooden palisades, suggesting that defence may have been one of the rationales for smaller groups banding together.

Archaeologists are able to trace archaeologically known groups from this time period to the historically documented people identified when French fur traders first arrived (Wright 1994). The Ontario Iroquois from southern Ontario gave rise to the Huron, Petun, Neutral and Erie; the St. Lawrence Iroquois, a distinct population encountered by Jaques Cartier in 1535 that had disappeared by the time Samuel de Champlain returned to the same area in 1603; and from Northern Ontario the groups that gave rise to the Algonquian speaking Cree, Ojibwa and Algonquin people (Wright 1994).

1.2.2 Post-Contact Aboriginal Settlement

The post-contact Aboriginal occupation of southern Ontario was heavily influenced by the dispersal of Iroquoian speaking peoples, such as the Huron, Petun and Neutral by the New York State Confederacy of Iroquois, followed by the arrival of Algonkian speaking groups from northern Ontario. The Ojibwa of southern Ontario date from about 1701 and occupied the territory between Lakes Huron, Erie and Ontario (Schmalz 1991). This is also the period in which the Mississaugas are known to have moved into southern Ontario and the Great Lakes watersheds (Konrad 1981) while at the same time the members of the Three Fires Confederacy, the Chippewa, Ottawa and Potawatomi were immigrating from Ohio and Michigan (Feest and Feest 1978). As European settlers encroached on their territory the nature of Aboriginal population distribution, settlement size and material culture changed. Despite these changes it is possible to correlate historically recorded villages with archaeological manifestations and the similarity of those sites to more ancient sites reveals an antiquity to documented cultural expressions that confirms a long historical continuity to Iroquoian systems of ideology and thought (Ferris 1009). First Nations people of southern Ontario have left behind archaeological resources throughout the Great Lakes region that show continuity with past peoples even if this was not recorded in Euro-Canadian documentation.

The study area falls within Treaty No. 19 signed on October 28, 1818 and was a:

> …provisional agreement made by the Honourable William Claus, Deputy-Superintendent-General of Indian Affairs on behalf of His Majesty [the King] and the Principal Men of the Mississaga Nation of Indians, inhabiting the River Credit, Twelve and Sixteen Mile Creeks on the north shore of Lake Ontario, within the Home District, whereas the said Indians were to receive 522 pounds and ten shillings, yearly for the said tract, described as follows: "a tract of land in the Home District called the Mississague Tract, bounded southerly by the purchase made in 1806; on the east by the Townships of Etobicoke, Vaughan and King; on the south west by the Indian Purchase, extending from the outlet of Burlington Bay, north forty-five degrees west, fifty miles and from thence north seventy four degrees east or thereabouts, to the north west angle of the Township of King."
>
> Morris 1943:24

While it is often difficult to delineate treaty limits on modern maps Figure 3 provides the approximate limits of Treaty No. 19 with the location of the current study area indicated.

1.2.3 Euro-Canadian Settlement

Peel County was created in 1851 when it split from York County, and contains five geographic townships: Caledon, Chinguacousy, Toronto, Albion and the Gore of Toronto. Chinguacousy Township, part of the Mississauga Indian tract, was surveyed in 1819. John Elliott, John Scott and William Buffy were early settlers here of a crossroads hamlet first known as Buffy's Corners. In 1834 Elliott laid out a village plot and by 1837 the community numbered 18 families. The village was incorporated in 1853, and established a Primitive Methodist congregation. The coming of the Grand Trunk Railway in 1856 aided Brampton's economic development. A foundry, established in 1849, and a horticultural business, started in 1860 and later internationally known, became important industries. Chosen as the county seat in 1867, Brampton was incorporated as a town in 1873 (Ontario Historical Society).

The study area is located approximately 16 km northeast of the city of Brampton. The historic village of Castlemore falls within the study area and is centred on the intersection of the Gore Road and Castlemore Road extending into Lots 10 and 11 in Concessions 9 and 10. The survey of the Gore of Toronto was completed in 1817 with settlement commencing the following year. By 1877 the town of Castlemore included a post office and store, shoe store, blacksmiths store, hotel, English church and a school. The *1877 Historic Map of the Gore of Toronto* (Pope 1877) shows the village of Castlemore and a number of residents and structures located within the study area on lots adjacent to the concession road between Concessions 9 and 10, now the Gore Road (Figure 4: Pope 1877). A list of these features is provided in Table 2 starting at the northern extent of the study area and continuing south.

Table 2: Historic Features Illustrated on the 1877 Map of the Gore of Toronto

Lot	Concession	Historic Feature(s)	Description
11	9	Structure	Adjacent to ROW on land owned by Michael Dougherty
11	9	Structure	Structure on land owned by Michael Dougherty with associated orchard.
11	9	Orchard	Adjacent to ROW and associated with structure on land owned by Michael Dougherty.
11	9	Structure	Structure on land owned by Michael Dougherty, with associated orchard, west of tributary to Humber River.
11	9	Orchard	Adjacent to ROW and associated with structure on land owned by Michael Dougherty.
11	9	Structure	Adjacent to ROW on land owned by Michael Dougherty, at northwest corner of the intersection with Castlemore Road.
11	10	Structure	Structure on land owned by John Carefoot.
11	10	Structure	Structure on land owned by John Carefoot.
11	10	Orchard	Adjacent to ROW and associated with structure on land owned by John Carefoot.
11	10	Hotel	Hotel formed part of the Village of Castlemore, situated on the northeast corner of the intersection with Castlemore Road.
10	9 & 10	Village of Castlemore	Village includes a general store and post office, shoe store, blacksmith shop, church and school house.
10	9	Structure	Structure on land owned by M. Fitzpatrick with associated orchard.
10	9	Orchard	Adjacent to ROW and associated with structure on land owned by M. Fitzpatrick.
10	10	Structure	Adjacent to ROW on land owned by William Taylor.
10	10	Structure	Structure on land owned by William Taylor with associated orchard.
10	10	Orchard	Adjacent to ROW and associated with structure on land owned by WilliamTaylor.
9	9	Church	Adjacent to ROW on land owned by John Irven.
9	9	Cemetery	Adjacent to ROW and just south of the Church on land owned by John Irven.
9	9	Structure	Situated on land owned by John Irven, adjacent to cemetery listed above.
9	9	Orchard	Adjacent to ROW and associated with structure on land owned by John Irven.
9	9	Structure	Adjacent to ROW on southern boundary of land owned by John Irven,
9	9	Orchard	Adjacent to ROW and associated with structure on southern boundary of land owned by John Irven,
9	10	Road	Road from Gore Road to structure and orchard located on land owned by Mathew Harrison.

Lot	Concession	Historic Feature(s)	Description
9	10	Structure	Structure on land owned by Mathew Harrison.
9	10	Orchard	Associated with structure on land owned by Mathew Harrison.
9	10	Orchard	Adjacent to ROW and associated with structure on land owned by William Wiley.
9	10	Structure	Structure on land owned by William Wiley.
8	9	Structure	Structure on land owned by N. & J. Harrison, with associated orchard.
8	9	Orchard	Adjacent to ROW and associated with structure on land owned by N. & J. Harrison.
8	10	Road	Road leads east to structure and orchard on land owned by George Julian. Structure and orchard lie well outside of the study area.
7	9	Structure	Adjacent to ROW and within severance owned by J.B, on southeast corner of Lot 7, Con. 9.
7	9	Orchard	Adjacent to ROW and associated with structure on severance owned by J.B, on southeast corner of Lot 7, Con. 9.
7	9	Road	Extending from ROW westward along southern boundary of Lot 9, Con. 9.
7	10	Road	Extending from ROW eastward past dwelling and orchard on land owned by John Bland.
7	10	Road	Extending from ROW eastward past dwelling and orchard on land owned by Abel Robinson Jr.
6	9	Concession Road	Road allowance running east to west between Lots 5 and 6.
6	10	Concession Road	Road allowance running east to west between Lots 5 and 6.
5	9	Concession Road	Road allowance running east to west between Lots 5 and 6.
5	9	Structure	Adjacent to ROW on land owned by Mrs. Sarah Allerson in the southwest corner of the intersection with the Concession Road.
5	9	Blacksmith Shop	Adjacent to structure, directly west, on land owned by Mrs. Sarah Allerson.
5	10	Concession Road	Road allowance running east to west between Lots 5 and 6.
5	10	Church	Adjacent to ROW on part of lot owned by George Pearson.
5	10	Cemetery	Associated with church on part of lot owned by George Pearson.
5	10	Orchard	Adjacent to ROW and associated with structure on land owned by D. Hewgill.
5	10	Structure	Adjacent to ROW on land owned by D. Hewgill.
5	10	Structure	Adjacent to ROW on land owned by D. Hewgill.
5	10	Orchard	Adjacent to ROW and associated with structure on land owned by D. Hewgill.
4	9	Road	Extending from ROW westward on land owned by George Pearson.
4	10	Orchard	Adjacent to ROW and associated with structure on land owned by T. Nattress.
4	10	Structure	Structure on land owned by T. Nattress.

In addition, a search of the Ontario Historical Plaques (OHP) database and the Municipal Register of Cultural Heritage Resources for the City of Brampton was conducted to determine if there were any historical plaques within the current study area. There are no Historical Plaques within the study area, but many of the properties and structures listed above are listed within the Municipal Register of Cultural Heritage Resources and designated properties under the *Ontario Heritage Act*. Designated properties within the study area include Ebenezer Schoolhouse, Ebenezer Primitive Methodist Chapel and Cemetery, and the St John's Casltemore Cemetery and one designated cemetery was identified within 100 m of the study area limits, the Harrison-Hewgill Cemetery.

4494 Ebenezer Road - Ebenezer Schoolhouse

The schoolhouse represents a prime example of a rural, single-room schoolhouse made popular by Dr. Edgerton Ryerson, the “father” of the Ontario education system (Brampton Heritage Board, 2014). It was built in 1892 and served as a ‘union school’, serving the boundary areas between Toronto-Gore and Vaughan Townships. It is distinguished by a steeply-pitched gable roof, wooden belfry, metal weathervane, original red brick exterior walls, and pedimented front porch. Local builder Josiah Mason designed the specifications for the schoolhouse, while Harry Hill and Frank Hewgill were responsible for carpentry, painting and masonry. It operated as a school continuously until 1962. More recently, the building was used as the Toronto Gore township council chambers between 1962 and 1973 when the township was incorporated into the City of Brampton, before becoming a community centre in more recent history. In 2011, the building was relocated further back from The Gore Road on the existing property in advance of the pending road widening project.

8999 The Gore Road – Ebenezer Primitive Methodist Chapel and Cemetery

Located on the southeast corner of The Gore Road and Ebenezer Road, the Ebenezer Primitive Methodist Chapel’s cultural heritage value is related to the overall design distinguished by a simple rectangular floor plan, a fish-scale pattern in the front gable, a prominent front vestibule, original door hinges and knobs, elongate Italianate style windows, and decorative eaves (Brampton Heritage Board, 2014). In 1847 James and Ann Sleightholm deeded the present church site to the community for the sum of 5 shillings (Toronto Gore Historical Foundation, 2015). The original building was likely made from mud brick was erected before the deed was registered. The chapel standing today was built in 1858 using brick from the kiln of early settler, James Sleightholm who owned an adjacent farm. By the mid-19th century, the Ebenezer Primitive Methodist congregation was the second largest in the area. There is a cemetery associated with the building, and contains several original, hand carved tombstones and markers (Brampton Heritage Board, 2014). A search of the registered Cemeteries and Crematoriums Database (Ministry of Government and Consumer Services) determined that The Ebenezer Gore Historical Foundation Cemetery is a registered cemetery located at 8999 The Gore Road, at the corner of The Gore Road and Ebenezer Road, within Lot 5, Concession 10. The cemetery was established in 1847 on land that was donated by early settlers, James and Ann Sleightholm. It is located on the same property as the Ebenezer Primitive Methodist Chapel, and is a designated heritage property. Several alignment alternatives for the proposed The Gore Road widening are being considered in attempts to avoid any impact to the Ebenezer Gore Historical Foundation Cemetery.

9776 The Gore Road - St John’s Castlemore Cemetery

This cemetery, also referred to as St John’s Anglican or Erwin’s cemetery, was the location of an English church present within the early hamlet of Castlemore. It was established on land donated by John Erwin in 1844, and the first church was likely erected in 1845. The second church made of brick was built in 1888 and located further north on the property, where today exists a corner stone made from the original church bricks (Mathews, 1984). The building was demolished sometime after 1989. This cemetery is not registered with the Ministry of Government and Consumer Services; however, it is included in the Municipal Register of Cultural Heritage Resources for the City of Brampton as a designated heritage property. Several alignment options for the proposed The Gore Road widening are being considered in attempts to avoid any impact to the St. John’s Cemetery.

9749 The Gore Road – Harrison-Hewgill Pioneer Cemetery (St. Mary’s Anglican)

The cemetery is a typical 19th century family burial plot, originally located within a rural farmstead owned by Matthew Harrison and his wife Ann Hewgill-Harrison established in the 1850’s. The plot was a small apple orchard located near the farmhouse that consisted of a brick masonry building in the Ontario Gothic style dating to approximately

1855 (Brampton Heritage Board, 2010). The cemetery consists of one single grave with two interments, Ann Hewgill-Harrison and her unnamed infant baby who died on July 17, 1869. The carved stone grave markers are embedded in the soil, displaying weeping willow motif, which was a popular Victorian symbol of loss and grief (Brampton Heritage Board, 2014). Both families were prominent in the Toronto-Gore area. The Harrison family worked this farm from 1854 to the 1950's. The farmhouse was relocated to McVean Drive in 2006. The Harrison-Hewgill Cemetery is a registered cemetery located on Lot 9, Concession 10 and is also a designated heritage property listed in the Municipal Register of Cultural Heritage Resources for the City of Brampton. Although located just within the buffered study area for the Stage 1 archaeological assessment, the Harrison-Hewgill Cemetery will not be affected by the proposed widening of The Gore Road as it is outside of the study area along Castle Oaks Crossing.

1.2.4 Reports with Relevant Background Information

Following consultation with MTCS it was determined that previous archaeological assessments have been conducted within a 50 m radius of the current study area (Robert Von Bitter, personal communication). Additional to the correspondence with MTCS a similar request was submitted to the City of Brampton's Heritage Planning Department. A list of the reports relevant to the project area along with the source from which the report was obtained is provided in Table 3. MTCS identified 14 previous archaeological assessments within 50 m of the study area. Whilst every effort was made to obtain these reports only four were received from the wider archaeology community. A correspondence log is provided in Appendix A detailing the steps taken to acquire the relevant reports.

Table 3: Previous Archaeological Assessment Reports Relevant to the Study Area

Year	Author	Title	Source
1999	Archaeological Service Inc.	*Stage 1-2 Archaeological assessment of Draft Plan of Subdivision 12T-98019B, Part of Lot 6, Concession 10, Northern Division, City of Brampton, Regional Municipality of Peel, Ontario.* **CIF #99-007-041**	Received from ASI
2000	Archaeological Services Inc.	*Stage 1 and 2 Archaeological Assessment of Draft Plan of Subdivision 21T-00013B Part of Lot 6, Concession 9, Northern Division, (Former Township of Toronto Gore, County of Peel) City of Brampton, Regional Municipality of Peel, Ontario*	Received from Proponent
2002	Archeoworks	*Stage 1-2 Archaeological Assessment of a 25.3-Acre Parcel, Brampton Subdivision, Part of Lot 7, Conc. 9, Former Township of the Gore of Toronto, R. M. of Peel, Ontario*	Not received
2003	Archeoworks	*Stage 1-2 A. A. of Proposed Subdivision 21T-02-018B, Part of the N half of Lot 7, Concession 10 ND, City of Brampton, Region of Peel, Ontario*	Not received
2003	Archeoworks	*Stage 1-2 A. A. of a 53.927 Acre Parcel, Proposed Subdivision: Lockspur Estates Inc., Part of Lot 9, Conc. 9, Northern Division (ND), City of Brampton, R. M. of Peel, Ontario*	Not received
2004	Amick	*Report on the 2004 Stage 1-2 A.A. of the Starserra Homes Ltd. Proposed Draft Plan of Subdiv., Part of the E. Half of Lot 8, Con. 9 ND, (Formerly within Toronto-Gore Twp), City of Brampton, R.M. of Peel*	Not received
2004	DPA	*Report on the 2003 Stage 1-2 Archaeological Assessment of the Proposed Dolomiti Estates Subdivision, Draft Plan 21T-03010B Revised, Bram East Secondary Plan, City of Brampton, Ontario and*	Not received
2005	Sutton	*Stage 1 AA of the Gore Road, Castlemore Road to 1000 Metres North of Mayfield Road, City of Brampton, RM of Peel*	Not received
2005	Archaeological Services Inc.	*Stage 1&2 Archaeological Assessment of the Gore Road Subdivision, 21T-05038B,Part Lot 4, Concession 9 (Northern Division),Geographic Township of Toronto Gore, City of Brampton, Regional Municipality of Peel, Ontario.* **PIF P117-098**	Received from ASI
2005	D.R. Poulton	The 2005 Stage 3 Archaeological Test Excavations of the Harrison-Hewgill Cemetery, 9749 The Gore Road, C10E9.5 – Draft Plan 21T-03013B, Bram East Secondary Plan Area, City of Brampton, Ontario.	

Year	Author	Title	Source
2006	Archaeological Services Inc.	*"Stage 1 & 2 A.A. of Draft Plan of Subdivision 21T-03013B, Part of Lots 9 & 10, Con. 10 (N.D.), Geographic Township of Toronto Gore, County of Peel, Now the City of Brampton, Regional Municipality of Peel, Ontario.* **PIF P046-022-2006 & P047-105-2006**	Received from ASI
2006	ARA	*Stage 1 and 2 AA 9574 The Gore Road, Part Lot 8, Con 9, RM of Peel, Brampton, Ontario.* **PIF P007-082-2006**	Received from ARA
2008	AMICK	*The 2007-2008 Stage 1-2 Archaeological Assessment of the Lidia Property, Draft Plan 21T-06012B, Lot 8, Concession 10, Geographic Township of Toronto Gore, City of Brampton, Regional Municipality of Peel, Ontario*	Not received
2010	Earthworks	*ADDENDUM: Stage 1 and 2 Archaeological Assessment, Ebenezer School Relocation*	Not received
2012	Fisher	*Ebenezer Church Cemetery (AkGv-275), 8999 the Gore Road, Brampton, Ontario (City of Brampton, Pt. Lot 5 Conc. 10 EHS Former Toronto Gore Twp., Peel County), Stage 3 Archaeological Monitoring of Utility Box Removal, 2011*	Not received
2013	AMICK	*Stage 1-2 Archaeological Assessment of TACC Holborn Property, Part of Lots 4 and 5, Concession 10 North Division (Geographic Township of Toronto Gore, County of Peel), City of Brampton, Regional Municipality of Peel*	Not received

Several archaeological assessments have been conducted within and around the current study area limits. Archaeological Services Inc. (ASI) conducted a Stage 1-2 assessment in Part of Lot 6, Concession 10 in Brampton partially located within the current study area, where they located the three sites, including the Sleightholm Site (AkGv-160). Based on the extended age and multiple-tenancy component, it was recommended clear of further archaeological concern (ASI 1999).

In 2000, ASI conducted an archaeological assessment for the widening of a portion of The Gore Road. This assessment determined that The Gore Road and the associated right of way south of Castlemore was heavily disturbed and no longer retained archaeological potential. No work was done for land outside of The Gore Road right of way.

ASI conducted a Stage 1-2 archaeological assessment on part of Lot 6, Concession 9 that includes a small portion of the northern study area limits (ASI 2002). The Stage 1-2 archaeological assessment resulted in the discovery of five pre-contact archaeological sites, five pre-contact isolated finds, two historic sites, and one isolated historic find. Only the two historic sites (AkGv-184 and AkGw-168) were recommended for further Stage 3 archaeological assessment.

In addition to the archaeological survey during the Gore Road widening EA conducted in 2002, Geophysics GPR International Inc. undertook a georadar survey of the Ebenezer Primitive Methodist Cemetery and the St John's Castlemore Cemetery. The Ebenezer Primitive Methodist cemetery and the St John's Castlemore cemetery are directly adjacent to the Gore Road right of way with headstones abutting the cemetery fences. Due to the close proximity of headstones to the cemetery boundary it is possible that unmarked gravesites fall within the right of way. Georadar, also known as ground penetrating radar (GPR), is used to detect anomalies beneath the soil surface. The radar sends an electromagnetic pulse into the ground which is reflected by subsurface boundaries (i.e. soil/water boundary, soil/bedrock boundary, soil/concrete boundary, etc.) and returned to a receiver. Different boundaries produce a different reflected signal. Georadar can be used to identify possible gravesites by detecting pockets of disturbed soil beneath the surface. Geophysics GPR International Inc. identified 31 probable gravesites and 12 possible gravesites at the two locations, all of which fell within the cemetery boundaries. The GPR investigation only surveyed the lands within the limits of the cemetery boundaries (i.e., the fence line) and did not include lands abutting the cemetery.

In 2005 a Stage 1-2 archaeological assessment was conducted by ASI located at the southern limits of the current study area on Lot 4, Concession 9. The assessment resulted in the identification of three archaeological sites, one was registered with MTCS as the Hewgill School Site (AkGv-262) and consisted of ceramics, glass and coins. This area was further recommended for Stage 3 investigation.

In 2006 Archaeological Research Associates Ltd. (ARA) conducted a Stage 1-2 archaeological investigation of Part of Lot 8, Concession 9, also located within the current study area limits. The area was considered to have high potential for archaeological remains; however the assessment did not yield any archaeological materials (ARA 2006). In the same year, ASI conducted a Stage 1-2 archaeological assessment of land on Lot 9, Concession 10 to the south of the study area and Lot 9, Concession 11 to the north of the study area. The assessment of Lot 9, Concession 10 resulted in the identification of one historic archaeological site, the O’Connor Site (AkGw-292). Given the early 19th century nature of the site, ASI (2006) recommended further Stage 3-4 archaeological mitigation measures. The O’Connor Site (AkGw-292) was subject to Stage 3 and 4 excavations in 2008 (ASI 2008). On Lot 9, Concession 11, one historic site was identified, the Byrne Ste (AkGw-289) and, given the nature of mid-nineteenth century materials recovered from the site, ASI (2006) recommended further Stage 3-4 archaeological mitigation.

In 2005, D.R. Poulton conducted a Stage 3 archaeological test excavation of the Harrison-Hewgill Cemetery. Results of this excavation determined the presence of one infant’s tombstone, a tombstone marker for Ann Hewgill (ca. 1869), a single undisturbed grave shaft to the west of Ann’s tombstone marker, and several post moulds. The cemetery was subsequently protected, the stones were restored and reinstalled, and the cemetery was incorporated into the residential subdivision plan as a landscaped area along Castle Oaks Crossing Road. The cemetery remains marked with appropriate signage.

The background study included a review of previous archaeological assessment reports within 50 m of the study area. As indicated, 15 previous archaeological assessments were identified; however, only nine were received from the wider archaeological community. Figure 6 illustrates the known locations of previous assessments conducted for properties within the current study area. An additional request for archaeological reports was sent to the MTCS in April of 2016; however, at the time that this report was completed, no additional reports had been received from the MTCS or other archaeological consulting firms.

1.3 Archaeological Context

1.3.1 Natural Environment

The study area is situated within the “Peel Plain” physiographic region (Chapman and Putnam 1984: 174-176).

> *The Peel plain is a level-to-undulating tract of clay soils (Photo 70) covering 300 square miles across the central portions of the Regional Municipalities of York, Peel, and Halton. The general elevation is from 500 to 750 feet a.s.l. and there is a gradual and fairly uniform slope toward Lake Ontario. Across this plain the Credit, Humber, Don, and Rouge Rivers have cut deep valleys, as have other streams such as the Bronte, Oakville, and Etobicoke Creeks.*
>
> Chapman and Putnam, 1984:174

The 1952 Soil Survey of Peel County (Hoffman & Richards 1952) indicates that the soil series of the study area is Peel clay, a grey brown podzolic soil that is imperfectly drained. Alluvial soils are found along the creek beds that run through the study area. The Canada Land Inventory (CLI) classifies the Peel Clay series within the study area as “*no significant limitations in use for crops*” suggesting the area is highly suitable for agriculture. The alluvial soils have a CLI rating of “*very severe limitations preclude annual cultivation*” due to occasional flooding. Figure 5 provides an illustration of soil drainage and agricultural suitability for the study area, taken from the Ministry of Natural resources soil survey.

Amongst the abundance of creeks and rivers that traverse the region, the Humber River West Branch is the closest major potable water source to the study area being approximately 1.3 km away. Two tributaries of the West Branch, a first order stream and third order stream, cross the study area providing an easily accessible source of potable water to the study area.

1.3.2 Known Archaeological Sites and Surveys

The Ontario Archaeological Sites Database (ASDB) was examined on March 13, 2014 to determine if there are any registered archaeological sites within a 1 km radius of the study area. A total of 43 archaeological sites are situated within a 1km radius of the current study area including 23 pre-contact Aboriginal sites, 19 Euro-Canadian site. Eleven of these sites fall within the current study area. Table 4 provides the results of this search and lists known archaeological sites in proximity to the current study area. Those sites located within the study area are bolded.

Table 4: Registered Archaeological Sites in Proximity to the Study Area

Borden	Site Name	Site Type	Cultural Affiliation	Researcher(s)
AkGv-33	Weatherspoon 2	Findspot	Pre Contact	Robert G. Mayer
AkGv-66	Daniel Reaman	Homestead	Euro-Canadian – Mid 19th Century	Robert G. Mayer
AkGv-73	Ebenezer Road	Homestead	Euro-Canadian	Paul A. Lennox
AkGv-74	Fletcher	Blacksmith Shop, Residence	Euro-Canadian	Paul A. Lennox
AkGv-122	Drizzle	Scatter	Undetermined	Robert W.C. Burgar
AkGv-153	Barrister Brook #1	Findspot	Late Archaic	Dana R. Poulton
AkGv-160	Sleightholm	Homestead	Euro-Canadian – Early 19th Century	Martin Copper
AkGv-165	**N/A**	**Findspot**	**Pre Contact**	**Martin Cooper**
AkGv-166	N/A	Findspot	Pre-Contact	Martin Cooper
AkGv-167	N/A	Scatter, lithic	Pre Contact	Martin Cooper
AkGv-168	N/A	Scatter, lithic	Pre Contact	Martin Cooper
AkGv-169	N/A	Scatter, lithic	Pre Contact	Martin Cooper
AkGv-170	N/A	Findspot	Pre Contact	Martin Cooper
AkGv-171	N/A	Homestead	Euro-Canadian – 19th Century	Martin Cooper
AkGv-175	N/A	Findspot	Pre Contact	Martin Cooper
AkGv-182	**N/A**	**Findspot**	**Late Archaic**	**Martin Cooper**
AkGv-183	**N/A**	**Findspot**	**Pre-Contact**	**Martin Cooper**
AkGv-184	**N/A**	**Homestead**	**Euro-Canadian – Early 19th Century**	**Martin Cooper**
AkGv-188	**Ebenezer Blacksmith Shop site**	**Blacksmith Shop**	**Euro-Canadian**	**Martin Cooper**
AkGv-189	**N/A**	**Findspot**	**Late Archaic**	**Martin Cooper**
AkGv-199	**N/A**	**Homestead - Log Cabin**	**Euro-Canadian**	**Kim Slocki**
AkGv-262	**Hewgill School**	**School**	**Euro-Canadian – Mid 19th Century**	**Robert I. MacDonald and Katie Hull**

Borden	Site Name	Site Type	Cultural Affiliation	Researcher(s)
AkGv-317	No data recorded			
AkGw-99	McVean 1	Undetermined	Otter Creek, Laurentian – Middle Archaic	Jeffrey A. Bursey
AkGw-100	McVean 2	Findspot	Levanna, Pickering? – Late Woodland	Jeffrey A. Bursey
AkGw-102	Barrister Brook #2	Findspot	Late Iroquoian – Late Woodland	Dana R. Poulton
AkGw-103	Dolomiti	Findspot	Adena – Early Woodland	Dana R. Poulton
AkGw-166	N/A	Findspot	Pre-Contact	Martin Cooper
AkGw-167	N/A	Findspot	Nettling – Early Archaic	Martin Cooper
AkGw-168	N/A	Homestead	Euro-Canadian – 1840 to 1870 AD	Martin Cooper
AkGw-208	The Hunter Site	Homestead	Euro-Canadian	Frank Dieterman
AkGw-210	N/A	Findspot	Pre Contact	Martin Cooper
AkGw-284	N/A	Findspot	Middle Archaic	Bruce Welsh
AkGw-285	Fines West	Findspot	Pre-Contact	Bruce Welsh
AkGw-290	**Bayley**	**Homestead**	**Euro-Canadian – Mid 19th Century**	**Bruce Welsh**
AkGw-291	O'Hara	Homestead	Euro-Canadian – Mid 19th Century	Bruce Welsh
AkGw-292	**O'Connor**	**Homestead – Cellar, pit, well, log structure**	**Euro-Canadian – Mid 19th Century**	**Andrew Clish**
AkGw-294	N/A	Homestead	Euro-Canadian	Marilyn Cornies
AkGw-296	N/A	Village	Euro-Canadian	Kim Slocki
AkGw-406	**N/A**	**Findspot**	**Hunting – Middle Archaic**	**Nancy Saxberg**
AkGw-407	Fitzpatrick-Doughtery	Homestead – refuse pit, privy, domestic animal burial	Euro-Canadian – 19th to 20th Century	Nancy Saxberg and Shaun Austin
AkGw-408	Dougherty Old House	Findspot & Homestead	Middle Archaic & Euro-Canadian – 1840s	Nancy Saxberg
AkGw-417	Adams H2	Homestead	Euro-Canadian	Kim Slocki and Carla Parslow

Notes: Taken from the ASDB, March 14 2014

Pre-contact sites were typically findspots with artifacts dating back to the Early Archaic through to the Late Woodland periods suggesting that the area was used consistently throughout the pre-contact period. Euro-Canadian sites were typically homesteads consistent with early settlement along the Gore Road. Most notably is the excavation of the Village of Castlemore (AkGw-296) at the intersection of the Gore Road and Castlemore Road in 2006 which uncovered 1,677 artifacts including construction materials, glass fragments, nails, military, clothing, faunal artifacts and ceramics.

Information concerning specific site locations is protected by provincial policy, and is not fully subject to the Freedom of Information Act. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MTCS will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests. For this reason the exact location of these registered sites is not provided in this public report.

In 2000, ASI conducted an initial archaeological assessment for the widening of The Gore Road. This assessment determined that The Gore Road and the associated right of way south of Castlemore was heavily disturbed and no longer retained archaeological potential. No work was done for land outside of The Gore Road right of way. To the best of our knowledge, no reports on work within 50 m of the current study area, with the exception of those listed in Section 1.2.4 of this report, have been conducted.

1.3.3 Current Conditions

The approximately 4.6 km section of the Gore Road under current investigation consists of a four lane road with a concrete and landscaped right of way extending to the adjacent property boundaries. North of Castlemore Road, residential properties and grassed fields are present on the east and west sides of the Gore Road. South of Castlemore Road to 250m south of Queen Street, residential subdivisions dominate both the eastern and western sides of the Gore Road. Additionally on the eastern side of Gore Rd through this section are located a secondary school, religious temple, storm water management pond, commercial plaza and three agricultural fields. On the western side of the Gore Road south of Castlemore Road a primary school, Sikh Temple, church and commercial plaza are present. Designated and Listed Heritage resources within the study area include the Ebenezer Schoolhouse, the Ebenezer Primitive Methodist Chapel and three cemeteries; the Ebenezer Primitive Methodist cemetery, and the listed St John’s Castlemore cemetery (Figure 7).

For the current Gore Road Stage 1 archaeological assessment a property inspection was not undertaken by the archaeological team. A visit to the property is considered optional in accordance with Section 1.2 of the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011) and was not a cost effective option for this study. Photographs of the study area obtained from on-line mapping tools were used to further evaluate the geography, topography and current condition of the study area to evaluate and map archaeological potential.

2. Analysis and Conclusions

2.1 Determination of Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Criteria commonly used by the Ontario MTCS (Government of Ontario 2011) to determine areas of archaeological potential include:

- Proximity to previously identified archaeological sites;
- Distance to various types of water sources;
- Soil texture and drainage;
- Glacial geomorphology, elevated topography and the general topographic variability of the area;
- Resource areas including food or medicinal plants, scarce raw materials and early Euro-Canadian industry;
- Areas of early Euro- Canadian settlement and early transportation routes;
- Properties listed on municipal register of properties designated under the *Ontario Heritage Act* (Government of Ontario 1990b);
- Properties that local histories or informants have identified with possible archaeological sites, historical events, activities or occupants; and
- Historic landmarks or sites.

Distance to modern or ancient water sources is generally accepted as the most important element for past human settlement patterns and when considered alone may result in a determination of archaeological potential. In addition any combination of two or more of the criteria listed above, such as well drained soils or topographic variability, may indicate archaeological potential.

Certain features indicate that archaeological potential has been removed, such as land that has been subject to extensive and intensive deep land alterations that have severely damaged the integrity of any archaeological resources. This includes landscaping that involves grading below the topsoil level, building footprints, quarrying and sewage and infrastructure development (Government of Ontario 2011). The right of way of the Gore Road has been extensively disturbed through the construction of the road, shoulder and associated drainage ditches and does not retain archaeological integrity.

The study area is situated in close proximity to the Humber River, a primary source of potable water as well as an early transportation route for pre-contact Aboriginal people. Two tributaries of the Humber run through the study providing a potable water source for the site. Soils within the study area are imperfectly drained but predominantly well suited to agriculture, with the exception of the occasionally flooded alluvial soils. In addition, 23 known pre-contact Aboriginal archaeological sites are located within a 1 km radius of the study area.

Euro-Canadian settlement in this area occurred in the early 1800's with the historic village of Castlemore and several residential structures once situated within the study area. Background research indicates that the village of Castlemore included an English church; however, the location of this church is not identified on the historic map and no longer exists in the present-day landscape. South of the village of Castlemore numerous historic features are identified in the 1877 historic map of the area (Pope 1877), shown in Table 2, some of which are still present today (Figures 8 to 13). Furthermore 19 Euro-Canadian archaeological sites were located within 1 km of the study area.

The potential for pre and post contact Aboriginal resources is judged to be high based on the proximity of the study area to the Humber River and its tributaries, a source of potable water and transportation route, and known archaeological sites. The potential for Euro-Canadian archaeological resource is judged to be high based on the area’s history as one of early Euro-Canadian settlement, the historic location of the Village of Castlemore, and the presence of numerous Euro-Canadian structures including the designated Ebenezer Schoolhouse, the designated Ebenezer Primitive Methodist Chapel and three cemeteries including the designated Ebenezer Primitive Methodist cemetery, the St John’s Castlemore cemetery, and the proximity of the Harrison-Hewgill cemetery.

2.2 Conclusions

The potential for pre and post contact Aboriginal resources is judged to be high based on the proximity of the study area to the Humber River, a source of potable water and transportation route, and known archaeological sites. The potential for Euro-Canadian archaeological resource is judged to be high based on the area’s history as one of early Euro-Canadian settlement, the historic location of the Village of Castlemore, and the presence of numerous Euro-Canadian structures and features.

It has been demonstrated that this area has a high potential for archaeological resources to be present; however, numerous development projects have removed archaeological potential from a large majority of the area south of Castlemore Road. Areas subject to extensive ground disturbance no longer retain potential for archaeological resources. In addition, a number of Stage 2 archaeological assessments have been completed in and around the study area. Areas previously assessed do not require further work when archaeological concerns have been addressed (Figure 6).

3. Recommendations

The Stage 1 archaeological assessment has determined that there is high potential for the recovery of both First Nation and Euro-Canadian archaeological resources within parts of study area and a known archaeological site is within its limits. Due to extensive urban development some portions of the study area have been previously disturbed; however, areas of agricultural field, woodlot, and manicured lawn within the study area limits are included as areas where archaeological integrity could remain intact (Figure 7). **Stage 2 archaeological assessment is recommended for any areas of potentially undisturbed lands identified in this study as retaining archaeological potential.**

The Stage 2 archaeological assessment must be conducted by a licensed archaeologist and must follow the requirements set out in the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011), including:

- Pedestrian survey at 5 m intervals where ploughing is possible (e.g., agricultural fields). This assessment will occur when agricultural fields have been recently ploughed, weathered, and exhibit at least 80 % surface visibility;

- Test pit survey at 5 m intervals in all areas that will be impacted by the project and where ploughing is not possible (e.g., woodlots, overgrown areas, manicured lawns);

- Poorly drained areas, areas of steep slope and areas of previous disturbance (e.g., pipelines, railways, road ROWs, buildings) identified are to be mapped and photo-documented, but are not recommended for Stage 2 survey as they possess low to no archaeological potential.

During the background research, a historic church, schoolhouse, and two cemeteries were identified within The Gore Road study area. Special consideration and recommendations must be made for the Ebenezer Primitive Methodist Chapel and Cemetery and the St John's Castlemore Cemetery as historic churches and associated cemeteries significantly increase the potential for finding unmarked burial locations, grave shafts, and/or the recovery of human remains. Though the Ebenezer Primitive Methodist Cemetery and the St. John's Castlemore Cemetery were previously investigated using GPR, these assessments were only conducted within the currently marked cemetery limits. Given the mid-19th century establishment of these cemeteries and their proximity to the Gore Road Municipal right of way, a high probability exists that unmarked graves and associated shafts may be present adjacent to, or within the right of way. Current fence line or boundaries do not necessarily represent the limits of the cemetery below ground.

As a precautionary measure, it is recommended that after Stage 2 archaeological assessments are completed, should any ground disturbing activities be required within 10 m of the historic cemeteries and/or church, the following fieldwork must be conducted to determine if any grave shafts are present:

- Stage 3 mechanical topsoil removal must be conducted for all lands subject to ground disturbance that fall within a 10 m buffer area of the known cemetery limits to determine the nature/limits of the two identified historic cemeteries within the study area limits. This includes the land between The Gore Road right of way and the marked cemetery limits (Figure 8);

- Mechanical topsoil removal must be completed using an excavator with a straight-edged ditching bucket and only under the supervision of a licensed archaeologist. It should be noted that the 10m buffer area subject to mechanical topsoil removal includes areas where modern infrastructure currently exists in proximity to the cemetery limits (i.e. existing parking lots, sidewalks, etc).

Should deeply buried sites be discovered, a Stage 2 assessment will be conducted according to the standards appropriate for survey in deeply buried conditions as per Section 2.1.7 in the Ontario MTCS *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011). If human remains are encountered during construction, work should cease immediately, the police or Regional Coroner should be contacted, as well as the Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer Services.

It should be noted that there are several alignment options as part of the proposed road widening in order to avoid lands within the cemetery limits. As such, the current design of this project will not affect any lands within either cemetery's limits; however, **should any future changes to detail design include lands within cemetery limits, additional archaeological work must be conducted in consultation with the Bereavement Authority of Ontario, the MTCS, and the Registrar of Cemeteries.**

The Ontario MTCS is asked to accept this report into the Ontario Public Register of Archaeological Reports and issue a letter of concurrence with the recommendations presented herein. As further archaeological assessments are required archaeological concerns under land use planning and development processes have not fully been addressed.

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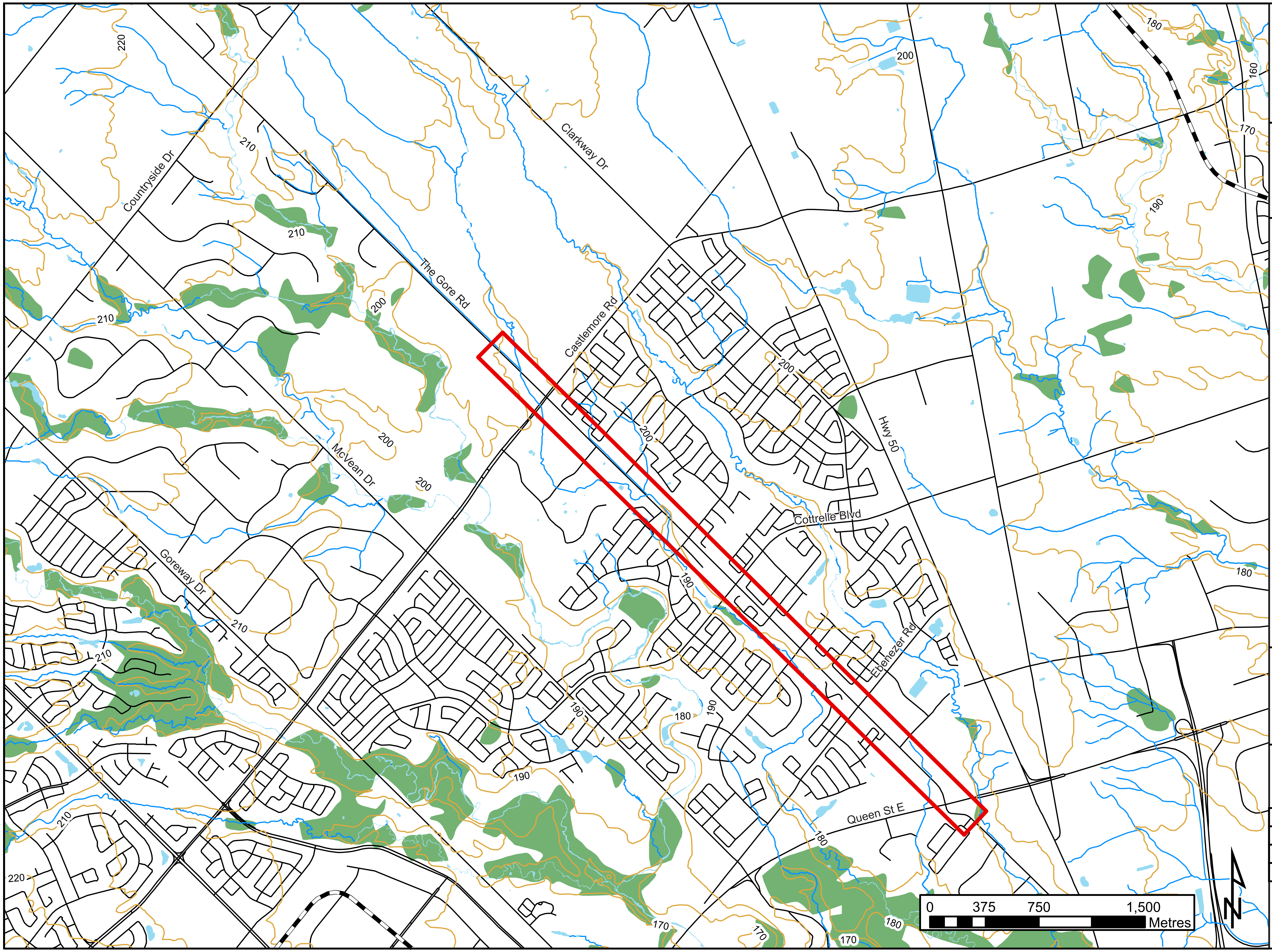
5. Maps

The maps associated with the Stage 1 archaeological assessment of the Gore Road Widening study area are provided on the following pages.



Region of Peel

Stage 1 Archaeological Assessment
The Gore Road Widening

Legend
- 🟥 Study Area
- 🟩 Wooded Area
- 🟦 Water Body
- 🟩 Wetland
- ▨ Aggregate Pit
- Watercourse
- Road
- Railway
- 120 Contour (metres)
- Municipal Boundary

Source: OBM layers - Ministry of Natural Resources

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Figure 1:
Location of Study Area

Date: March 2014

PN: 60311637

Scale: 1:25,000

Datum: NAD 83 UTM 17N

AECOM

Region of Peel

Stage 1 Archaeological
Assessment
The Gore Road Widening

Legend

🟥 Study Area

— Watercourse

190 Contour (m)

Source: OBM layers - Natural Resources Canada
Aerial Photo - Region of Peel

Figure 2:
Study Area in Detail

Date: March 2014

PN: 60311637

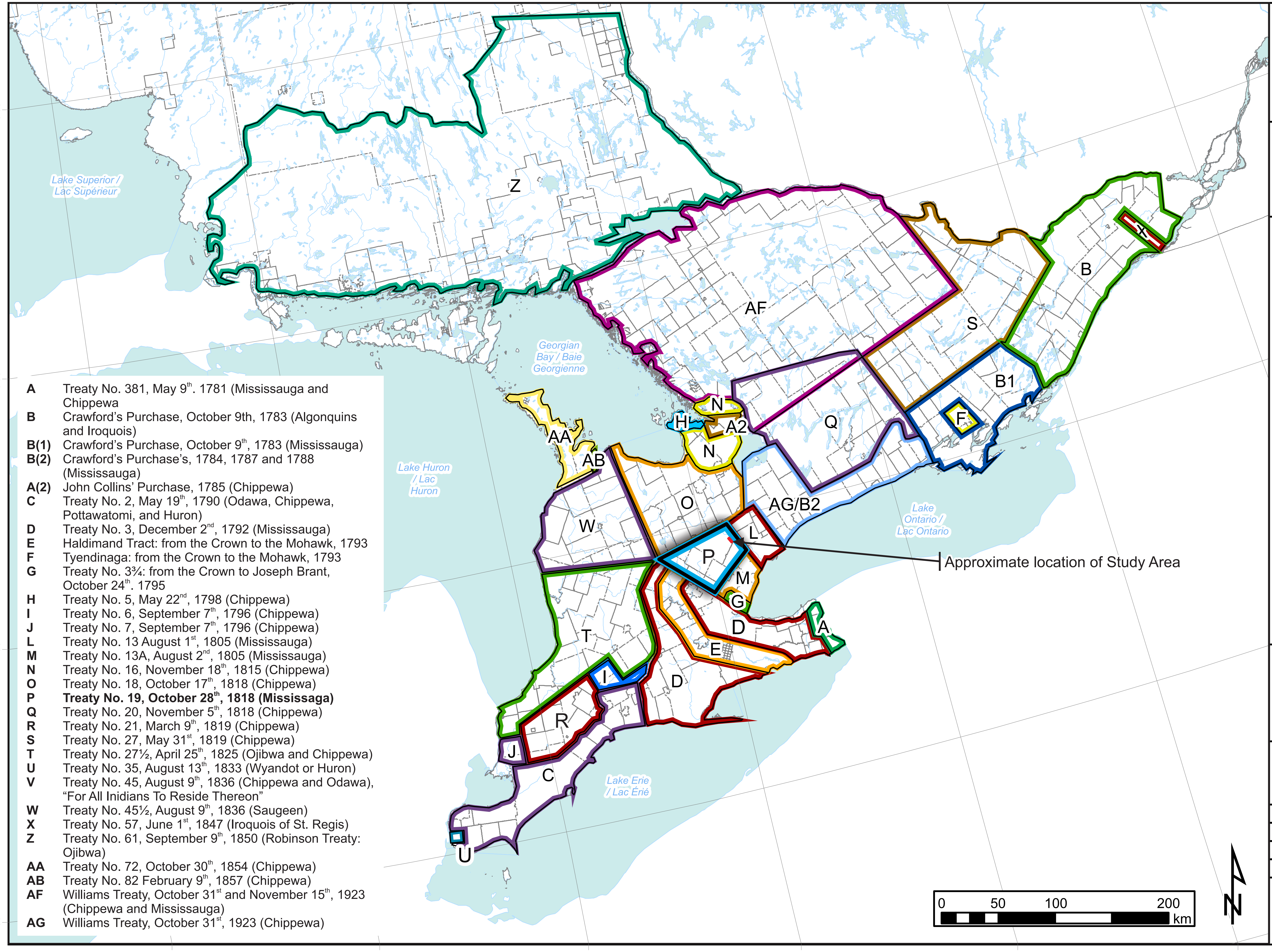
Scale: 1:1,800

Datum: NAD 83 UTM 17N

AECOM

Region of Peel

Stage 1 Archaeological Assessment
The Gore Road Widening



A	Treaty No. 381, May 9th. 1781 (Mississauga and Chippewa
B	Crawford's Purchase, October 9th, 1783 (Algonquins and Iroquois)
B(1)	Crawford's Purchase, October 9th, 1783 (Mississauga)
B(2)	Crawford's Purchase's, 1784, 1787 and 1788 (Mississauga)
A(2)	John Collins' Purchase, 1785 (Chippewa)
C	Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D	Treaty No. 3, December 2nd, 1792 (Mississauga)
E	Haldimand Tract: from the Crown to the Mohawk, 1793
F	Tyendinaga: from the Crown to the Mohawk, 1793
G	Treaty No. 3¾: from the Crown to Joseph Brant, October 24th. 1795
H	Treaty No. 5, May 22nd, 1798 (Chippewa)
I	Treaty No. 6, September 7th, 1796 (Chippewa)
J	Treaty No. 7, September 7th, 1796 (Chippewa)
L	Treaty No. 13 August 1st, 1805 (Mississauga)
M	Treaty No. 13A, August 2nd, 1805 (Mississauga)
N	Treaty No. 16, November 18th, 1815 (Chippewa)
O	Treaty No. 18, October 17th, 1818 (Chippewa)
P	**Treaty No. 19, October 28th, 1818 (Mississaga)**
Q	Treaty No. 20, November 5th, 1818 (Chippewa)
R	Treaty No. 21, March 9th, 1819 (Chippewa)
S	Treaty No. 27, May 31st, 1819 (Chippewa)
T	Treaty No. 27½, April 25th, 1825 (Ojibwa and Chippewa)
U	Treaty No. 35, August 13th, 1833 (Wyandot or Huron)
V	Treaty No. 45, August 9th, 1836 (Chippewa and Odawa), "For All Inidians To Reside Thereon"
W	Treaty No. 45½, August 9th, 1836 (Saugeen)
X	Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Z	Treaty No. 61, September 9th, 1850 (Robinson Treaty: Ojibwa)
AA	Treaty No. 72, October 30th, 1854 (Chippewa)
AB	Treaty No. 82 February 9th, 1857 (Chippewa)
AF	Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG	Williams Treaty, October 31st, 1923 (Chippewa)

Legend

🟥	Study Area
🟦	Water Body
—	Watercourse
-·-	Municipality Boundary - Upper
—	Municipality Boundary - Lower
🟩	Treaty Boundary

Source: OBM layers - Natural Resources Canada
Treaty Boundaries - Morris 1943

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Figure 3:
Treaties and Purchases
(Adapted from Morris 1943)

Date: March 2014

PN: 60311637

Scale: 1:3,000,000

Datum: NAD 83 CSRS Canada Atlas Lambert

AECOM

Legend

🟥 Study Area

AECOM

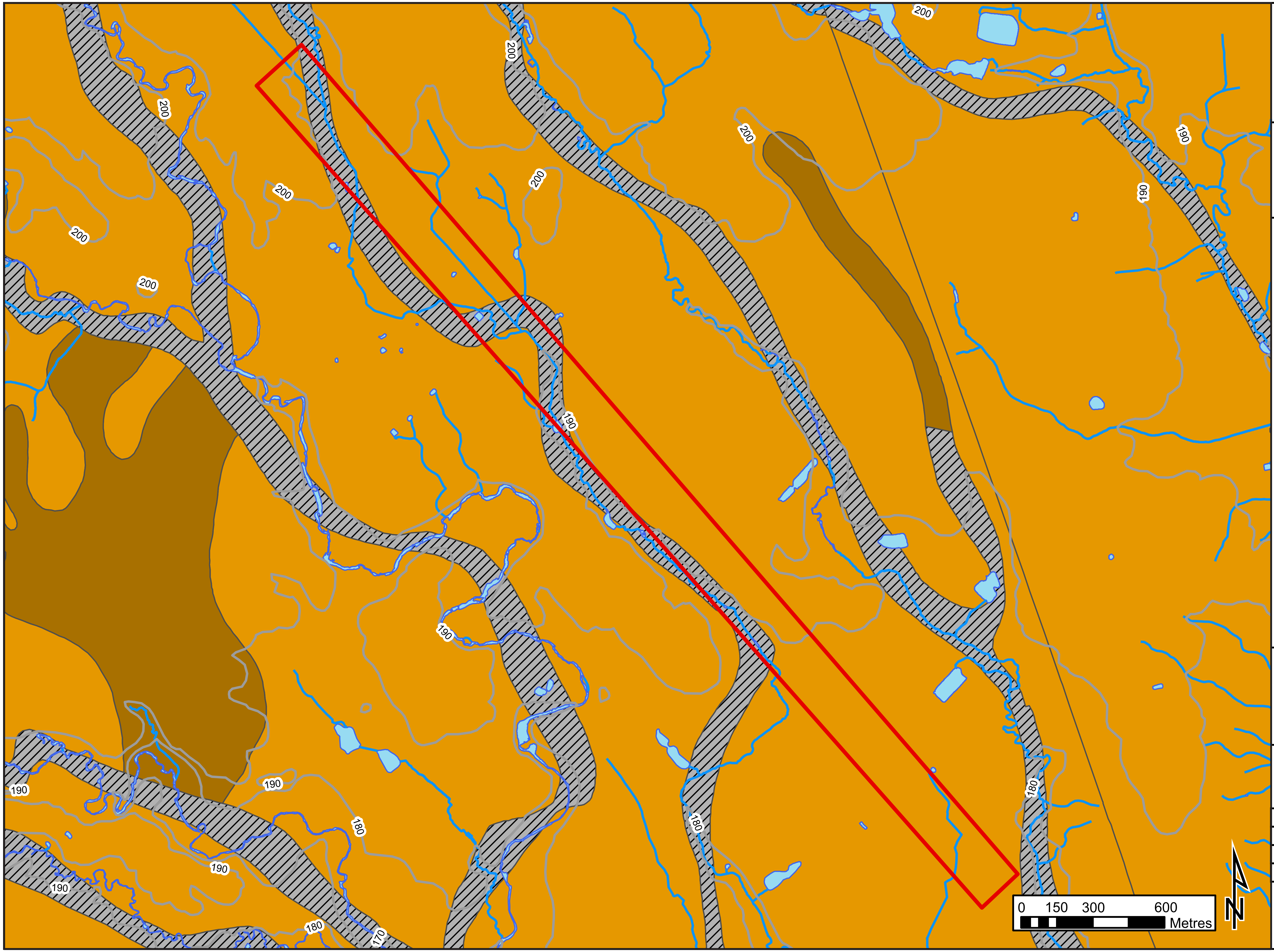
Region of Peel

Stage 1 Archaeological Assessment
The Gore Road Widening

Source: Historic Map - Walker and Miles 1877

Figure 4:
Portion of the 1877 Map of the Township of the Gore of Toronto

Date: March 2014	PN: 60311637
Scale: NTS	Datum: NA



Region of Peel

Stage 1 Archaeological Assessment
The Gore Road Widening

Legend

- 🟥 Study Area
- 🟦 Water Body
- ▨ Wetland
- — Watercourse
- — Road
- 120 Contour (metres)

Soil Drainage

- ▨ Unclassified (Water / Stream Channel)
- ▨ Rapidly Drained
- ▨ Well Drained
- ▨ Moderately Well Drained
- ▨ Imperfectly Drained
- ▨ Poorly Drained
- ▨ Very Poorly Drained

Agricultural Suitability

- ▨ Severe Limitations to Crops
- ▨ No Capability for Agriculture

Source: OBM layers - Natural Resources Canada
Soil Survey - Ministry of Natural Resources

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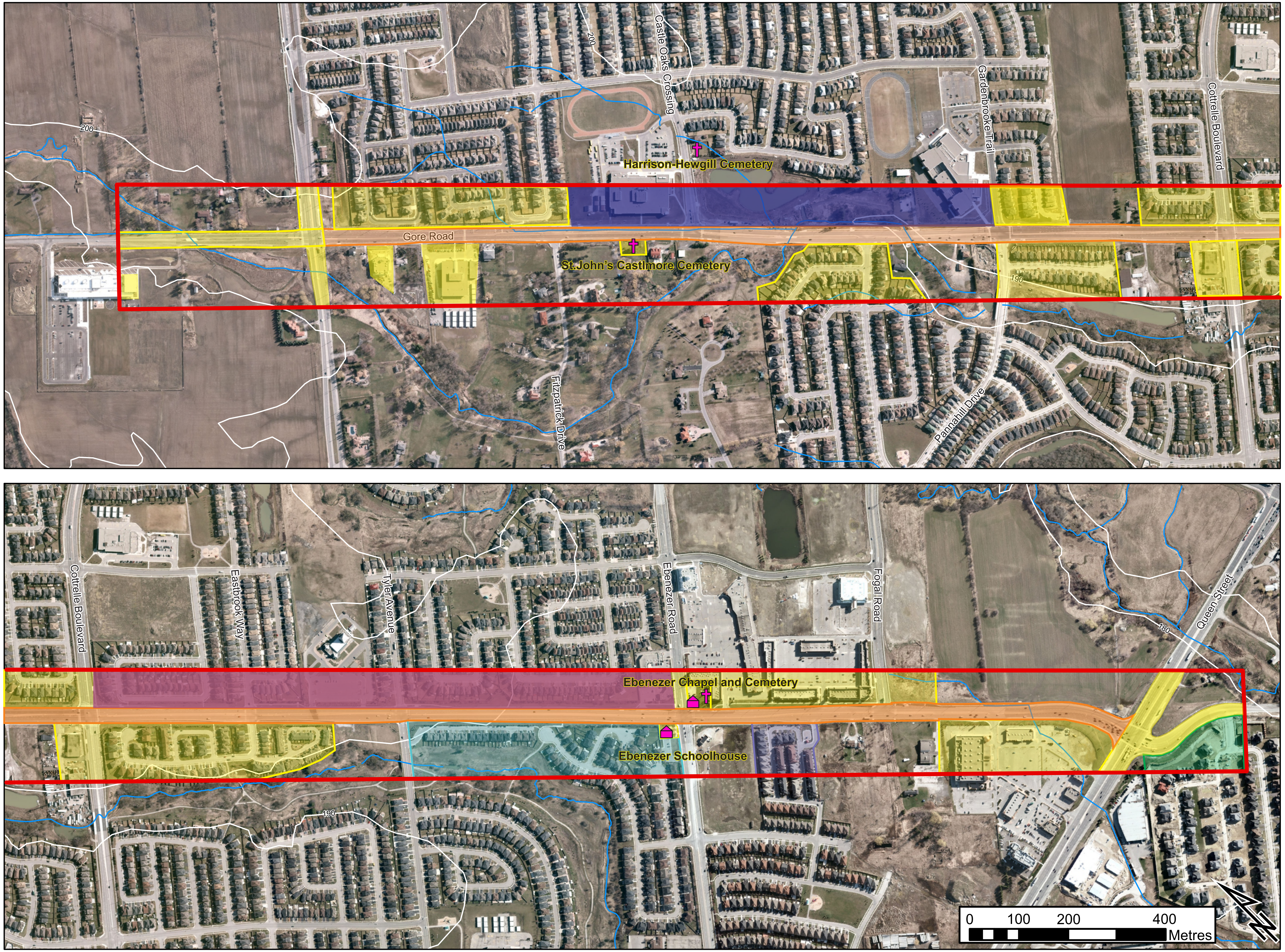
Figure 5:
Soil Drainage and Agricultural Suitability

Date: March 2014
PN: 60311637
Scale: 1:15,000
Datum: NAD 83 UTM 17N

AECOM



Region of Peel
Working for you

Stage 1 Archaeological Assessment
The Gore Road

Legend

▭ Study Area

⌂ Heritage Resource - Building

✝ Heritage Resource - Cemetery

🟨 Area of Previous Disturbance

Previously Assessed Areas

🟧 ASI 2000 (Stage 1)

🟪 ASI 1999 (Stage 1-2)

🟩 ASI 2005 (Stage 1-2)

🟦 ASI 2006 (Stage 1-2)

▭ ASI 2002 (Stage 1-2)

▭ ARA 2006 (Stage 1-2)

Source: OBM layers - Natural Resources Canada
Aerial Photo - Region of Peel

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Figure 6:
Previously Assessed

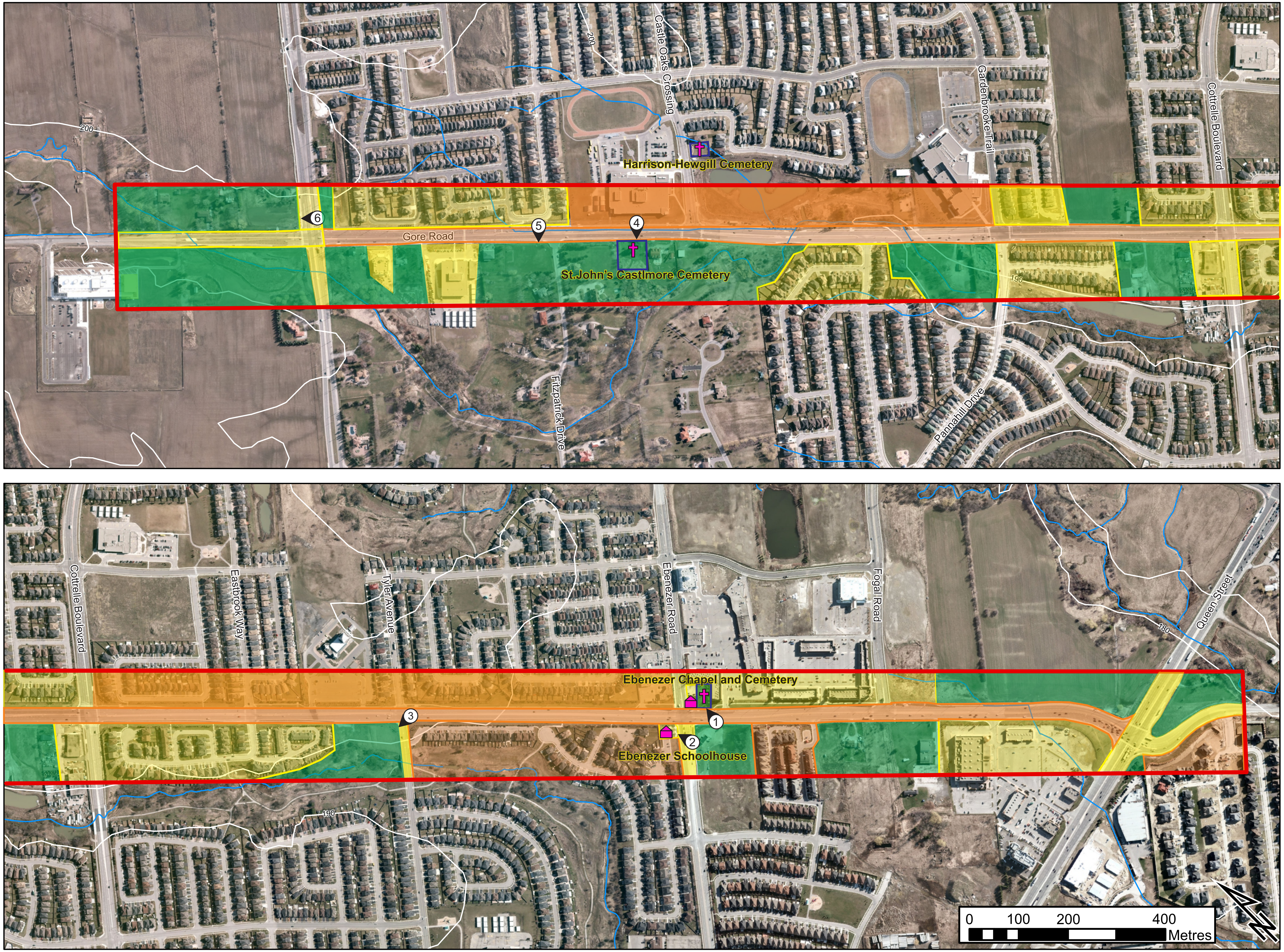
Date: August 2016

PN: 60311637

Scale: 1:1,800

Datum: NAD 83 UTM 17N

AECOM



Region of Peel
Working for you

Stage 1 Archaeological
Assessment
The Gore Road

Legend

- 🟥 Study Area
- Heritage Resource - Building
- ✝ Heritage Resource - Cemetery
- ② Photo Location and Direction
- 🟨 Area of Previous Disturbance
- 🟧 Previously Assessed
- 🟩 Stage 2 Assessment Required
- ☐ Known Cemetery Limits

Source: OBM layers - Natural Resources Canada
Aerial Photo - Region of Peel

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Figure 7:
Stage 2 Assessment Area

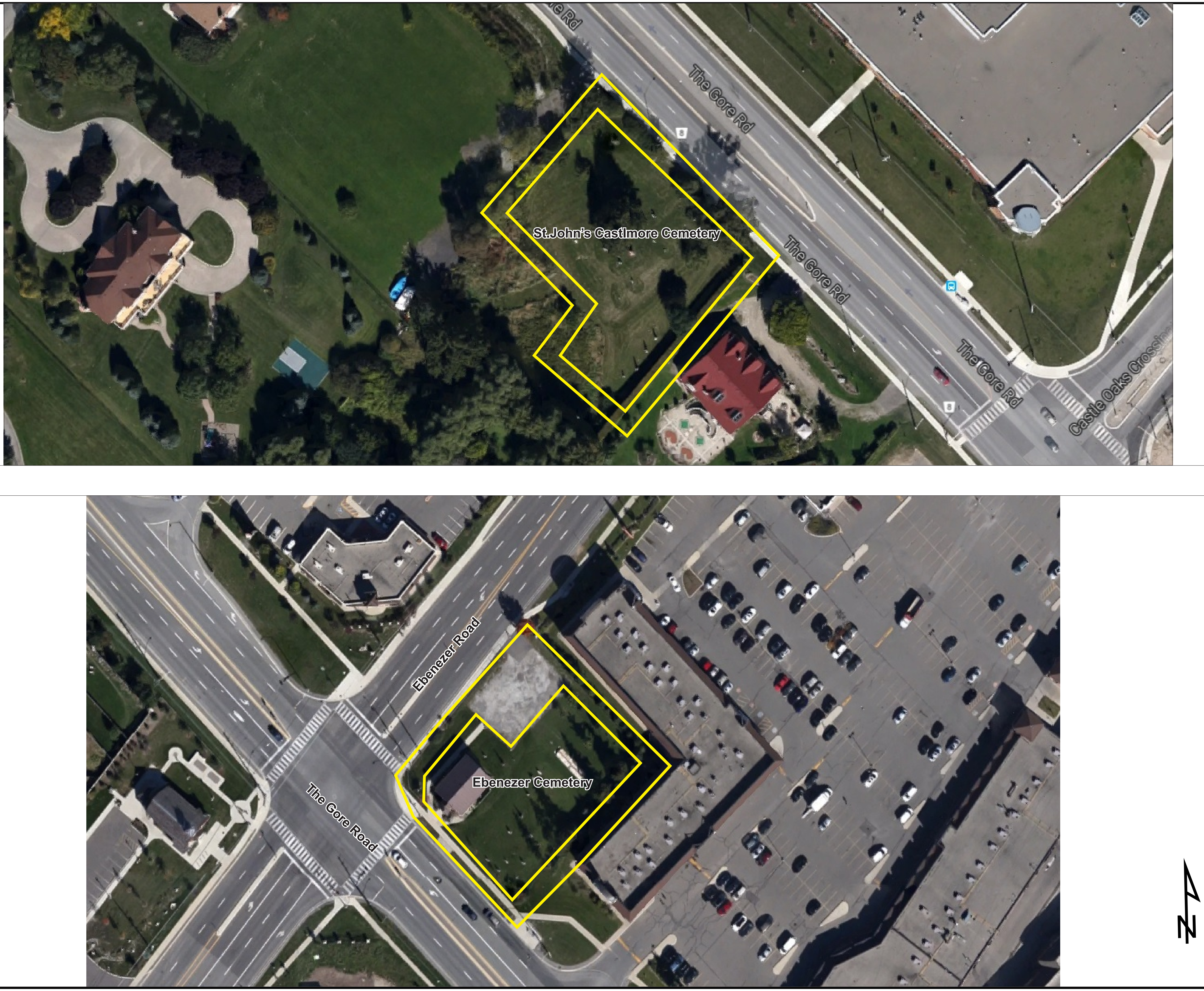
Date: August 2016

PN: 60311637

Scale: 1:1,800

Datum: NAD 83 UTM 17N

AECOM



Region of Peel
Working for you

Stage 1 Archaeological Assessment
The Gore Road

Legend

🟥 Study Area

🟨 Limits of Mechanical Topsoil Removal

Source: OBM layers - Natural Resources Canada
Aerial Photo - Region of Peel

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Figure 8:
Cemetery Mitigation- Limits of Mechanical Topsoil Removal

Date: August 2016

PN: 60311637

Scale: As Shown

Datum: NAD 83 UTM 17N

AECOM

6. Images

6.1 Photographs

Photo 1: Ebenezer Primitive Methodist Chapel and Cemetery on Lot 5, Concession 10, facing north east

Photo 2: Ebenezer Schoolhouse on Lot 6, Concession 9, facing north east

Photo 3: Potential location of Euro-Canadian structures identified south east corner of Lot 7, Concession 9 in the 1877 Map of the Township of the Gore of Toronto. Facing west.

Photo 4: Location of Cemetery on Lot 9, Concession 9. Note to the left of the image the Church identified in the 1877 map of the Township of the Gore of Toronto has been removed. Facing south west.

Photo 5: Field north of Fitzpatrick Drive. Land appears to be undisturbed and is in close proximity to the stream running north through the study area. Facing south west.

Photo 6: Approximate former location of the Castlemore Village Hotel identified in the 1877 Map of the Township of the Gore of Toronto. Facing north.

7. Advice on Compliance with Legislation

This report is submitted to the Ontario Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ontario Ministry of Consumer Services.

Appendix A

Correspondence regarding Archaeological Background Information

Section 1.1 Background Study of the Ministry of Tourism, Culture and Sport's 2011 *Standards and Guidelines for Consultant Archaeologists* stipulates that the Stage 1 background study must include "research information from...reports of previous archaeological field work within a radius of 50m around the property." In order to comply with this Standard a list of reports within a radius of 50m of the study area was requested from MTCS at the time of Project Information Form (PIF) submission. Table 5 details the correspondence regarding attempts to obtain the reports identified by MTCS.

Table 5: Communications Log – Background Information Search

Date	Details
March 12, 2014	Request for reports within 50m of the study area submitted to MTCS
March 13, 2014	Request for reports relevant to the study area submitted to the City of Brampton
March 13, 2014	Response from the City of Brampton indicating that the City does not maintain a database of Archaeological Reports to allow access to this information
March 14, 2014	Reports relevant to the study area provided by Robert Van Bitter of MTCS
March 14, 2014	Study area was extended so a second request for reports within 50m of the study area was submitted to MTCS
March 14, 2014	Various requests submitted to Archaeological Consulting Firms for access to reports identified by MTCS
March 17, 2014	Reports relevant to the adjusted study area provided by Robert von Bitter of MTCS
March 17, 2014	Second set of requests submitted to Archaeological Consulting Firms for access to reports identified by MTCS
March 17, 2014	Reports received from ASI
March 20, 2014	Report received from ARA
March 25, 2014	Reports from remaining Archaeological Consulting Firms not received
April 26, 2016	Reports requested from Archaeology@ontario.ca

Appendix L

Stormwater Management Report

Regional Municipality of Peel

The Gore Road Widening Class Environmental Assessment Stormwater Management Report

Prepared by:

AECOM
5080 Commerce Boulevard 905.238.0007 tel
Mississauga, ON, Canada L4W 4P2 905.238.0038 fax
www.aecom.com

Project Number:

60311637

Date:

August, 2016

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by AECOM Canada Ltd. (“Consultant”) for the benefit of the Region of Peel (“Client”) in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents Consultant’s professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to Consultant which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by Consultant represent Consultant’s professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since Consultant has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, Consultant, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by Consultant and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2012-01-06

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Revision #	Revised By	Date	Issue / Revision Description

AECOM Signatures

LICENSED PROFESSIONAL ENGINEER
J. KHAN
100078979
Aug 24, 2016
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Report Prepared By:

Javeed Khan, M.Eng., P.Eng.
Water Resources Engineer

LICENSED PROFESSIONAL ENGINEER
B. R. RICHERT
Aug 24/16
PROVINCE OF ONTARIO

Report Reviewed By:

Brian Richert, P.Eng.
Sr. Water Resources Engineer

Executive Summary

The Regional Municipality of Peel (Region) initiated a Schedule “C” Class Environmental Assessment (EA) to evaluate the proposed widening (from four lanes to six lanes) of The Gore Road between Queen Street and Castlemore Road, located in the City of Brampton, Ontario. However, the recent traffic modeling projections did not support the proposed widening from four to six lanes and therefore other roadway improvements were evaluated. These roadway improvements include separate cycle tracks, sidewalks and landscaping along the road corridor. This Stormwater Management (SWM) Report summarizes the existing drainage conditions, the impacts of the preferred roadway improvements on stormwater quality and quantity and recommends measures to mitigate any impacts associated with the preferred roadway improvements design alternative. The SWM Report has been prepared to support the Class EA and obtain Toronto and Region Conservation Authority’s (TRCA) approval in principle to proceed for the detailed design process.

The study area is located in the Gore Road Tributary of Humber River watershed and the applicable SWM and hydraulic design criteria were determined from the relevant TRCA, Region, Ministry of Environment and Climate Change (MOECC) and Ministry of Transportation (MTO) guidelines. For water quantity controls, post-development peak flow rates are to be controlled to the allowable release rates based on the unit flow equation developed by the TRCA for Humber River watershed. Enhanced level of protection i.e. 80% Total Suspended Sediments (TSS) on long-term basis is required for water quality control. For marinating the water balance, on site retention of runoff from the first 5 mm rainfall is required through infiltration, evapotranspiration and or reuse. The road drainage infrastructure should meet the hydraulic design requirement for the minor system (10 year), major system (100 year) and relevant clearance and freeboard requirements for watercourse crossings.

The Gore Road is a major north-south arterial road and carries two lanes of traffic in each direction under existing conditions. Storm runoff from the road corridor is captured by catchbasins and conveyed to their respective outlets through a network of storm sewer system. The road corridor has an overall imperviousness of 67% with a total drainage area of 18.25 ha. Majority of the storm runoff collected through the storm sewer system is conveyed to existing SWM Ponds which ultimately discharges into The Gore Road Tributary. The existing SWM ponds provide necessary quality and quantity controls. Quality controls have been provided in the form of Oil Grit Separator (OGS) units where runoff is directly discharged into The Gore Road Tributary.

The Gore Road Tributary is crossed at three locations within the Study area through three bridges: Castlemore Bridge, Wylie North Bridge and Wylie South Bridge. The three bridges were expanded as part of the recent 4-lane widening works. Hydraulic analysis was conducted to assess the existing flooding elevations using the updated peak flow rates provided by TRCA. The results indicate that the clearance and freeboard for all the three bridges is <1.0m during the 100 year storm event and therefore do not meet the requirements of the MTO hydraulic criteria. The results also shows that all the three bridges are overtopped during the Regional storm event with a ponding depth of approximately 0.6 m and will not provide a safe egress and regress at the three bridge locations. However, alternate routes are available adjacent to the bridges which can be used for safe egress and regress. The hydraulic results further indicate the tributary section (between the two bridges and downstream of the Wylie south bridge) restricts flows. Therefore, only increasing the bridge spans or raising the bridges will not greatly reduce the flood elevations and road ponding depth. A combination of measures (raising of bridge decks, increasing the bridge spans and creek conveyance improvements) will be required to reduce the flood elevations.

During the EA process, it was determined that maintaining The Gore Road at existing four lanes is adequate and a “Complete Streets” approach was adopted as a preferred design concept by adding active transportation components in the form of cycle track and sidewalk or multi-use trail, stormwater management using Low Impact Development (LID) principles and streetscaping. The recommended improvement works include reduction in road lane widths (by moving the existing curbs and gutters inside), providing an approximately 2 m wide paved cycle track and an approximately 1.8 m wide concrete sidewalk on both sides of The Gore Road. The existing drainage pattern will be maintained and existing catchbasins will be either moved inside or only grates connected with existing catchbasins will be provided. The existing bridges and culverts are sufficient to accommodate the proposed sidewalks and cycle tracks on both sides of The Gore Road and no expansion to the existing structures is required. The proposed improvement works will reduce the overall imperviousness by 1%, therefore no additional stormwater management control measures are required to mitigate the impacts.

To further enhance the water quality, manage water balance and reduce the storm runoff volume, stormwater management measures are proposed in the form of Low Impact Development (LID) Best Management Practices (BMPs). These practices include the installation of bioretention facilities, enhanced grass swales and permeable sidewalks. Bioretention is a stormwater filter and infiltration practice which temporarily stores, treats and infiltrates runoff. Runoff from both cycle tracks and sidewalks will be directed as sheet flow towards the bioretention area where it will be retained and infiltrated into the ground. Depending on the site specific subsurface conditions (to be determined at the detailed design stage), bioretention facilities may be designed for full infiltration (without an underdrain), partial infiltration (with an underdrain) and for filtration only (with an impermeable liner and underdrain). The proposed bioretention areas will capture runoff from approximately 5.0 ha area of the existing road corridor. Majority of the this runoff during the frequent storm events (≤ 26mm) will be retained in the bioretention cells and returned back to the hydrologic cycle in the form of infiltration and evapotranspiration thereby enhancing the water balance of the road corridor. The existing road side ditches at different locations are proposed to be converted into enhanced grass swales which will convey, treat and attenuate the stormwater runoff. In addition, the Region may consider permeable sidewalks at all or certain locations which will further facilitate the infiltration and water balance management.

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Appendices

1. Introduction

AECOM Canada Limited (AECOM) has been retained by the Regional Municipality of Peel (Region) to complete a Schedule “C” Class Environmental Assessment (EA) to evaluate the existing conditions and proposed widening (from 4 lanes to 6 lanes) of The Gore Road between Queen Street and Castlemore Road, in the City of Brampton, Ontario. During course of the study, it was determined that the proposed widening from four to six lanes is not supported by the recent traffic modeling projections, and other roadway improvements were evaluated. These roadway improvements include separate cycle tracks, sidewalks and landscaping along the road corridor.

This stormwater management (SWM) report has been prepared in support of the EA to examine existing drainage conditions; evaluate the impact of the preferred roadway improvements on stormwater quality, quantity and flooding; and recommend measures to mitigate any impacts associated with the preferred roadway improvements design alternative.

1.1 Background Information

The relevant studies and reports regarding drainage within and adjacent to the study area reviewed during the preparation of this report include the following:

- Stormwater Management Report prepared by MMM Group Limited, for Ponds 1 & 2 Bram East Subdivision, March 2009;
- Stormwater Management Study Pond No. 2, Bram East Area G, prepared by Candevcon Limited, June 2006;
- The Gore Road Class EA, from Queen Street East to Castlemore Road, prepared by URS Cole Sherman, November 2002;
- Gore Road Hydraulic Widening Hydraulic Analysis, prepared by AECOM Canada Limited, June 2007;
- As-built drawings of Gore Road Widening Phase 1 (April 2007) and Phase 2 (December 2013) contracts;
- Approved Source Protection Plan: CTC (Credit Valley–Toronto and Region-Central Lake Ontario) Conservation Authorities Source Protection Region, July 28, 2015;
- Pavement Design Report, Gore Road Widening, from 300 m North of Queen Street to 300 m North of Castlemore Road, Brampton, Ontario, Shaheen & Peaker Limited Consulting Engineers, September 22, 2003.
- Draft Geotechnical Investigation & Design Report, Proposed Sanitary and Watermain Installations On Gore Road from 200 m south of Castlemore Road northerly to Sta. 13+105 Approximately, Teraprobe Inc., January 26, 2010.
- Relevant design standards and guidelines:
  - Stormwater Management Planning and Design (SWMP) Manual, Ontario Ministry of the Environment (MOE), 2003;
  - Highway Drainage Design Standards, Ontario Ministry of Transportation (MTO), 2008;
  - Drainage Management Manual, Ontario Ministry of Transportation (MTO), 1997;
  - Region of Peel Public Works, Design Specifications & Procedures Manual, Linear Infrastructure, Strom Sewer Design Criteria, Revised July 2009;
  - Region of Peel Public Works, Design Specifications & Procedures Manual, Linear Infrastructure, Regional Road and Traffic, Revised February 2010;
  - Stormwater Management Criteria, TRCA, August, 2012;
  - Low Impact Development Stormwater Management Planning and Design Guide, Credit Valley Conservation Authority (CVC) and Toronto and Region Conservation Authority (TRCA), 2010.
  - Wet Weather Flow Management (WWFM) Guidelines, City of Toronto, November 2006.

1.2 Objectives

The objective of this report is to provide preliminary recommendations for managing storm runoff for the preferred The Gore Road improvements alternative (design concept) in compliance with the design criteria defined by the Region of Peel, TRCA and Ministry of Transportation Ontario (MTO). The Region's goal is to obtain TRCA approval in principle through the Class EA process which will allow for an efficient detailed design and approvals process. The criteria applied for managing stormwater and the hydraulic performance of bridges and culverts in the study area are described in the following sections.

1.3 Stormwater Management Criteria

The study area is located within the City of Brampton (City) and falls entirely within the jurisdiction of the Toronto and Region Conservation Authority (TRCA) with portions of the site draining to Gore Road Tributary of West Humber River East Branch, as shown on **Figure1**. The stormwater management criteria for the Gore Road widening project as provided by TRCA are described below:

- Water quantity – Post-development peak flow rates are to be controlled to the allowable release rates based on the unit flow equation developed by the TRCA for Sub-basin # 36 of Humber River watershed. The peak flow discharged from the corridor also cannot exceed the available capacity of the outlet system;
- Water quantity – Enhanced level of protection i.e. 80% total suspended solids (TSS) on long-term basis. This will be applied to an area equivalent to the new paved area associated with the potential widening, while at a minimum maintaining treatment of existing paved areas;
- Erosion control – Detention of runoff generated from a 25 mm storm for 48 hours; and
- Water balance – On site retention of runoff from the first 5 mm rainfall through infiltration, evapotranspiration and or reuse.

1.4 Hydraulic Criteria

For potential road improvement alternatives, the study identifies hydraulic design requirements for conveyance of storm flows within the road corridor, hydraulic requirements of discharge to available outlets, and hydraulic requirements of culverts and bridges at watercourse crossings.

For storm sewers, culverts and bridges, the Region's Public Works Design Standards for Linear Infrastructure, Storm Sewer Design Criteria (Revised July 2009) and Regional Road and Traffic (Revised February 2010) provide the following design criteria:

- Storm sewers are to be designed using local municipality's intensity, duration and frequency rainfall curves for a 10-year storm with 15 minute inlet time for the roadway right of way only (Section 4.0);
- Storm sewers and culverts that cross the roadway are to be designed for a 25-year storm with a 10 minute inlet time (Section 9.0);
- Major crossings are to be designed for a regional storm event and a hydraulic analysis may be required (Section 9.0);
- Bridge structures shall be designed in accordance with the latest edition of the Canada Highway Bridge Design Code (CHBDC). Bridges shall be planned and designed in accordance with MTO Standard Planning Guidelines, Structural Manual, Roadside Safety Manual and Geometric Design Standards (Section 1).

Based on the above, the applicable design criteria for watercourses crossing an urban arterial road is summarized in **Table 1** below.

Table 1: Summary of Hydraulic Design Criteria

Structure	**Bridges > 6m Total Span**			**Culverts ≤ 6m Total Span**		
Standard	Region of Peel	Canadian Highway Bridge Design Code	MTO	Region of Peel	Canadian Highway Bridge Design Code	MTO
Design Flow	Regional Storm	50-Year	100-Year	25-Year	50-Year	50-Year
Check Flow	-	100-Year	130% of 100-Year	-	100-Year	130% of 100-Year
Freeboard	-	≥ 1.0	≥ 1.0	-	≥ 1.0	≥ 1.0
Clearance	-	≥ 1.0	≥ 1.0	-	≥ 1.0	≥ 0.3 (open footing culverts only)

2. Existing Drainage Conditions

The Gore Road is a major north-south arterial road and carries two lanes of traffic in each direction under existing conditions. A number of improvement works were carried out in recent years which include:

- Widening from two to four lanes from Cottrelle Boulevard to Castlemore Road in 2011;
- Widening from two to four lanes from Queen Street to Cottrelle Boulevard in 2012;
- Extensions of three major watercourse crossing bridges: north of Castlemore Road, Wylie North and Wylie South;
- Extension of minor crossings/culverts;
- Storm sewer system;
- Drainage ditches; and
- Oil grit separators

The following sections describe the existing drainage conditions of The Gore Road.

2.1 Watershed

The study area is located in the Gore Road Tributary of Humber River watershed as shown on **Figure 1**. The Gore Road Tributary starts northeast of Healey Road and Humber Station Road and crosses The Gore Road near north of Castlemore Road after travelling approximately 10 km. The tributary meanders back and forth, crossing The Gore Road two more times near Strathdale Road. Clarkway Tributary of Humber River is also located on the east side of the study area as shown on **Figure 1**. The majority of the study area drains to The Gore Road Tributary while a portion of the study area also drains to the Clarkway Tributary after passing through a stormwater management facility.

TRCA provided previous hydrologic model developed for the Humber River watershed and simulated peak flow rates (from a recent hydrology update) at selected locations were also provided for the hydraulic analysis of The Gore Road Tributary. The flow rates as per this updated hydrologic model are used in the hydraulic analysis.

2.2 Roadway Drainage System

The existing roadway drainage system is shown on **Figure 2,** which illustrates storm sewer networks, overland flow directions, watercourse crossing locations and catchment areas along the road corridor. Storm runoff from the road corridor is captured by catchbasins and conveyed to their respective outlets. The road corridor has an overall imperviousness of 67% with a total drainage area of 18.25 ha, as summarized in **Table 2**.

Table 2: Drainage Areas - Existing Conditions

Area ID	Total Area (ha)	Impervious Area (ha)			Imperviousness
		Road	Sidewalk	Total	
1	3.17	1.88	0.21	2.10	0.66
2	0.33	0.25	0.02	0.27	0.80
3	1.80	0.95	0.12	1.08	0.60
4	1.95	1.16	0.14	1.30	0.67
5	0.75	0.46	0.04	0.50	0.66
6	0.97	0.58	0.07	0.64	0.66
7	0.05	0.04	0.01	0.04	0.94
8	0.06	0.05	0.01	0.06	1.00
9	2.12	1.10	0.14	1.24	0.59
10	0.81	0.57	0.07	0.64	0.79
11	0.87	0.67	0.10	0.77	0.89
12	4.17	2.43	0.33	2.76	0.66
13	0.98	0.69	0	0.69	0.70
14	0.21	0.19	0	0.19	0.88
Total	**18.25**	**11.02**	**1.26**	**12.28**	**0.67**

The existing road drainage system for the five main catchments is briefly described below.

North of Castlemore Road (#13, #14): Storm runoff in roadway area north of Castlemore Road is collected through a network of storm sewers and road side drains on both sides of The Gore Road. The storm sewer is approximately 160 m long and 300-375 mm in diameter and discharges into the Gore Road Tributary after passing through oil grit separator (OGS) units (STC 2000) located on west side of The Gore Road.

Castlemore Road to Wylie North Bridge (#12): This section of the road is approximately 900 m long and storm runoff is collected through storm sewers and road side drains on both sides of The Gore Road. The storm sewers are approximately 900 m long and 300 to 525 mm in diameter and drain an area of approximately 4.17 ha and discharged into a recently built SWM pond as shown on **Figure 2**. An OGS unit (STC 2000) is also provided before it discharges into the SWM pond. The SWM pond has been designed to provide quality, quantity and erosion controls as per TRCA stormwater management criteria. Outflows from the pond are discharged into The Gore Road Tributary.

Wylie North Bridge to Pannahill Drive (#10, #11): Runoff in this section of the road is collected through a 340 m long storm sewer network (300 mm-450 mm in diameter) and discharged uncontrolled directly into The Gore Road Tributary as shown on **Figure 2**. Two oil girt separators (STC 2000) are installed at the end of the storm sewers before its discharge into the tributary to provide quality control.

Cottrelle Blvd Pannahill Drive (#9): The storm sewer system in this section of The Gore Road is approximately 300 m long and collects runoff from an approximate area of 2.12 ha. The collected runoff is discharged into an existing storm sewer at Pannahill Drive which discharges into an existing SWM pond and ultimately into The Gore Road Tributary.

Cottrelle Blvd to Eastview Gate (#5 & #6): Storm runoff in this section of the road is collected and conveyed into the existing storm sewer network at Pompano Place and Eastview Gate which ultimately discharges into an existing SWM pond and into The Gore Road Tributary.

Eastview Gate to Ebenezer Road (#2 to #4): The area in this section of The Gore Road is drained through a storm sewer network which discharges into the existing storm sewer at Galview Lane which discharges into an existing SWM pond and ultimately into The Gore Road Tributary.

Ebenezer Road to Queen Street (# 1): The storm sewer in this section of the road is approximately 1 km long and ranges in diameter from 300 mm to 600 mm and flows southward toward Queen Street and discharges into an existing SWM Pond located south of Queen Street and ultimately into The Gore Road Tributary.

The storm sewer infrastructure in the study area is summarized in **Table 2** below:

Table 3: Existing Stormwater Infrastructure

Section	Drainage Area (ha)	Storm Sewer Length (m)	Pipe Diameter (mm)	Water Quality Control	Outlet
North of Castlemore Road	1.19	160	300 - 375	OGS Units	Gore Road Tributary
Castlemore Road to Wylie North Bridge	4.17	910	300 - 600	SWM Pond	SWM Pond 1 - Gore Road Tributary
Wylie North Bridge to Pannahill Drive	1.68	340	300 - 450	OGS Units	Gore Road Tributary
Pannahill Drive to Cottrelle Blvd	2.17	300	300 - 450	OGS+SWM Pond	SWM Pond - Gore Road Tributary
Cottrelle Blvd to Eastview Gate	1.73	610	300 - 450	SWM Pond	SWM Pond - Gore Road Tributary
Eastview Gate to Ebenezer Road	4.08	530	300 - 525	SWM Pond	SWM Pond - Gore Road Tributary
Ebenezer Road to Queen Street	3.17	675	300 - 600	SWM Pond	SWM Pond - Gore Road Tributary

2.3 Watercourse Crossings

Within the study area, The Gore Road Tributary is crossed by three bridges along with other minor watercourse crossings. The three bridges were expanded as part of the recent 4-lane widening works and the physical features of the existing bridges are summarized in **Table 4** below. Detailed hydraulic analysis of three bridges is discussed in Section 4.0.

Table 4: Existing Bridges Features

Bridge/Culvert Name	Approximate Chainage	Structural Span	Skew Angle	Waterway Length
		(m)	(°)	(m)
North of Castlemore Bridge	14+243	9.3	35	27.0
Wylie North Bridge	13+020	8.8	30	26.3
Wylie South Bridge	12+818	8.8	30	26.7

In addition to the three bridges there are two minor culvert crossings:

- 1800 mm x 900 mm Box Culvert at 13+480 – located south of Fitzpatrick Drive. This culvert drains the external drainage area located on the east side of The Gore Road and discharges into the Gore Road Tributary.
- Twin 1100 mm x 750 mm CSP Culvert at 10+218 (located north of Queen Street). This culvert drains an approximate area of 22.6 ha located south east of Fogal Road and The Gore Road and discharges into an existing 600 mm sewer located on the west side of The Gore Road. The sewer flows southward along the Gore Road, then westerly along the Queen Street and then southward through an existing culvert crossing across the Queen Street and ultimately into an existing SWM Pond and into the Gore Road Tributary. The external drainage area currently drained through this culvert is proposed for a residential subdivision

3. Proposed Drainage Conditions

During the EA process and discussions with the Region, a working meeting with the Region, TRCA and the City of Brampton, and a review of traffic modelling and forecast conditions, it was determined that maintaining The Gore Road at four lanes is adequate and widening to six lanes is not necessary. A “Complete Streets” approach was adopted as a preferred design concept and focused on the addition of active transportation components (e.g. cycle track and sidewalk or multi-use trail), stormwater management using low impact development (LID) principles and streetscaping. The following improvements were recommended for the proposed The Gore Road:

Roadway: The existing four lanes will be maintained and lane widths will be reduced from 3.75 m to 3.3 m. The curb and gutter will be moved inside. The existing catchbasins will be either moved inside or only grates connected with existing catchbasins will be provided. No modifications are proposed for the existing storm sewer network and the existing drainage pattern will be maintained.

Cycle Track and Sidewalk: An approximately 2 m wide paved cycle track and an approximately 1.8 m wide concrete sidewalk is proposed on both sides of The Gore Road. At the bridges, on the west side of The Gore Road, the cycle track and sidewalk will combine to cross the Wylie’s bridges and the bridge north of Castlemore Road. On the east side of The Gore Road, the cycle track will cross the bridges while the sidewalk will transition to a multi-use trail that detours around The Gore Road Tributary as shown on **Figure 3**. Once past the tributary, the multi-use trail will transition back to sidewalk. The cycle track and sidewalk will be constructed as per City standards and will interface with bus stops and bus bays along The Gore Road. Drainage from the side walk and cycle tracks will be directed as sheet flow into bioretention/landscaped areas between the two as shown on **Figure 3** and **Figure 4**.

Watercourse Crossings: The existing bridges and culverts will be maintained as no expansion or replacement is required to accommodate the additional cycle tracks.

The drainage areas and respective imperviousness is summarized in **Table 5**. As indicated in **Table 5**, under the proposed conditions, the impervious area of the road surface is reduced from 11.02 ha to 9.22 ha due to reduction in lane widths and used in the cycle track. The overall imperviousness of the road corridor is reduced from 67% to 66%.

Table 5: Drainage Areas - Proposed Conditions

Area ID	Total Area (ha)	Impervious Area (ha)				Imperviousness
		Road	Sidewalk	Cycle Track	Total	
1	3.17	1.77	0.26	0.26	2.30	0.72
2	0.33	0.24	0.03	0.01	0.29	0.86
3	1.80	0.85	0.15	0.16	1.15	0.64
4	1.95	0.00	0.19	0.15	0.34	0.17
5	0.75	0.44	0.06	0.04	0.54	0.72
6	0.97	0.58	0.08	0.07	0.72	0.74
7	0.05	0.04	0.00	0.00	0.04	0.91
8	0.06	0.05	0.00	0.00	0.05	0.91
9	2.12	1.07	0.19	0.15	1.41	0.66
10	0.81	0.53	0.05	0.05	0.63	0.78
11	0.87	0.55	0.08	0.09	0.72	0.83
12	4.17	2.29	0.33	0.32	2.94	0.71
13	0.98	0.65	0.02	0.02	0.69	0.71
14	0.21	0.15	0.00	0.02	0.17	0.82
Total	**18.25**	**9.22**	**1.44**	**1.34**	**12.00**	**0.66**

4. Hydrologic and Hydraulic Analysis

4.1 Hydrologic Analysis

The study area is located in the Humber River watershed and runoff from the road corridor is either directly discharged into The Gore Road Tributary or into the adjacent SWM ponds and ultimately into The Gore Road Tributary as discussed in Section 2. TRCA provided the following hydrologic models/data for the study area:

- The 2002 SWMHYMO hydrologic model - Humber River Watershed Hydrology Update, Aquafor Beech Limited, November 2002;
- The 2015 OTTHYMO model (Civica 2015); and
- The 2015 hydrology update (PCSWMM) peak flow rates for the hydraulic analysis of Gore Road Tributary.

AECOM reviewed the existing Visual OTTHYMO hydrologic model (being the latest hydrology update) for the Humber River Watershed developed by Civica for TRCA (Civica, 2015). The study area is located in sub-basin No. 38.03, 38.01, 41.01, 39.13, 42.15, 42.16, 42.14, 42.13, 42.10, 44.06, 42.09, 44.05, 42.08 and 44.03. The improvement works along the road corridor will not significantly affect the aforementioned individual catchments along the road corridor in terms of imperviousness and other hydrologic parameters. Therefore, a lumped single catchment hydrologic model was developed covering the entire road corridor to assess the overall impacts of the proposed improvements on the receiving watercourses.

The input parameters used in the model are provided in **Table 6**. Hydrologic simulations were conducted for the 25 mm, and 2 through 100-year storm events. The simulations results for the existing and proposed conditions are summarized in **Table 7** below. Detailed modelling output files are included in **Appendix A.**

Table 6: Otthymo Input Parameters

Parameter	**Existing Conditions**	**Proposed Without Bioretention**	**Proposed With Bioretention**	
			Road Area	Bioretention Area
Area (ha)	18.25	18.25	13.26	4.99
TIMP - Total imperviousness (%)	0.67	0.66	0.7	0.56
XIMP - Directly connected imperviousness (%)	0.67	0.66	0.7	0.35
CN - Curve Number (AMC II)	92	92	93	72
IA (mm) -Initial abstraction	5	5	5	5
SLPP (%) - Pervious area ground slope	3	3	3	3
LGP (m) - Pervious area flow length	40	40	40	40
DPSI (mm) - Impervious area depression storage	2	2	2	2
SLPI (%) - Impervious area ground slope	3	3	3	3
LGI (m) - Impervious area flow length	348	348	297	182

As indicated in **Table 7**, the overall peak flow rates during the proposed conditions are lower than the existing conditions.

Table 7: Peak Flow Rates (m^3/s)

Location	**Existing**	**Proposed Without Bioretention**	**% Difference (Prop-Ex)**	**Proposed With Bioretention**	**% Difference (Prop-Ex)**
Drainage Area (ha)	18.25	18.25	0	18.25	0
25 mm	1.54	1.52	-1.3	1.41	-8.4
2-year	1.34	1.33	-0.7	1.22	-9.0
5-year	1.9	1.89	-0.5	1.76	-7.4
10-year	2.27	2.26	-0.4	2.12	-6.6
25-year	2.74	2.73	-0.4	2.57	-6.2
50-year	3.09	3.08	-0.3	2.91	-5.8
100-year	3.43	3.42	-0.3	3.27	-4.7

4.2 Hydraulic Analysis

The TRCA provided the hydraulic model and associated floodplain maps for the Gore Road Tributary of Humber River. However, the TRCA model was not updated for the recent bridge widening works and the AECOM updated model (AECOM, 2007) was used for the hydraulic analysis of the three bridges:

- North of Castlemore;
- Wylie North; and
- Wylie South

The above three bridges were expanded as part of the 4-lane widening program and hydraulic analysis was completed by AECOM in 2007 (included in **Appendix B**). In the previous hydraulic analysis, the 2002 hydrology model peak flow rates were used. TRCA recently updated the watershed hydrologic model and provided revised peak flow rates.

Table 8: 2002 Hydrologic Model Peak Flows (m^3/s)

HEC-RAS RS	NHYD ID	2 year	5 year	10 year	25 year	50 year	100 year	Regional
5042.41	4100	4.79	7.70	9.79	12.62	14.63	16.69	47.61
5042.401	N/A	5.13	8.47	10.77	13.88	16.09	18.36	52.37
5042.27	4220	5.13	8.49	10.97	14.15	16.50	18.89	59.05
5042.133	4210	4.91	7.92	10.05	12.95	15.08	17.31	58.92
4045.66	6147	11.95	18.38	23.29	31.03	37.03	43.22	184.75

Table 9: 2015 Hydrologic Model Peak Flows (m^3/s)

HEC-RAS RS	NHYD ID	2 year	5 year	10 year	25 year	50 year	100 year	Regional
5042.41	1819	6.51	10.54	13.48	17.22	20.05	23.05	64.15
5042.401	1853	6.70	10.82	13.78	17.68	20.57	23.69	77.73
5042.27	1690	7.29	11.86	15.08	19.36	22.22	25.40	89.46
5042.133	7591	7.27	11.97	15.27	19.79	22.74	25.94	96.32
4045.66	7589	18.18	28.86	36.05	45.96	52.46	59.73	228.50

As indicated in **Table 8** and **9** above, the peak flow rates of the 2015 hydrologic model are higher than the 2002 hydrologic model and would cause an increase in flood elevations.

4.2.1 Current Status of Existing Bridges

The previous hydraulic analysis (AECOM, 2007) completed to assess the ability of the bridges to safely convey peak flows under existing conditions is summarized in **Table 10** below.

Table 10: Existing Bridges Hydraulic Features - 2002 Flow Rates

Bridge Name	Structural Span	Bridge Soffit Elevation	Road Top Elevation	50 Year Flood Elevation	100 Year Flood Elevation	Regional Storm Flood Elevation	Road Ponding Depth Regional Storm	MTO Criteria		C.H.B.D.C. Criteria	
								Clearance (≥1.0m) (100 yr)	Freeboard (≥1.0m) (100 yr)	Clearance (≥1.0m) (50 yr)	Freeboard (≥1.0m) (50 yr)
	(m)	(m)	(m)		(m)	(m)		(m)	(m)	(m)	(m)
North of Castlemore	9.3	199.00	199.45	198.47	198.52	199.72	0.27	0.48	0.93	0.53	0.98
Wylie North	8.8	192.29	192.80	191.72	191.84	193.13	0.33	0.45	0.96	0.57	1.08
Wylie South	8.8	191.06	191.65	190.91	191.06	192.00	0.35	0.00	0.59	0.15	0.74

TRCA recently updated (2015) the hydrologic model for The Gore Road Tributary and provided revised peak flow rates. The revised flow rates are higher than the 2002 model and are based on the updated landuse in the watershed. In the study area, the revised flow rates downstream of Castlemore Road culvert are 29 % (100 year) and 48 % (Regional) higher than the 2002 model. AECOM applied the revised peak flow rates in the existing HEC-RAS model and results are summarised in **Table 11** below and detailed modeling output is included in **Appendix B**.

Table 11: Existing Bridges Hydraulic Features - 2015 Flow Rates

Bridge Name	Structural Span	Bridge Soffit Elevation	Road Top Elevation	50 Year Flood Elevation	100 Year Flood Elevation	Regional Storm Flood Elevation	Road Ponding Depth Regional Storm	MTO Criteria		CHBDC Criteria	
								Clearance (≥1.0m) (100 yr)	Freeboard (≥1.0m) (100 yr)	Clearance (≥1.0m) (50 yr)	Freeboard (≥1.0m) (50 yr)
	(m)	(m)	(m)		(m)	(m)		(m)	(m)	(m)	(m)
North of Castlemore	9.3	199.00	199.45	198.59	198.65	200.09	0.64	0.35	0.80	0.41	0.86
Wylie North	8.8	192.29	192.80	191.94	192.29	193.39	0.59	0.00	0.51	0.35	0.86
Wylie South	8.8	191.06	191.65	191.06	191.06	192.24	0.59	0.00	0.59	0.00	0.59

The results of the updated hydraulic assessment (**Table 11**) indicate:

- The revised (2015) peak flow rates cause an increase in the regulatory flood elevation by 0.2 to 0.4 m at the three bridges;
- All the three bridges are overtopped during the Regional storm event and therefore do not satisfy the hydraulic requirements of the Region of Peel;
- The clearance and freeboard for all the three bridges is <1.0m during the 100 year storm event and therefore do not meet the requirements of the MTO hydraulic criteria;
- The clearance and freeboard for all the three bridges during the 50 year storm event is <1.0m and therefore not in conformance with the prescribed criteria of C.H.B.D.C; and
- During the Regional storm, The Gore Road at the location of the three bridges will not provide a safe access and egress.

4.2.2 Discussion

The existing bridges do not meet the applicable hydraulic design criterion in terms of clearance and freeboard. Although the existing bridges do not meet the applicable hydraulic design criteria, the Region may review the

MTO/CHBDC or their own standards for the existing bridges, keeping in view the associated efforts and cost to mitigate the risk.

The results also indicate that during the Regional storm, the ponding depth over the bridges will be in the range of 0.6 m and as such cannot be used for safe access and egress. However, alternate routes are available adjacent to the bridges which can be safely used.

The hydraulic analysis further indicates that the creek cross sections (between the two bridges and downstream of the Wylie south bridge) restricts flows. This implies that only increasing the bridge spans or raising the bridges will not greatly reduce the flood elevations and road ponding depth. A combination of mitigation measures will be required to reduce the flood elevations which may include raising of bridge decks, increasing the bridge spans and creek conveyance improvements.

The preferred design alternative of proposed road improvement works includes the reduction of lane widths of the existing 4-lane corridor and addition of separate cycle tracks and sidewalks on both sides of The Gore Road. At the three bridges locations, on the west side of The Gore Road, the cycle track and sidewalk will combine to cross the Wylie’s bridges and the bridge north of Castlemore Road. On the east side of The Gore Road, the cycle track will cross the Wylie’s bridges while the sidewalk detours around The Gore Road Tributary as shown on **Figure 3.** The existing bridges can therefore accommodate the proposed arrangement and no expansion is required.

5. Stormwater Management

Under existing conditions, the road corridor in the study area has 12.28 ha of impervious cover in the form of paved road surface and concrete sidewalks, with an overall imperviousness of 67%. The proposed improvement works will reduce the overall imperviousness to 66%, therefore no additional stormwater management control measures are required to mitigate the impacts. To further enhance the water quality, water balance and reduce the storm runoff volume, a treatment train approach is recommended for stormwater management that utilizes a combination of lot level, conveyance and end-of-pipe practices. As noted previously in Section 2.0, the majority of the storm runoff collected through catchbasins is conveyed through a network of storm sewers into end-of pipe facilities in the form of SWM Ponds. These ponds provide the required quality, erosion and flood controls. To provide lot level and conveyance controls, the following low impact development measures are proposed.

5.1 Low Impact Development

Low impact development (LID) measures are proposed for the proposed road corridor improvements works to avoid or mitigate the negative impacts of stormwater runoff and stormwater pollutants by managing runoff as close to its source as possible. These measures include different LID Best Management Practices (BMPs) as described below.

5.1.1 Reduction in Road Lane Widths

The simple way to reduce stormwater runoff is to minimize the amount of impervious surfaces in the road corridor. This can be achieved through reduction of lane widths, permeable pavement and sidewalks. Generally, road widths are sized for free flow of traffic at design speed and movement of large emergency vehicles. To accommodate the cycle tracks on both side of The Gore Road and to avoid further increase in the impervious of the road corridor, the lane widths are reduced from 3.75 m to 3.3 m and additional 1.8 m wide cycle tracks are added on both sides of The Gore Road. The reduced lane width will not only work as a traffic calming measure but will also reduce the overall impervious area by 0.28 ha. This reduction in lane widths reduced the overall imperviousness of road corridor by 1% even after the addition of 2 m wide cycle track on both sides of The Gore Road (as summarized in **Table 2** and **Table 5**), ultimately reducing the storm runoff volumes and peak flow rates.

5.1.2 Permeable Sidewalks

Permeable sidewalks consist of pervious paving material underlain by a uniformly graded stone reservoir. The pervious surface may consist of pervious asphalt, permeable concrete, permeable interlocking concrete pavers, concrete grid pavers, or plastic grid pavers (CVC, TRCA, 2010). The openings in the interlocking concrete pavers, concrete and plastic grid pavers is filled with pea gravel, sand or top soil or grass to facilitate the infiltration of rainfall into the stone reservoir and ultimately into the underlying soil. Details are provided in **Appendix C**. In our analysis, we used impervious sidewalks; however, during the detailed design stage, the Region may consider permeable sidewalks at all or certain locations, if found cost effective.

5.1.3 Bioretention

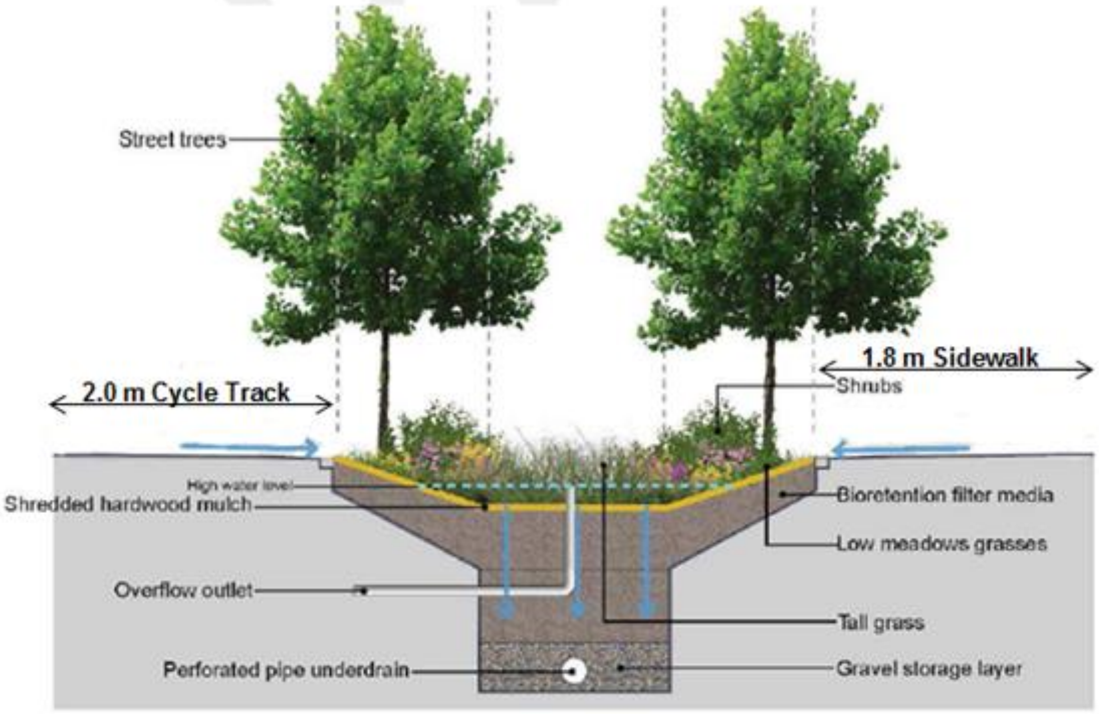
Bioretention is a stormwater filter and infiltration practice which temporarily stores, treats and infiltrates runoff. The bioretention facilities may be designed for full infiltration (without an underdrain), partial infiltration (with an underdrain) and for filtration only (with an impermeable liner and underdrain). The main components of a bioretention facility are a filter bed (mixture of sand, fines and organic material), mulch ground cover and plants. The bioretention facilities are designed to capture small storm events to meet the water quality storage requirement and an overflow or bypass flow paths are provided to pass large storm events (CVC, TRCA, 2010). Bioretention may be provided in the form of bioretention cells, rain gardens, stormwater planters, extended tree pits and curb extensions. Details are included in **Appendix C**.

The available space between the proposed cycle track and sidewalk is proposed for bioretention as shown in the following sketch, and different landscaping designs are provided in **Appendix D**. The area proposed for bioretention is approximately 2.0 ha and located on both sides of The Gore Road. Runoff from both cycle tracks and sidewalks will be directed as sheet flow towards the bioretention area where it will be retained and infiltrated into the ground. Optional overflow or bypass flow paths will be provided to pass the larger storm events. In cases where bio retention is not possible due to various site specific constraints along the road corridor, simple landscaping between the cycle track and sidewalk can be provided with drainage directed from pervious areas of cycle track and sidewalks. The key constraints for the proposed bioretention are described below as provided in the LID Guidelines (CVC, TRCA, 2010):

- Water Table – The available geotechnical reports show that water table for the road corridor is in the range of 2.0 to 4.0 m below ground and will not intersect the filter bed in majority of the locations. Additional site specific geotechnical investigations may be conducted during the detailed design stage to confirm the water table along the road corridor. In the low water table areas, a bottom liner and underdrain system should be used in the bioretention areas.

- Soils – Bioretention facilities can be located over any soil type, but hydrologic soil group A and B are preferred if infiltration is a primary goal. The existing subsurface soils from 700 mm to 1.5 m below ground surface along The Gore Road are observed to be clayey silt with trace of sand and gravel as reported in the Pavement Design Report for The Gore Road Widening (Shaheen & Peaker Limited, September 22, 2003). The clayey silt soils appear to belong to type C and D hydrologic soil groups with poor drainage characteristics. The LID guide recommends an underdrain system for native soils having infiltration rates of less than 15 mm/hr (hydraulic conductivity less than $1X10^{-6}$ cm/s). Further site specific geotechnical investigations will be required during the detailed design stage to assess the infiltration rate and hydraulic conductivity and suitability for specific bioretention facilities. In case of low soil infiltration rates, the option of an underdrain system connected with the existing storm sewer system may be considered. In that instance, the primary water balance benefit will be evapotranspiration that occurs in the bioretention area.

Typical Cross Section for Bioretention area between Cycle Track and Sidewalk along The Gore Road (Source: CVC, TRCA LID Guidelines – Figure 13 modified for road corridor)



- Wellhead protection – the bioretention facilities receiving road runoff should not be located within two year time-of-travel wellhead protection areas. The area is not located in a wellhead protection area as per approved source protection plan prepared for the Region (CTC, 2015).

- Underground utilities – Bell and gas utilities are located on the east side of The Gore Road. Further consultation is required with utility companies to avoid any conflict with existing utilities on both side of the road corridor.

- Setback from buildings – if an impermeable liner is used, no setback is required; if not, a four metre setback from buildings should be applied.

5.1.4 Enhanced Grass Swale

Enhanced grass swales or vegetated swales are vegetated open channels designed to convey, treat and attenuate stormwater runoff. Check dams and vegetation in the swale reduces the flow velocity to allow sedimentation, filtration, evapotranspiration and infiltration into the underlying native soil (CVC, TRCA, 2010). Under existing conditions, road side ditches/grass swales are located along the road corridor on both sides of The Gore Road at different locations as shown on **Figure 2** and **3** and briefly described below:

- SW1 - located on the west side of The Gore Road, from Fogal Road towards Queen Street discharging into the existing twin culverts;

- SW2 - located on the east side of The Gore Road between the two residential areas (Amethyst Circle to Freedom Oaks Trail) discharging into a ditch inlet,
- SW3 - located on the east side of The Gore Road, from Castlebrooke Secondary School to The Gore Road Tributary flowing northward;
- SW4 – located on the west side of The Gore Road, from Castlemore Public School to Fitzpatrick Drive to The Gore Road Tributary, flowing southward: During the site visit, TRCA declared this a watercourse and should be maintained. This watercourse receives runoff from adjacent properties and area located east of The Gore Road through an existing culvert located south of Fitzpatrick Drive;
- SW5 - located on the west side of The Gore Road, from Castlemore Road to The Gore Road Tributary flowing northward; and
- SW6 - located on the east side of The Gore Road, from Castlemore Road to The Gore Road Tributary flowing northward;

The existing ditches will be converted into enhanced grass swales with the addition of check dams, vegetation for additional water quality and quantity improvements.

5.2 Water Quality Control

The proposed road improvements will reduce the overall imperviousness of the road corridor and therefore no additional water quality controls are required. However, stormwater quality within the study area can be further enhanced through the installation of bioretention cells. In addition, the drainage ditches will be lined with grass, and rock check dams and pools will be used to prevent erosion and facilitate infiltration.

5.3 Water Quantity Control

The study area is located in Humber River watershed and is required to control post-development peak flows to pre-development levels for all storms up to and including the 100 year storm, with pre-development flow rates estimated by the unit flow equation “F” for sub- basin No. 36. The proposed road improvements will reduce the overall imperviousness of the road corridor from 67% to 66% which in turn will reduce the peak flow rates and runoff volumes. In addition, the proposed LID measures will further facilitate infiltration and evapotranspiration ultimately reducing the runoff volume. Therefore no water quantity controls are required.

5.4 Erosion Control

An erosion and sediment control plan is required to satisfy the criteria of “Erosion and Sediments Control Guidelines for Urban Construction” (Greater Golden Horseshoe Area Conservation Authorities, December 2006). The following control measures are recommended to be implemented during the construction:

- Erosion protection to be provided around all storm manholes, sanitary manholes and catch basins;
- Erosion control structures should be monitored regularly. Sediment will be removed when accumulations reach a maximum of 1/3 of the height of the sediment fence;
- All erosion control structures remain in place until all disturbed ground surfaces have been re-stabilized either by paving or restoration of vegetative ground cover;
- The contractor must remove sediments from the municipal roadway and sidewalks at the end of each work day;
- A single construction entrance be utilized with a “mud mat” to be installed to minimize the amount of sediment transported off the site on construction vehicles tires;
- All disturbed areas not scheduled for construction within 30 days be stabilized and seeded immediately;

- Inspections be completed weekly or after a rainfall event greater than 13 mm, and submitted regularly to the Region and the TRCA;
- Slopes greater than 5:1 be stabilized using suitable geotextile material and seeded or sodded as soon as possible; and
- During construction, slopes should be maintained with a dense cover of grass.

5.5 Water Balance Management

The pre-development water balance can be preserved by capturing and managing the annual rainfall at site through a combination of measures including infiltration, evapotranspiration, landscaping, and low impact development. The proposed improvement works will slightly reduce the overall imperviousness of the road corridor which will reduce runoff volume and increase infiltration. To further enhance the water balance the following SWM plan components are proposed:

- Enhanced grass swales/ditches with check dams will be provided at selected locations which will facilitate infiltration;
- Drainage from the proposed cycle tracks and sidewalks will be directed to the proposed bioretention area on both sides of the road between the cycle tracks and sidewalks, which will facilitate infiltration and evapotranspiration;
- The proposed bioretention areas will capture runoff from approximately 5.0 ha area of the existing road corridor. Majority of the this runoff during the frequent storm events (≤ 26mm) will be retained in the bioretention cells and returned back to the hydrologic cycle in the form of infiltration and evapotranspiration thereby enhancing the water balance of the road corridor as summarized in **Table 12**.

As indicated in **Table 12**, the overall volume of runoff that will be available in the gravel storage layer of the bioretention cells for infiltration is approximately 26 mm. This infers that no runoff will be produced from the road corridor area draining into bioretention cells (5.0 ha) during all storms events of 26 mm and less. The historical rainfall data at Toronto Pearson Airport shows that storms with 24 hour volumes of 5 mm or less and 20 mm or less contribute about 50% and 90% of the total annual rainfall volumes respectively (WWFM, 2006). Therefore, in the long term, the proposed bioretention area will retain approximately 90% of the total annual rain falling on the area (5.0 ha) draining into the bioretention cells. Additionally, more water will be available for evapotranspiration taken up by plants in the bioretention cells.

Table 12: Bioretention Area – Infiltration

Pervious Area	**Impervious Area (ha)**	**Total Area**	**Gravel Storage Layer - Available for Infiltration**						
			% of Pervious Area	Area	Void Ratio	Thickness	Volume	Equivalent Depth Over Total Bioretention Area	Equivalent Depth Over Total Road Corridor
(ha)	(ha)	(ha)	%	(ha)	-	(mm)	(m^3)	(mm)	(mm)
2.18	2.81	4.99	50	1.09	0.4	300	1,308	26	7

The water balance components for the road corridor are estimated in **Table 13** using the average annual values for southern Ontario as per Table 3.1 of the MOE SWMP Manual (MOE, 2003). The pre-development condition was assumed to consist of natural surface with pasture and shrubs with hydrologic soil group CD. For the existing and proposed conditions, the pervious surface was assumed to be urban lawns with hydrologic soil group CD. As indicated in **Table 13**, the proposed bioretention will increase the annual evapotranspiration from 175 mm to 261 mm and annual infiltration from 54 mm to 122 mm, thereby reducing the annual runoff from 711 mm to 557 mm.

Table 13: Water Balance Components

Condition	**Total area**	**Imp.**	**Pervious Areas MOE (Table 3.1)**				**Weighted average over total area, pervious and impervious**		
			Rainfall	ET[1]	I[1]	R[1]	ET[1]	I[1]	R[1]
	(ha)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
Pre-development (natural)	18.25	0.00	940	546	197	197	546	197	197
Existing conditions	18.25	0.67	940	531	164	245	175	54	711
Post-development without bioretention	18.25	0.66	940	531	164	245	181	56	704
Post-development with bioretention									
Road	13.26	0.70	940	531	164	245	159	49	732
Bioretention area	4.99	0.56	940	n/a	n/a	n/a	531	315[3]	94[2]
Total/average	**18.25**	**0.66**	940				**261**	**122**	**557**

1. ET is Evapotranspiration, I is infiltration and R is runoff;
2. Assuming that 90% of the annual precipitation will be retained in the bioretention area, only 10% will become surface runoff (10/100*940 = 94mm);
3. Infiltration for the bioretention area is estimated to be left over precipitation after ET and runoff (940-531-94=315mm).

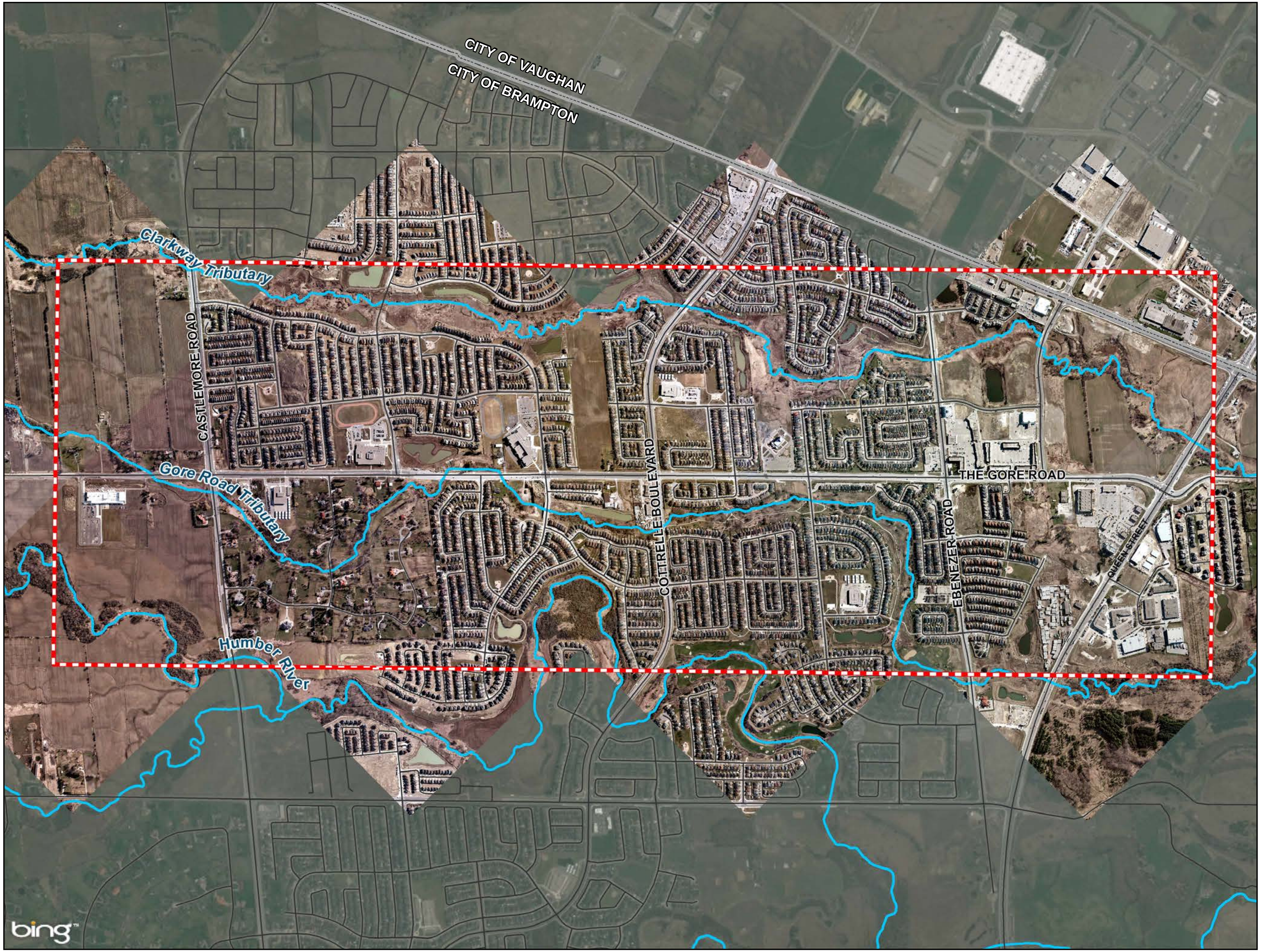
6. Conclusions and Recommendations

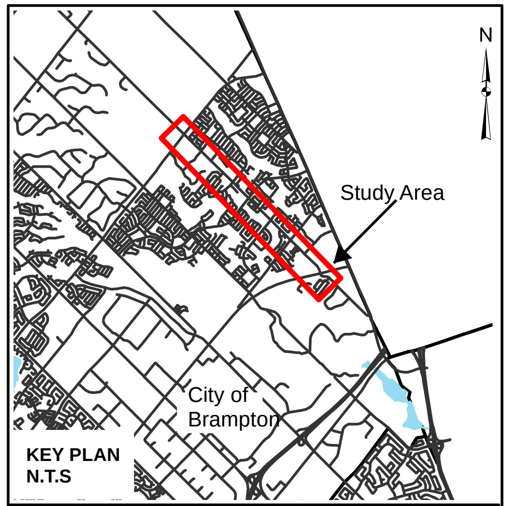
This stormwater management report is prepared in support of the proposed improvement works for The Gore Road from Queen Street to Castlemore Road. Hydrologic and hydraulic analysis was completed to assess the existing and proposed drainage conditions and recommend drainage improvements as part of the proposed improvement works. Based on the preceding analysis, AECOM makes the following conclusions and recommendations:

- Under existing conditions, runoff from road corridor is collected through a network of catchbasins and storm sewers and conveyed to the adjacent SWM facilities and The Gore Road Tributary;
- The proposed improvement works consists of existing 4-lanes (with reduced lane widths), 2 m wide cycle track and 1.8 m wide sidewalk on both sides of The Gore Road;
- The proposed improvement works will reduce the overall imperviousness of the road corridor from 67% to 66%. This results a decrease in runoff volumes and therefore no additional stormwater quality and quantity controls are required;

- The proposed bioretention cells will retain approximately 90% of the total annual rain falling on the area draining into the bioretention area;
- The existing drainage pattern will be maintained by bringing in the gutter/curb and existing catchbasins or providing additional gratings connected with existing catchbasins. No changes are required to the existing storm sewers;
- The existing bridges can accommodate the proposed improvement works and do not need any expansion/modifications;
- Under existing conditions, the three bridges do not meet the applicable hydraulic criteria for freeboard and clearance;
- The hydraulic analysis results indicate that during the Regional storm, the ponding depth over the bridges will be in the range of 0.6 m and as such cannot be used for safe access and egress. However, alternate routes are available adjacent to the bridges which can be used for safe access and egress;
- Low impact development BMPs in the form of bioretention areas are proposed between the proposed cycle tracks and sidewalks on both side of The Gore Road to further enhance water quality and to help to restore the natural water balance of the study area; and
- Site specific geotechnical investigations will be required for the detailed design of bioretention cells.

FIGURES





KEY PLAN
N.T.S

Legend

Legend

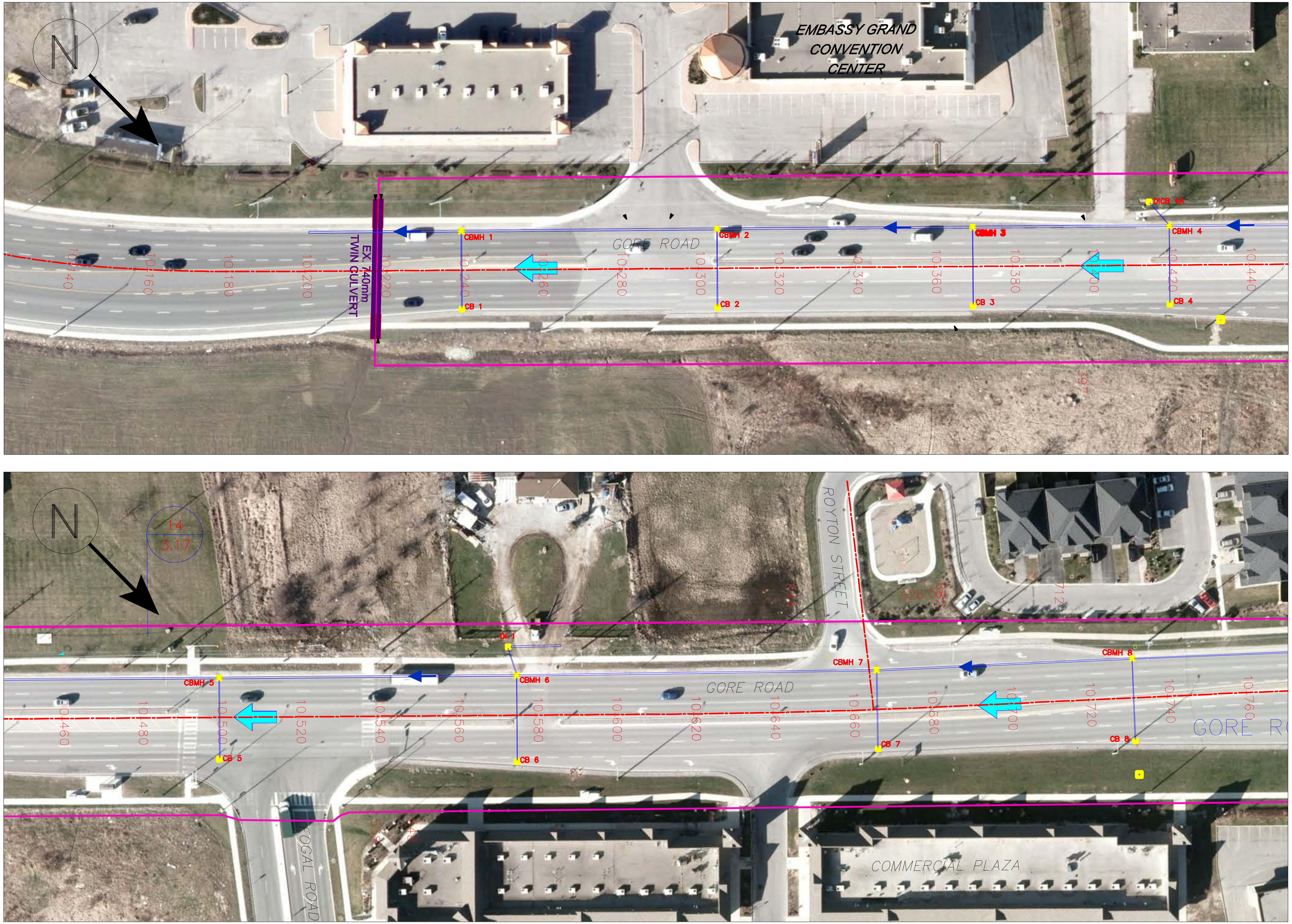
- Streets
- Watercourse
- Study Area
- Regional Boundaries

Region of Peel
The Gore Road from
Queen Street to Castlemore Road
Municipal Class EA

Figure 1
Study Area

Metres
0 250 500 750

Basemapping Provided by: Aerial Photography: Peel Region, 2009



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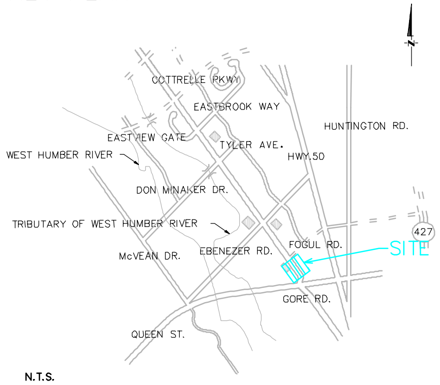


LEGEND

🟥	APPROXIMATE CATCHMENT BOUNDARY
⇦	OVERLAND FLOW DIRECTION
1 / 3.17	CATCHMENT ID AREA (ha)
☐	EXISTING CB
←	EXISTING STORM SEWER

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

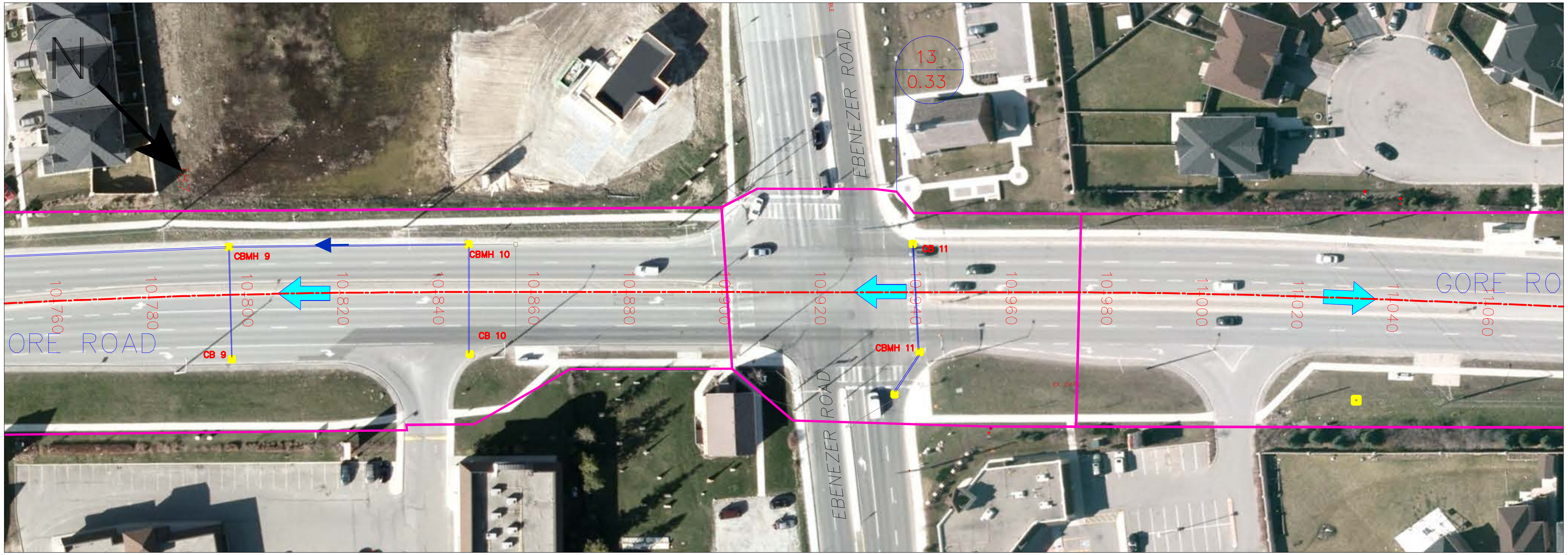
EXISTING DRAINAGE PLAN

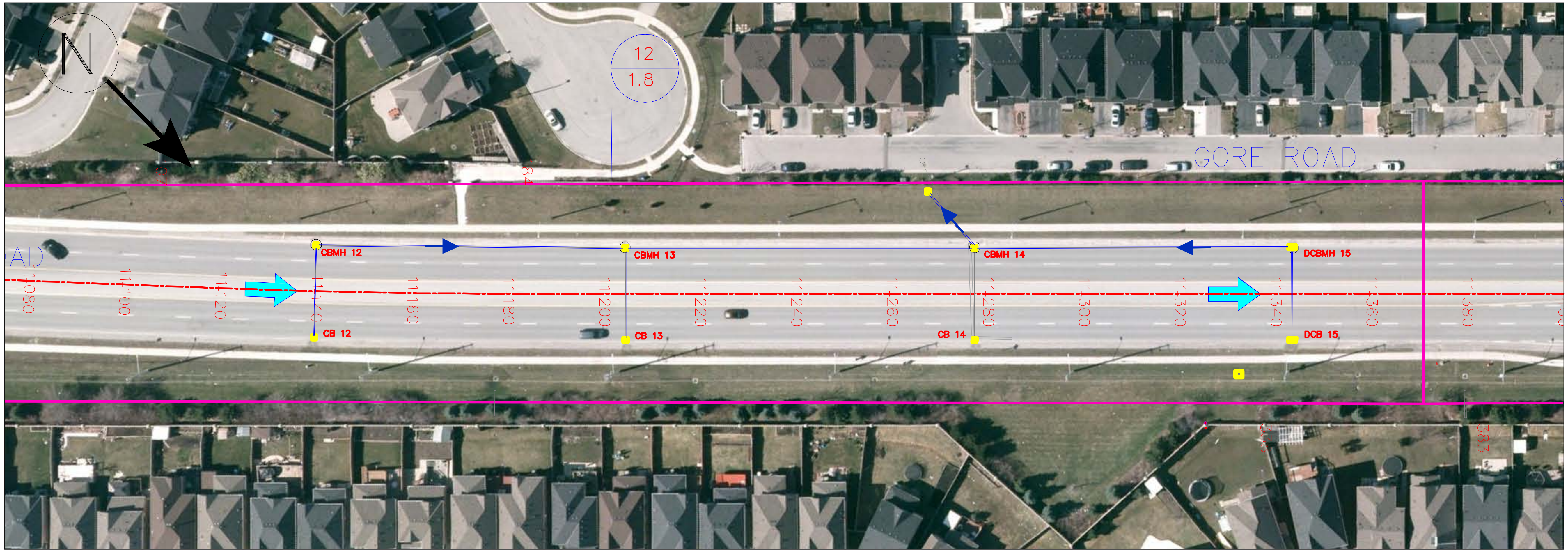
FIGURE 2
SHEET 1 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM





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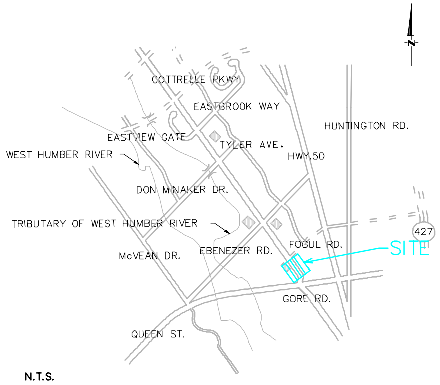


N.T.S.

LEGEND

—	APPROXIMATE CATCHMENT BOUNDARY
⇦	OVERLAND FLOW DIRECTION
1 3.17	CATCHMENT ID AREA (ha)
□	EXISTING CB
←	EXISTING STORM SEWER

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

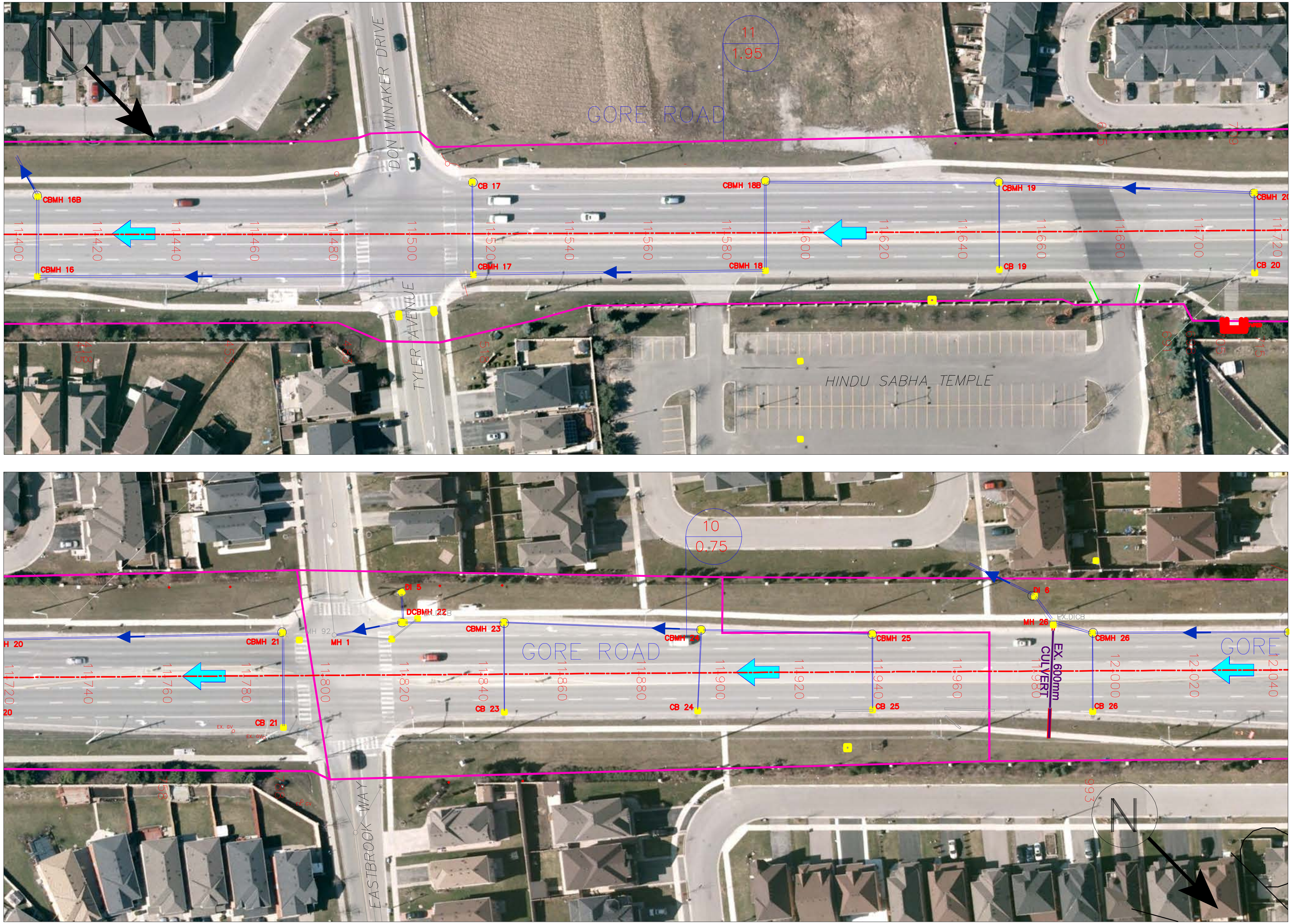
EXISTING DRAINAGE PLAN

FIGURE 2
SHEET 2 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM



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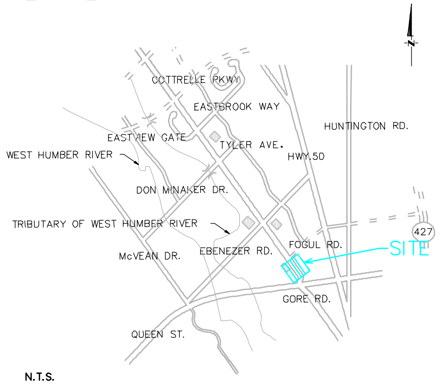


N.T.S.

LEGEND

—	APPROXIMATE CATCHMENT BOUNDARY
⇦	OVERLAND FLOW DIRECTION
1 / 3.17	CATCHMENT ID AREA (ha)
☐	EXISTING CB
←	EXISTING STORM SEWER

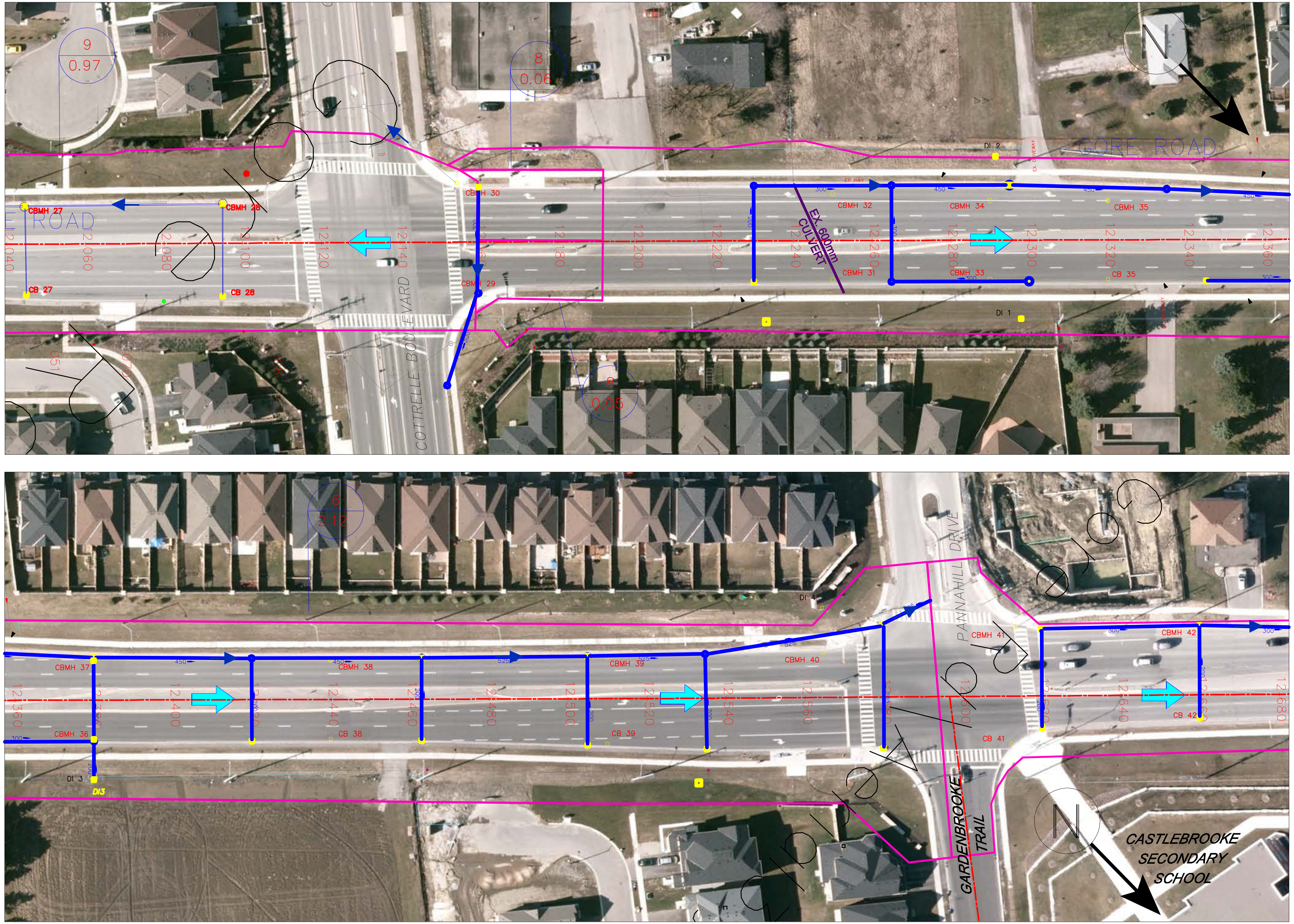
REGION OF PEEL
THE GORE ROAD
(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

EXISTING DRAINAGE PLAN
FIGURE 2
SHEET 3 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM



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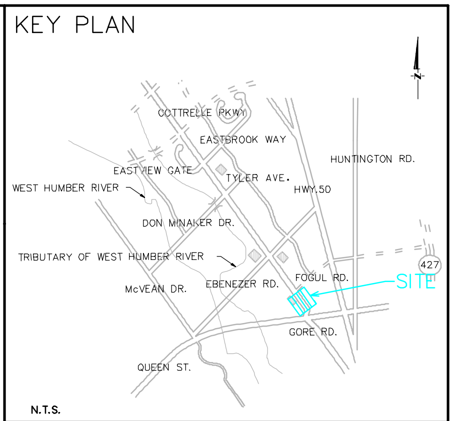


LEGEND

- APPROXIMATE CATCHMENT BOUNDARY
- OVERLAND FLOW DIRECTION
- 1 / 3.17 CATCHMENT ID / AREA (ha)
- ☐ EXISTING CB
- EXISTING STORM SEWER

REGION OF PEEL
THE GORE ROAD
(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

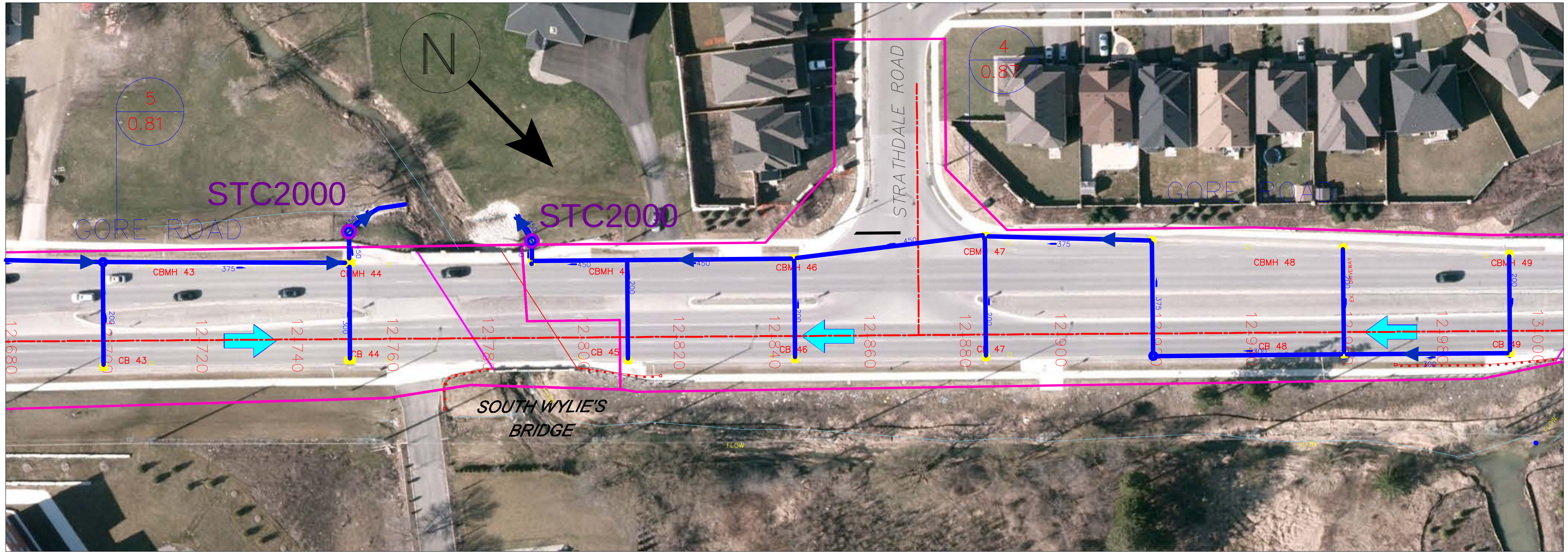
EXISTING DRAINAGE PLAN

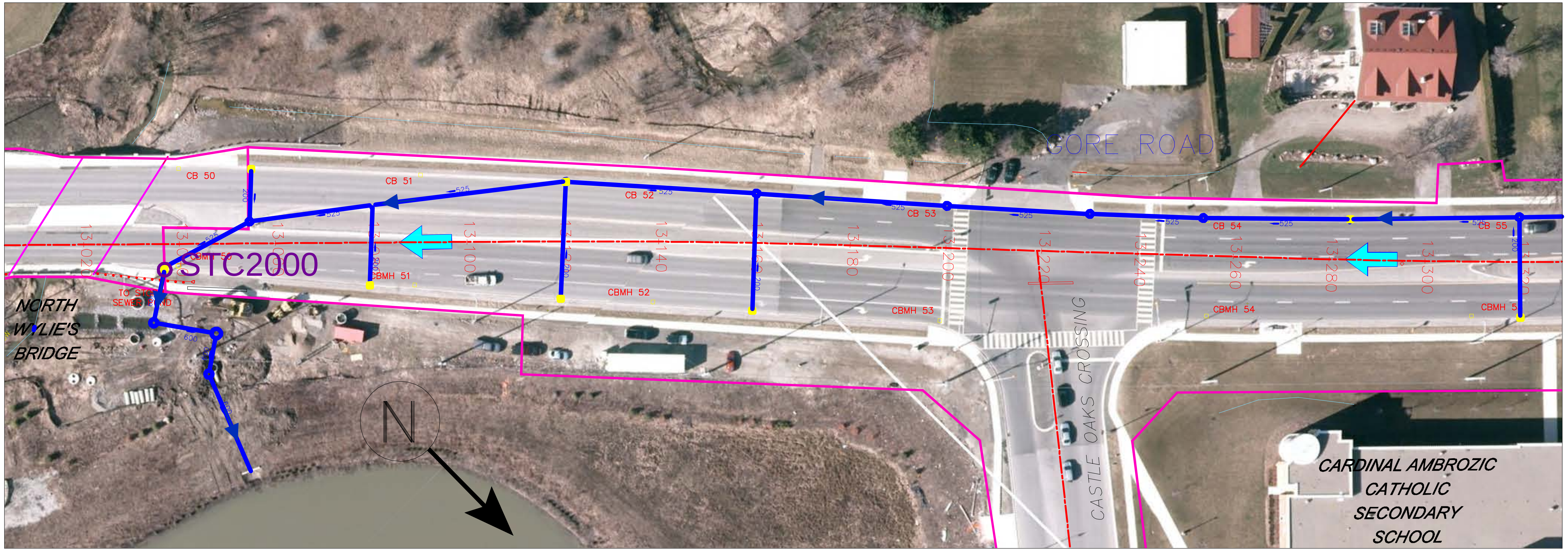
FIGURE 2
SHEET 4 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM





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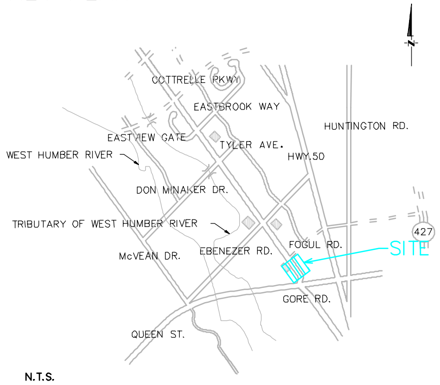


LEGEND

APPROXIMATE CATCHMENT BOUNDARY

OVERLAND FLOW DIRECTION

1/3.17 CATCHMENT ID / AREA (ha)

☐ EXISTING CB

EXISTING STORM SEWER

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD MUNICIPAL CLASS EA)

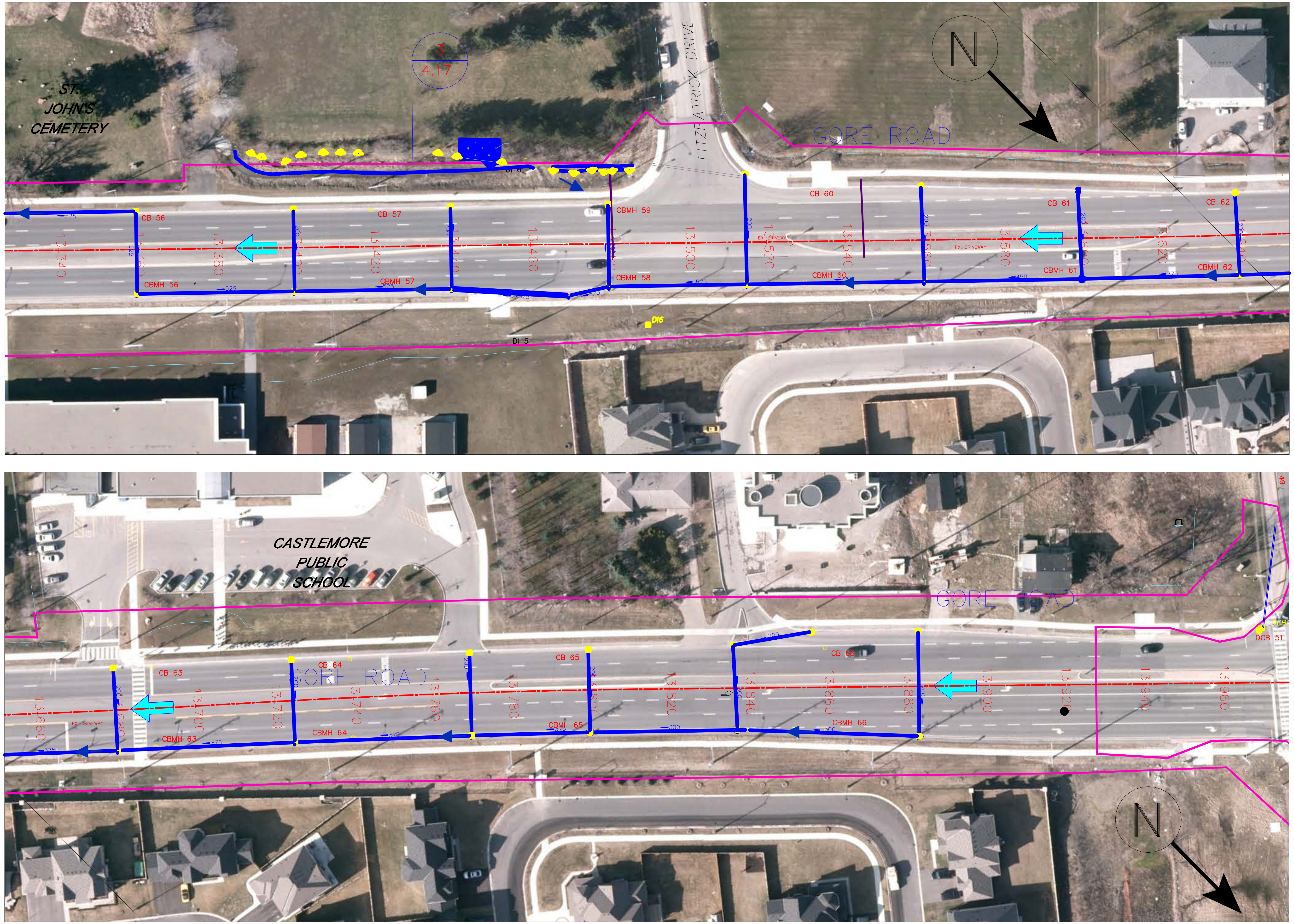
EXISTING DRAINAGE PLAN

FIGURE 2
SHEET 5 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM



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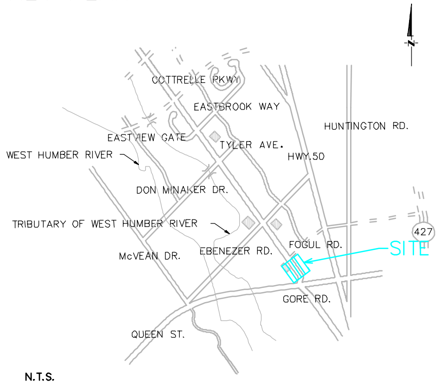

LEGEND

━	APPROXIMATE CATCHMENT BOUNDARY
⇦	OVERLAND FLOW DIRECTION
1 3.17	CATCHMENT ID AREA (ha)
□	EXISTING CB
◀━	EXISTING STORM SEWER

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

EXISTING DRAINAGE PLAN

FIGURE 2
SHEET 6 OF 7

SCALE

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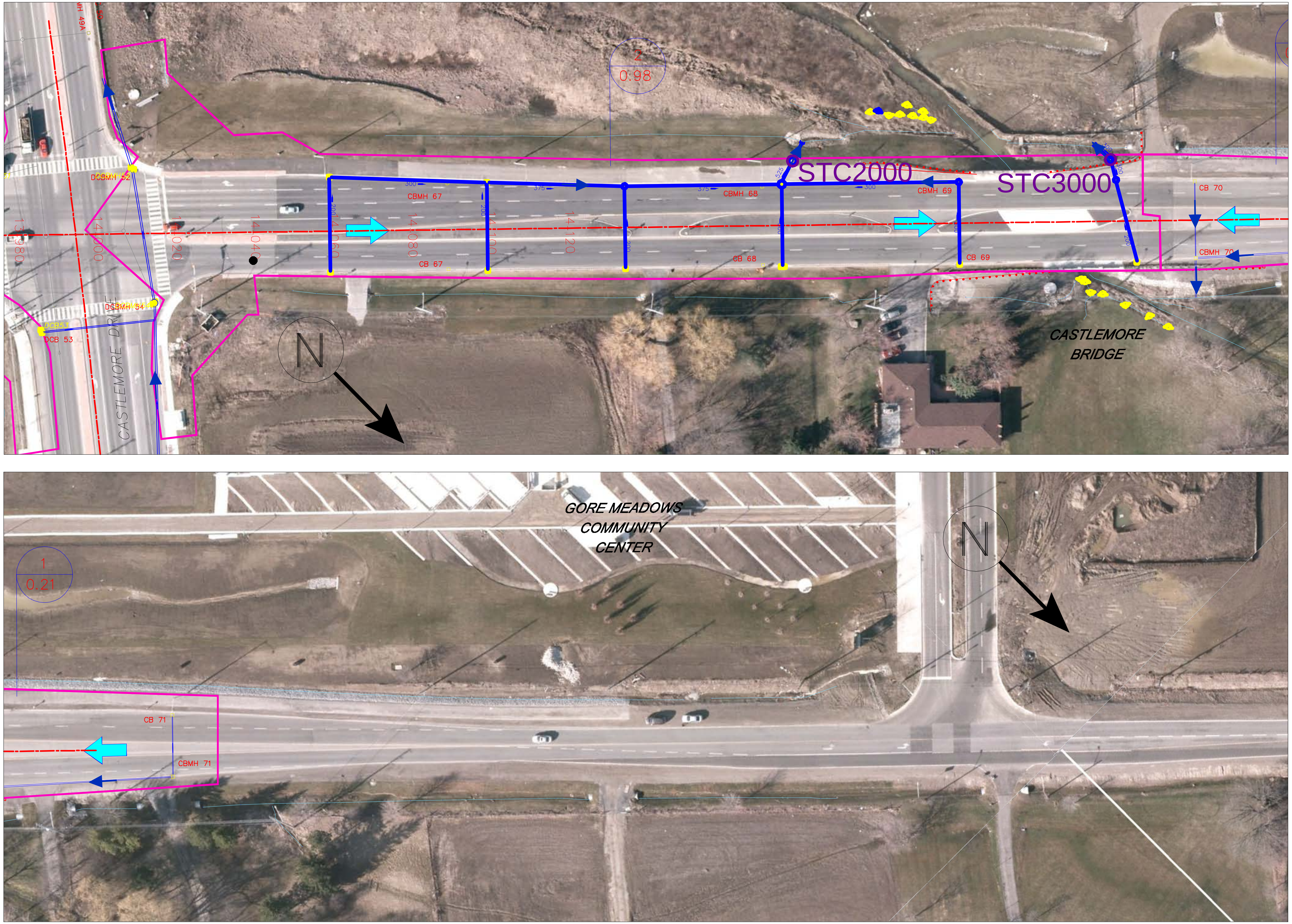
AECOM



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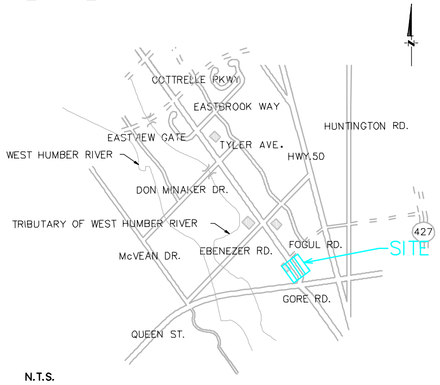


LEGEND

- APPROXIMATE CATCHMENT BOUNDARY
- OVERLAND FLOW DIRECTION
- $\frac{1}{3.17}$ CATCHMENT ID AREA (ha)
- ☐ EXISTING CB
- EXISTING STORM SEWER

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

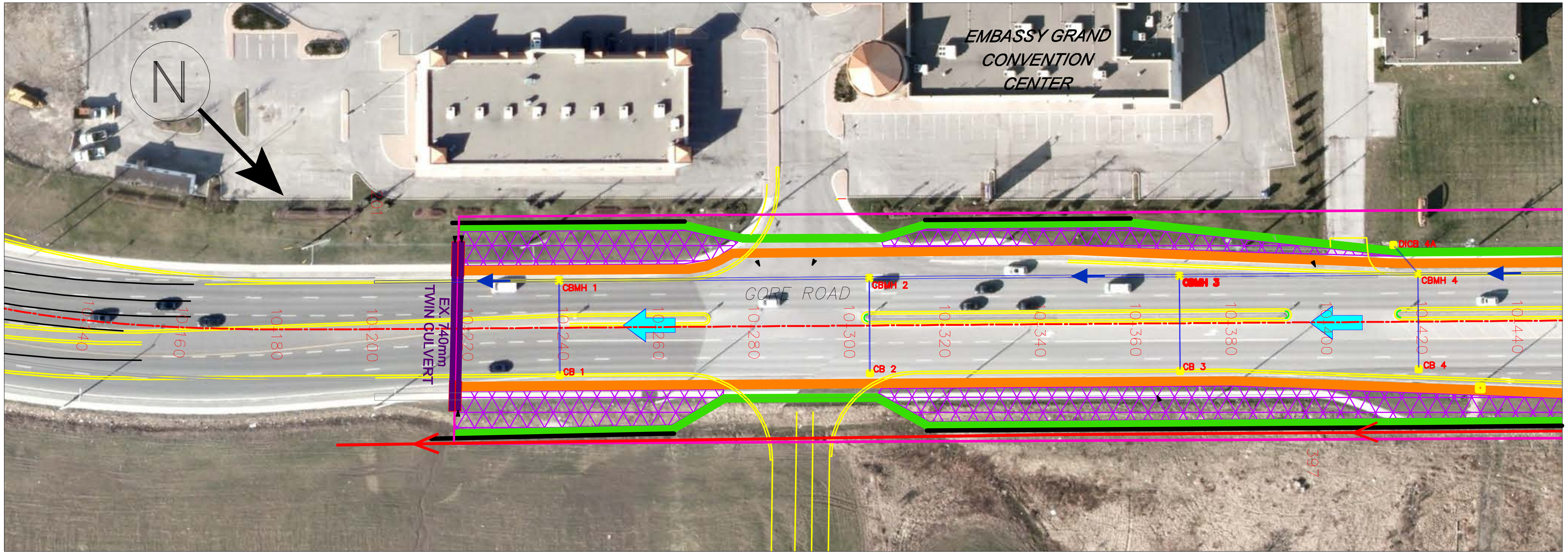
EXISTING DRAINAGE PLAN

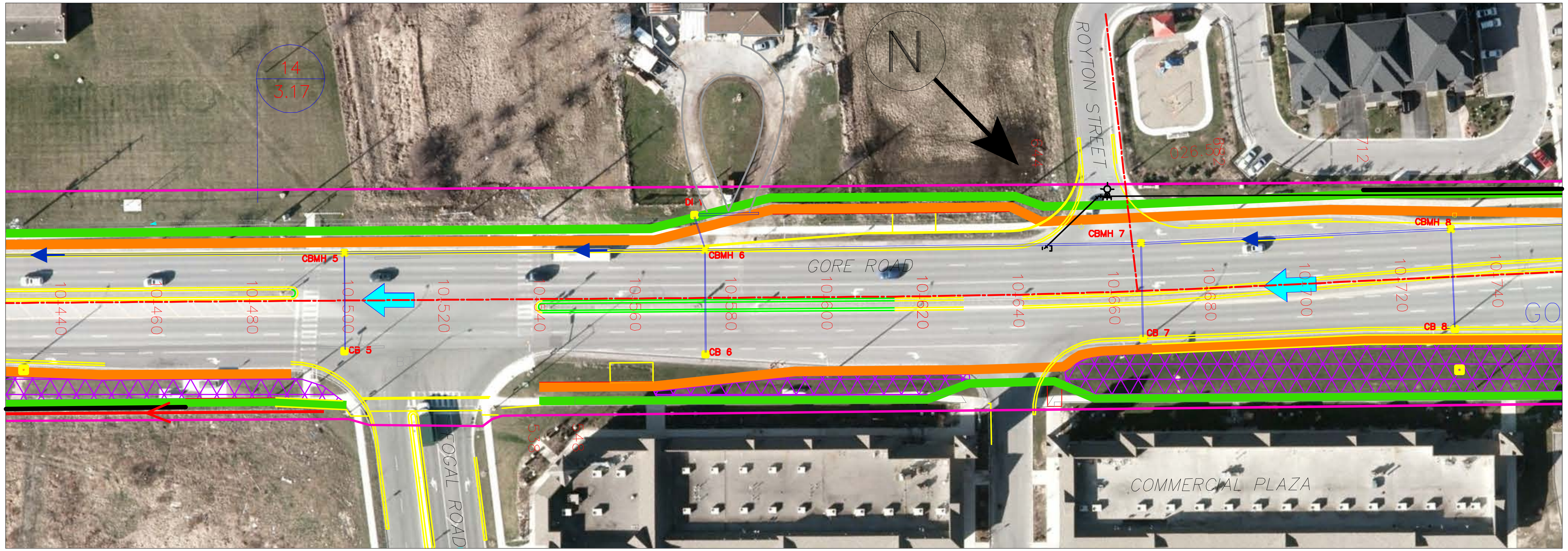
FIGURE 2
SHEET 7 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM





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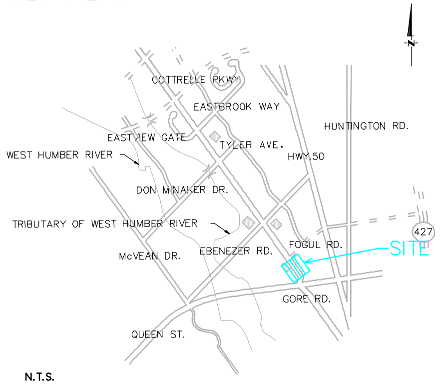

LEGEND

APPROXIMATE CATCHMENT BOUNDARY
🟩 PROPOSED SIDEWALK
🟧 PROPOSED CYCLE TRACK
⇦ OVERLAND FLOW DIRECTION
1 / 3.17 CATCHMENT ID / AREA (ha)
▨ PROPOSED BIORETENTION AREA
□ EXISTING CB
← EXISTING STORM SEWER
← GRASS SWALE

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

PROPOSED DRAINAGE PLAN

FIGURE 3
SHEET 1 OF 7

SCALE

0m 10m 20m 30m 40m 50m

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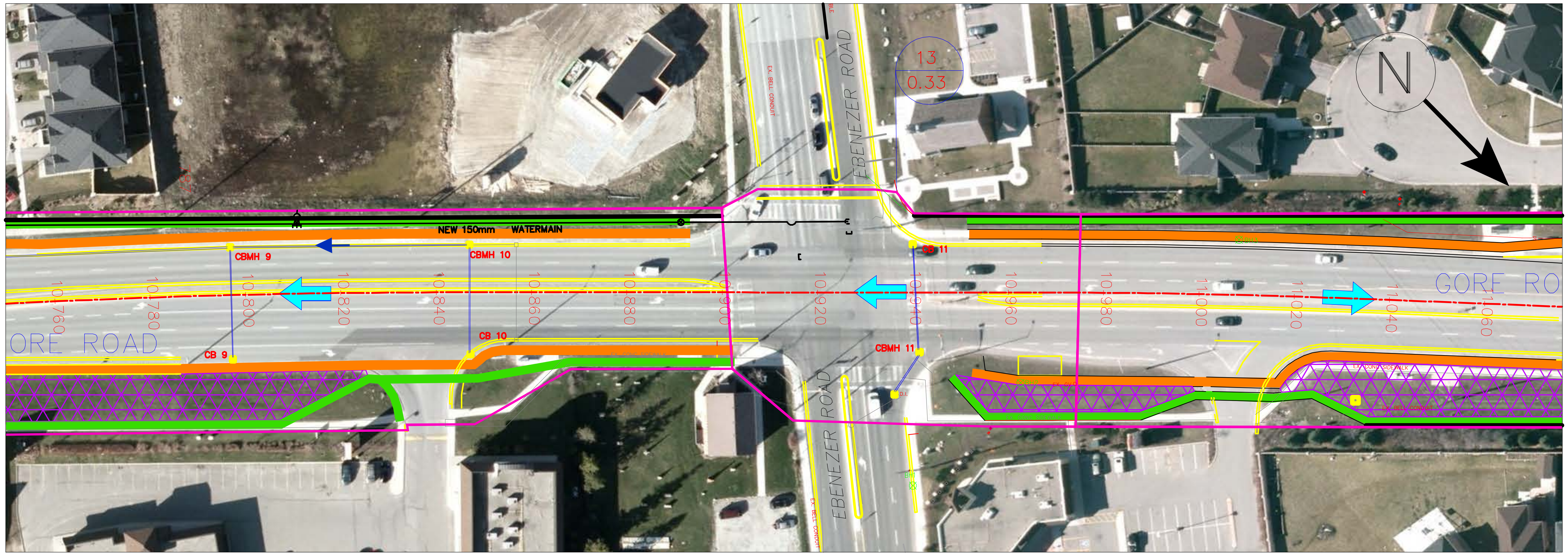

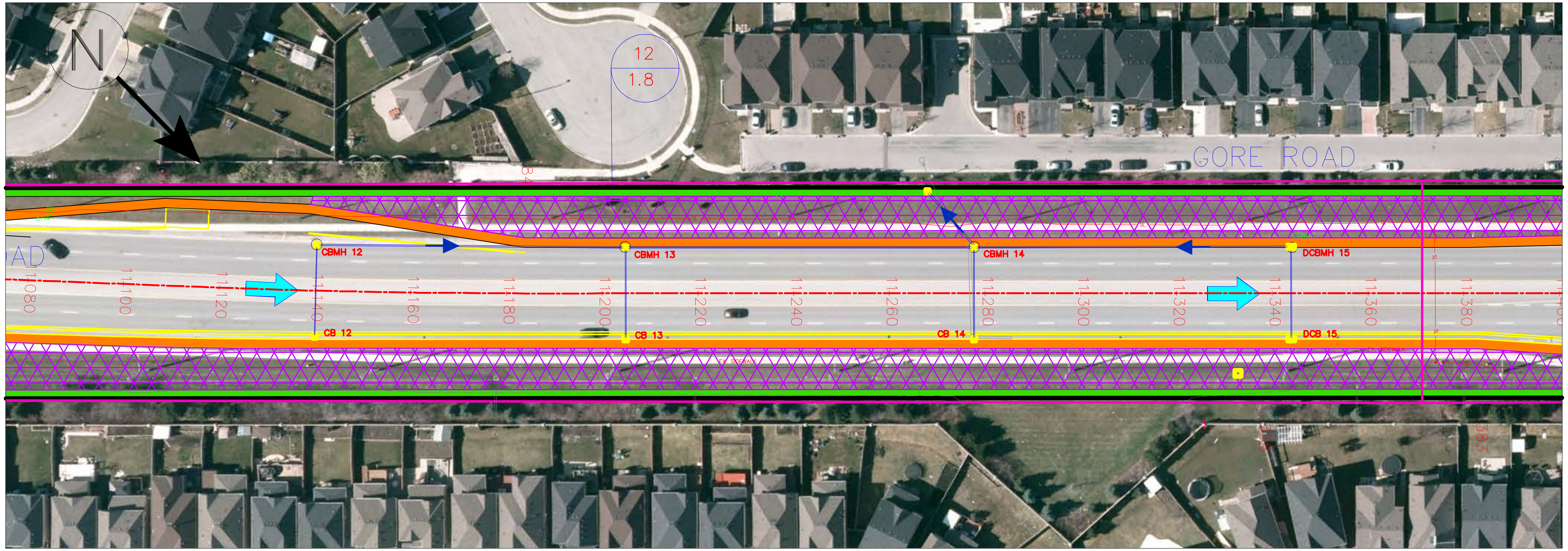

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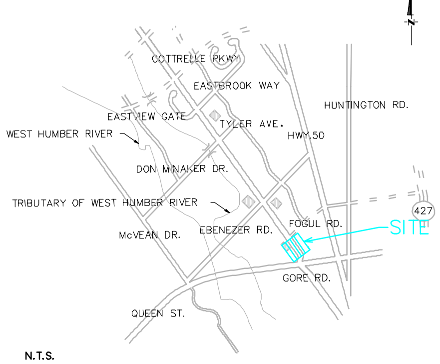


LEGEND

🟪	APPROXIMATE CATCHMENT BOUNDARY
🟩	PROPOSED SIDEWALK
🟧	PROPOSED CYCLE TRACK
⬅	OVERLAND FLOW DIRECTION
1 3.17	CATCHMENT ID AREA (ha)
▨	BIORETENTION AREA
☐	EXISTING CB
←	EXISTING STORM SEWER
←	GRASS SWALE

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

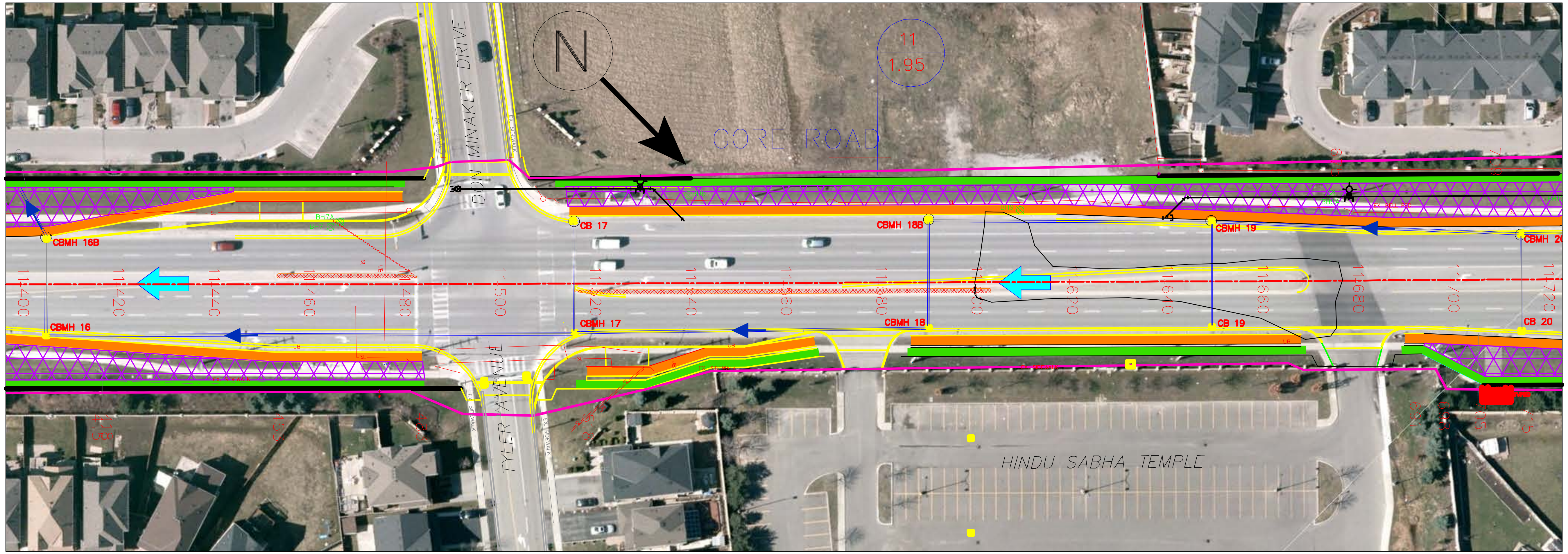
PROPOSED DRAINAGE PLAN

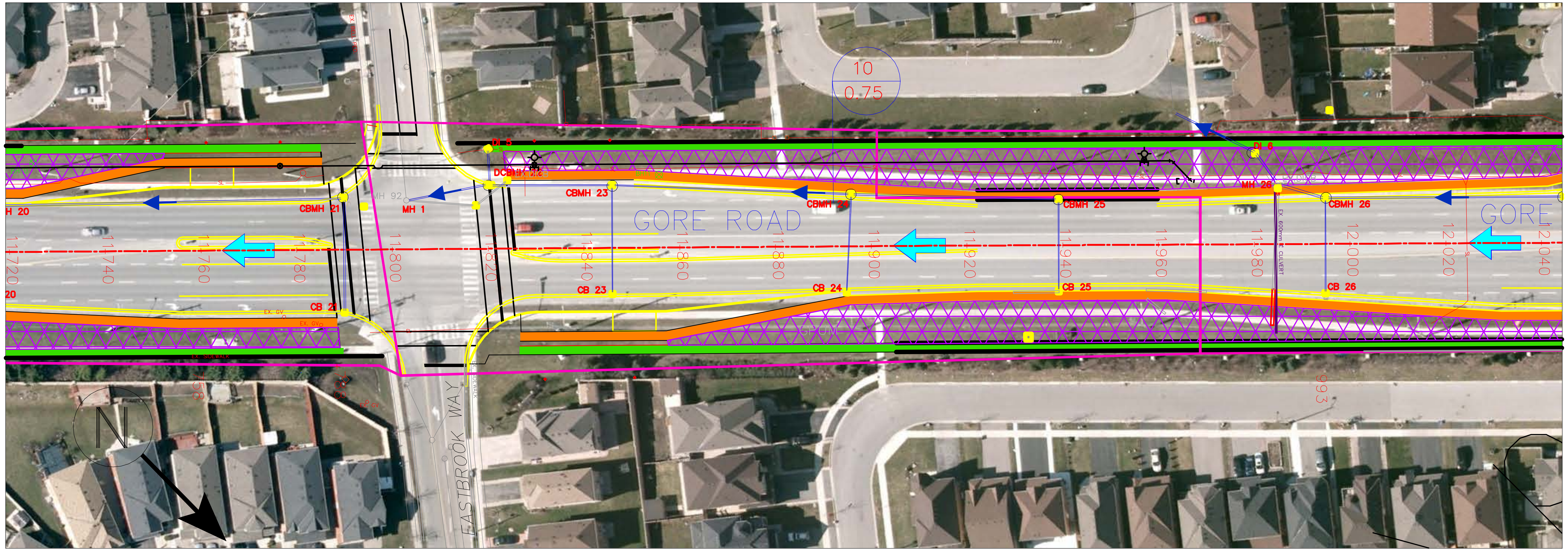
FIGURE 3
SHEET 2 OF 7

SCALE

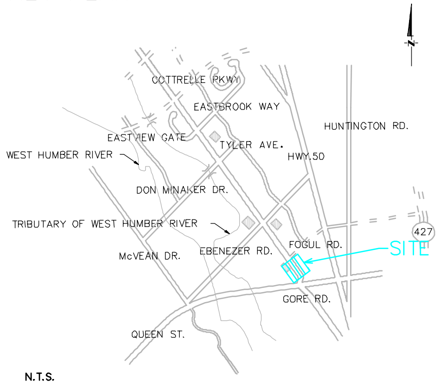
0m 10m 20m 30m 40m 50m

AECOM





KEY PLAN



LEGEND

🟪	APPROXIMATE CATCHMENT BOUNDARY
🟩	PROPOSED SIDEWALK
🟧	PROPOSED CYCLE TRACK
⬅	OVERLAND FLOW DIRECTION
1 3.17	CATCHMENT ID AREA (ha)
▨	BIORETENTION AREA
☐	EXISTING CB
←	EXISTING STORM SEWER
←	GRASS SWALE

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD
MUNICIPAL CLASS EA)

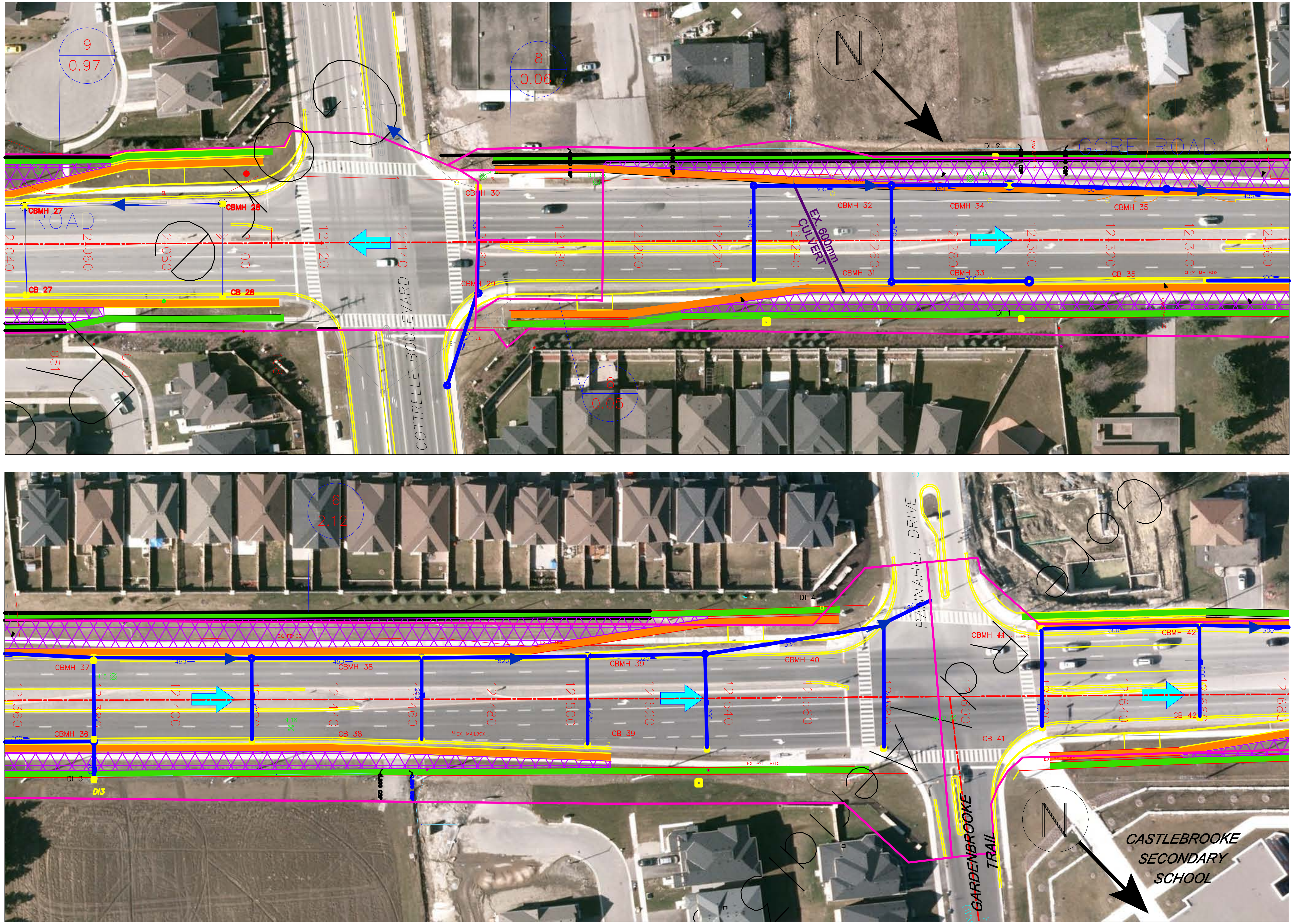
PROPOSED DRAINAGE PLAN

FIGURE 3
SHEET 3 OF 7

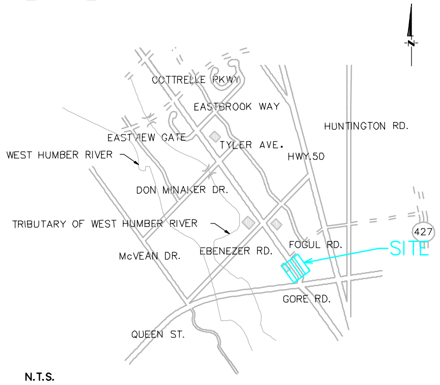
SCALE

0m 10m 20m 30m 40m 50m

AECOM



KEY PLAN



LEGEND

—	APPROXIMATE CATCHMENT BOUNDARY
🟩	PROPOSED SIDEWALK
🟧	PROPOSED CYCLE TRACK
⬅	OVERLAND FLOW DIRECTION
1 3.17	CATCHMENT ID AREA (ha)
▨	BIORETENTION AREA
□	EXISTING CB
←	EXISTING STORM SEWER
←	GRASS SWALE

REGION OF PEEL

THE GORE ROAD

(FROM QUEEN STREET TO CASTLEMORE ROAD MUNICIPAL CLASS EA)

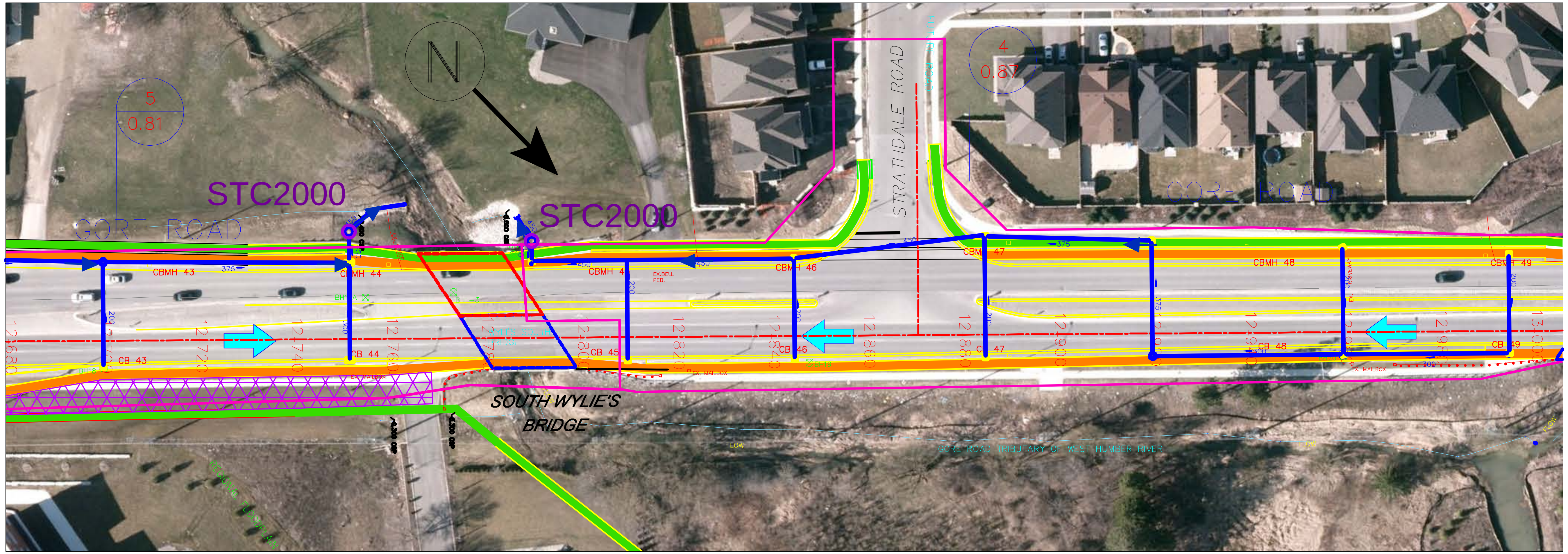
PROPOSED DRAINAGE PLAN

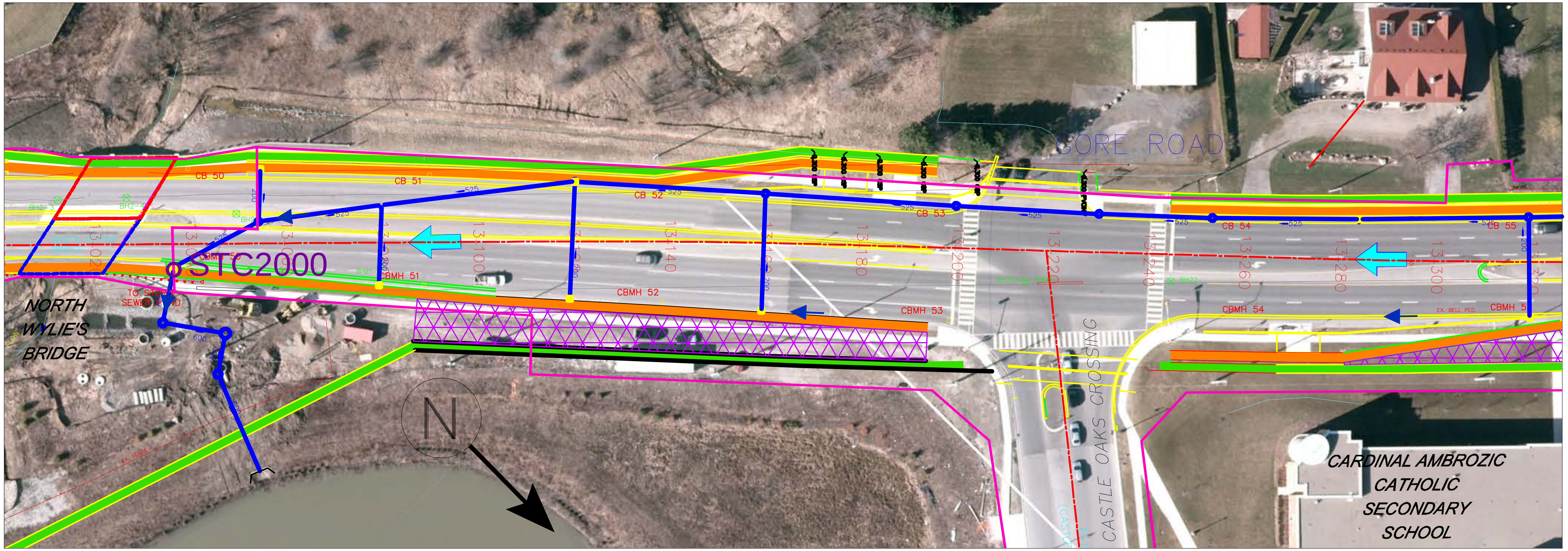
FIGURE 3
SHEET 4 OF 7

SCALE

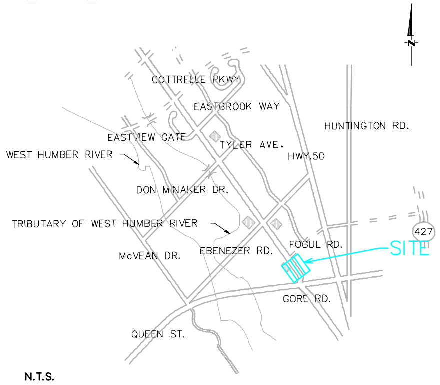
0m 10m 20m 30m 40m 50m

AECOM





KEY PLAN



LEGEND

- APPROXIMATE CATCHMENT BOUNDARY
- 🟩 PROPOSED SIDEWALK
- 🟧 PROPOSED CYCLE TRACK
- ⬅ OVERLAND FLOW DIRECTION
- 1 / 3.17 CATCHMENT ID / AREA (ha)
- ▨ BIORETENTION AREA
- ☐ EXISTING CB
- ← EXISTING STORM SEWER
- ← GRASS SWALE

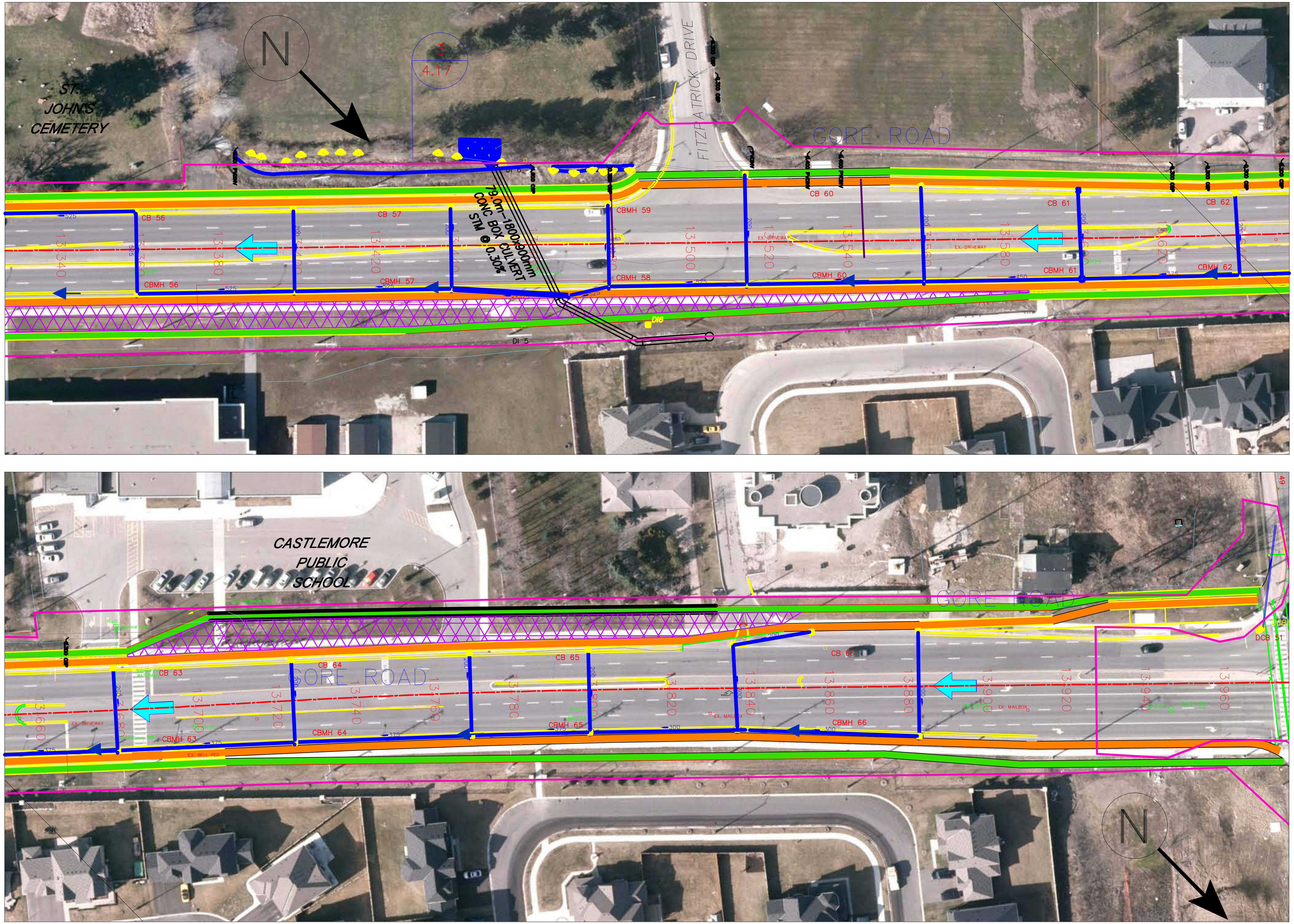
REGION OF PEEL
THE GORE ROAD
(FROM QUEEN STREET TO CASTLEMORE ROAD MUNICIPAL CLASS EA)

PROPOSED DRAINAGE PLAN
FIGURE 3
SHEET 5 OF 7

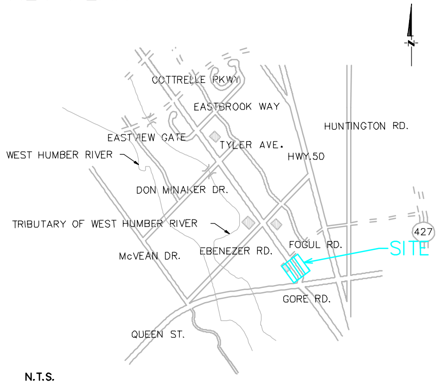
SCALE

0m 10m 20m 30m 40m 50m

AECOM



KEY PLAN



LEGEND

- APPROXIMATE CATCHMENT BOUNDARY
- 🟩 PROPOSED SIDEWALK
- 🟧 PROPOSED CYCLE TRACK
- OVERLAND FLOW DIRECTION
- 1 / 3.17 CATCHMENT ID AREA (ha)
- ▨ BIORETENTION AREA
- ☐ EXISTING CB
- EXISTING STORM SEWER
- GRASS SWALE

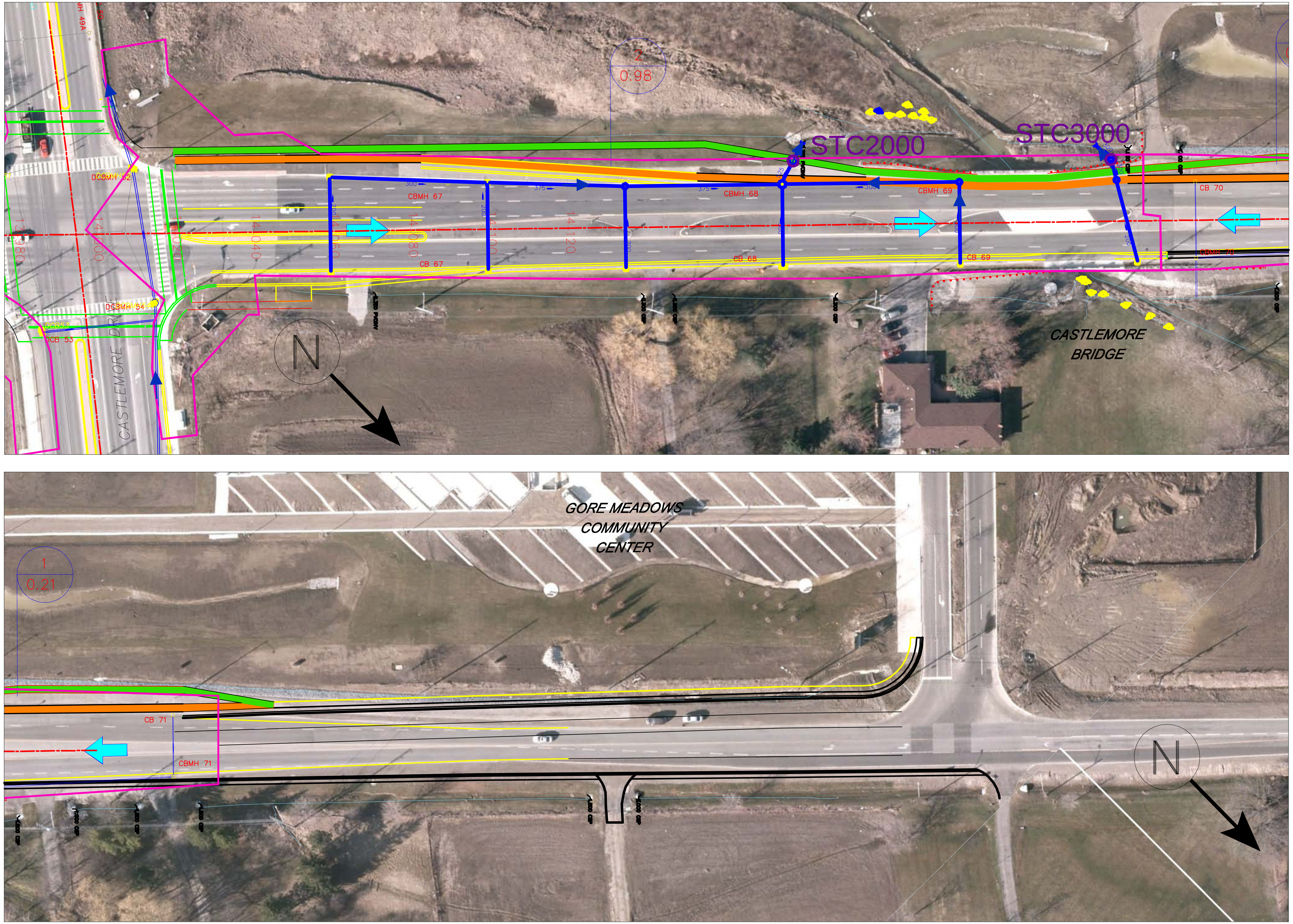
REGION OF PEEL
THE GORE ROAD
(FROM QUEEN STREET TO CASTLEMORE ROAD MUNICIPAL CLASS EA)

PROPOSED DRAINAGE PLAN
FIGURE 3
SHEET 6 OF 7

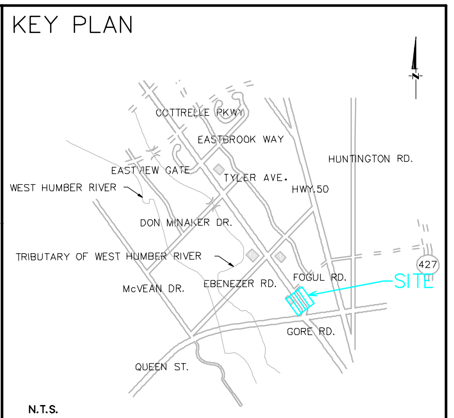
SCALE

0m 10m 20m 30m 40m 50m

AECOM



KEY PLAN



LEGEND

- APPROXIMATE CATCHMENT BOUNDARY
- 🟩 PROPOSED SIDEWALK
- 🟧 PROPOSED CYCLE TRACK
- ⇦ OVERLAND FLOW DIRECTION
- ① 3.17 CATCHMENT ID AREA (ha)
- ▨ PROPOSED BIORETENTION AREA
- ☐ EXISTING CB
- ← EXISTING STORM SEWER
- ← GRASS SWALE

REGION OF PEEL
THE GORE ROAD
(FROM QUEEN STREET TO CASTLEMORE ROAD MUNICIPAL CLASS EA)

PROPOSED DRAINAGE PLAN
FIGURE 3
SHEET 7 OF 7

SCALE

0m 10m 20m 30m 40m 50m

AECOM

Appendix A

Hydrologic Modeling Output

```
===========================================================================================================
==

       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                   *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\VH Suite 3.0\VO2\voin.dat



  Output  filename: C:\Users\khanj2\AppData\Local\Temp\f21a60dc-ba00-4287-a196-49531b8678fb\Scenario.out



  Summary filename: C:\Users\khanj2\AppData\Local\Temp\f21a60dc-ba00-4287-a196-49531b8678fb\Scenario.sum





DATE: 06/09/2016                           TIME: 03:30:54

USER:


                Existing Conditions
COMMENTS: ___________________________________________________________


---------------------------------------------------------------------------------------------------------
--
  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\d99491f1
| Ptotal= 25.00 mm |    Comments: 25mm/4hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.17    2.07 |  1.17    5.70 |  2.17    5.19 |  3.17    2.80
                 0.33    2.27 |  1.33   10.78 |  2.33    4.47 |  3.33    2.62
                 0.50    2.52 |  1.50   50.21 |  2.50    3.95 |  3.50    2.48
                 0.67    2.88 |  1.67   13.37 |  2.67    3.56 |  3.67    2.35
                 0.83    3.38 |  1.83    8.29 |  2.83    3.25 |  3.83    2.23
                 1.00    4.18 |  2.00    6.30 |  3.00    3.01 |  4.00    2.14

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
```

```
                                         Existing
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21        12.63
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.12 (ii)   19.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.51         0.11          1.541 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.75           1.50
     RUNOFF VOLUME    (mm)=      23.00         9.50          18.55
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.92         0.38           0.74


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************



--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\f52869af
| Ptotal= 36.00 mm |    Comments: 2yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   12.24 |  3.75    5.04 |  5.50    0.72
                 0.50    0.72 |  2.25   12.24 |  4.00    2.88 |  5.75    0.72
                 0.75    0.72 |  2.50   33.12 |  4.25    2.88 |  6.00    0.72
                 1.00    0.72 |  2.75   33.12 |  4.50    1.44 |  6.25    0.72
                 1.25    0.72 |  3.00    9.36 |  4.75    1.44 |
                 1.50    4.32 |  3.25    9.36 |  5.00    0.72 |
                 1.75    4.32 |  3.50    5.04 |  5.25    0.72 |

--------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
```

```
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    4.32 | 3.250    9.36 |  4.83    0.72
                0.167    0.00 | 1.750    4.32 | 3.333    5.04 |  4.92    0.72
                0.250    0.00 | 1.833   12.24 | 3.417    5.04 |  5.00    0.72
                0.333    0.72 | 1.917   12.24 | 3.500    5.04 |  5.08    0.72
                0.417    0.72 | 2.000   12.24 | 3.583    5.04 |  5.17    0.72
                0.500    0.72 | 2.083   12.24 | 3.667    5.04 |  5.25    0.72
                0.583    0.72 | 2.167   12.24 | 3.750    5.04 |  5.33    0.72
                0.667    0.72 | 2.250   12.24 | 3.833    2.88 |  5.42    0.72
                0.750    0.72 | 2.333   33.12 | 3.917    2.88 |  5.50    0.72
                0.833    0.72 | 2.417   33.12 | 4.000    2.88 |  5.58    0.72
                0.917    0.72 | 2.500   33.12 | 4.083    2.88 |  5.67    0.72
                1.000    0.72 | 2.583   33.12 | 4.167    2.88 |  5.75    0.72
                1.083    0.72 | 2.667   33.12 | 4.250    2.88 |  5.83    0.72
                1.167    0.72 | 2.750   33.12 | 4.333    1.44 |  5.92    0.72
                1.250    0.72 | 2.833    9.36 | 4.417    1.44 |  6.00    0.72
                1.333    4.32 | 2.917    9.36 | 4.500    1.44 |  6.08    0.72
                1.417    4.32 | 3.000    9.36 | 4.583    1.44 |  6.17    0.72
                1.500    4.32 | 3.083    9.36 | 4.667    1.44 |  6.25    0.72
                1.583    4.32 | 3.167    9.36 | 4.750    1.44 |

     Max.Eff.Inten.(mm/hr)=      33.12        22.10
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.05 (ii)   17.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.12         0.25          1.336 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.92           2.75
     RUNOFF VOLUME    (mm)=      34.00        18.10          28.75
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.94         0.50           0.80


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   3 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\0ffdedaa
| Ptotal= 47.81 mm |    Comments: 5yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   16.25 |  3.75    6.69 |  5.50    0.96
                 0.50    0.96 |  2.25   16.25 |  4.00    3.82 |  5.75    0.96
                 0.75    0.96 |  2.50   43.98 |  4.25    3.82 |  6.00    0.96
                 1.00    0.96 |  2.75   43.98 |  4.50    1.91 |  6.25    0.96
                 1.25    0.96 |  3.00   12.43 |  4.75    1.91 |
                 1.50    5.74 |  3.25   12.43 |  5.00    0.96 |
```

```
                 1.75    5.74 |  3.50    6.69 |  5.25    0.96 |

-------------------------------------------------------------------------------


--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    5.74 | 3.250   12.43 |  4.83    0.96
                0.167    0.00 | 1.750    5.74 | 3.333    6.69 |  4.92    0.96
                0.250    0.00 | 1.833   16.25 | 3.417    6.69 |  5.00    0.96
                0.333    0.96 | 1.917   16.25 | 3.500    6.69 |  5.08    0.96
                0.417    0.96 | 2.000   16.25 | 3.583    6.69 |  5.17    0.96
                0.500    0.96 | 2.083   16.25 | 3.667    6.69 |  5.25    0.96
                0.583    0.96 | 2.167   16.25 | 3.750    6.69 |  5.33    0.96
                0.667    0.96 | 2.250   16.25 | 3.833    3.82 |  5.42    0.96
                0.750    0.96 | 2.333   43.98 | 3.917    3.82 |  5.50    0.96
                0.833    0.96 | 2.417   43.98 | 4.000    3.82 |  5.58    0.96
                0.917    0.96 | 2.500   43.98 | 4.083    3.82 |  5.67    0.96
                1.000    0.96 | 2.583   43.98 | 4.167    3.82 |  5.75    0.96
                1.083    0.96 | 2.667   43.98 | 4.250    3.82 |  5.83    0.96
                1.167    0.96 | 2.750   43.98 | 4.333    1.91 |  5.92    0.96
                1.250    0.96 | 2.833   12.43 | 4.417    1.91 |  6.00    0.96
                1.333    5.74 | 2.917   12.43 | 4.500    1.91 |  6.08    0.96
                1.417    5.74 | 3.000   12.43 | 4.583    1.91 |  6.17    0.96
                1.500    5.74 | 3.083   12.43 | 4.667    1.91 |  6.25    0.96
                1.583    5.74 | 3.167   12.43 | 4.750    1.91 |

     Max.Eff.Inten.(mm/hr)=      43.98        34.36
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.40 (ii)   14.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.49         0.43          1.903 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      45.81        28.24          40.01
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.96         0.59           0.84


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************



--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\d7b40490
| Ptotal= 55.69 mm |    Comments: 10yr/6hr
--------------------
```

```
                                                Existing
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   18.94 |  3.75    7.80 |  5.50    1.11
                 0.50    1.11 |  2.25   18.94 |  4.00    4.46 |  5.75    1.11
                 0.75    1.11 |  2.50   51.24 |  4.25    4.46 |  6.00    1.11
                 1.00    1.11 |  2.75   51.24 |  4.50    2.23 |  6.25    1.11
                 1.25    1.11 |  3.00   14.48 |  4.75    2.23 |
                 1.50    6.68 |  3.25   14.48 |  5.00    1.11 |
                 1.75    6.68 |  3.50    7.80 |  5.25    1.11 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    6.68 | 3.250   14.48 |  4.83    1.11
                0.167    0.00 | 1.750    6.68 | 3.333    7.80 |  4.92    1.11
                0.250    0.00 | 1.833   18.94 | 3.417    7.80 |  5.00    1.11
                0.333    1.11 | 1.917   18.94 | 3.500    7.80 |  5.08    1.11
                0.417    1.11 | 2.000   18.94 | 3.583    7.80 |  5.17    1.11
                0.500    1.11 | 2.083   18.94 | 3.667    7.80 |  5.25    1.11
                0.583    1.11 | 2.167   18.94 | 3.750    7.80 |  5.33    1.11
                0.667    1.11 | 2.250   18.94 | 3.833    4.46 |  5.42    1.11
                0.750    1.11 | 2.333   51.24 | 3.917    4.46 |  5.50    1.11
                0.833    1.11 | 2.417   51.24 | 4.000    4.46 |  5.58    1.11
                0.917    1.11 | 2.500   51.24 | 4.083    4.46 |  5.67    1.11
                1.000    1.11 | 2.583   51.24 | 4.167    4.46 |  5.75    1.11
                1.083    1.11 | 2.667   51.24 | 4.250    4.46 |  5.83    1.11
                1.167    1.11 | 2.750   51.24 | 4.333    2.23 |  5.92    1.11
                1.250    1.11 | 2.833   14.48 | 4.417    2.23 |  6.00    1.11
                1.333    6.68 | 2.917   14.48 | 4.500    2.23 |  6.08    1.11
                1.417    6.68 | 3.000   14.48 | 4.583    2.23 |  6.17    1.11
                1.500    6.68 | 3.083   14.48 | 4.667    2.23 |  6.25    1.11
                1.583    6.68 | 3.167   14.48 | 4.750    2.23 |

     Max.Eff.Inten.(mm/hr)=      51.24        42.06
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.08 (ii)   13.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.74         0.55          2.271 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      53.69        35.31          47.62
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.96         0.63           0.86


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************
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--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\93ce70aa
| Ptotal= 65.59 mm |    Comments: 25yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   22.30 |  3.75    9.18 |  5.50    1.31
                 0.50    1.31 |  2.25   22.30 |  4.00    5.25 |  5.75    1.31
                 0.75    1.31 |  2.50   60.35 |  4.25    5.25 |  6.00    1.31
                 1.00    1.31 |  2.75   60.35 |  4.50    2.62 |  6.25    1.31
                 1.25    1.31 |  3.00   17.06 |  4.75    2.62 |
                 1.50    7.87 |  3.25   17.06 |  5.00    1.31 |
                 1.75    7.87 |  3.50    9.18 |  5.25    1.31 |

--------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    7.87 | 3.250   17.06 |  4.83    1.31
                0.167    0.00 | 1.750    7.87 | 3.333    9.18 |  4.92    1.31
                0.250    0.00 | 1.833   22.30 | 3.417    9.18 |  5.00    1.31
                0.333    1.31 | 1.917   22.30 | 3.500    9.18 |  5.08    1.31
                0.417    1.31 | 2.000   22.30 | 3.583    9.18 |  5.17    1.31
                0.500    1.31 | 2.083   22.30 | 3.667    9.18 |  5.25    1.31
                0.583    1.31 | 2.167   22.30 | 3.750    9.18 |  5.33    1.31
                0.667    1.31 | 2.250   22.30 | 3.833    5.25 |  5.42    1.31
                0.750    1.31 | 2.333   60.35 | 3.917    5.25 |  5.50    1.31
                0.833    1.31 | 2.417   60.35 | 4.000    5.25 |  5.58    1.31
                0.917    1.31 | 2.500   60.35 | 4.083    5.25 |  5.67    1.31
                1.000    1.31 | 2.583   60.35 | 4.167    5.25 |  5.75    1.31
                1.083    1.31 | 2.667   60.35 | 4.250    5.25 |  5.83    1.31
                1.167    1.31 | 2.750   60.35 | 4.333    2.62 |  5.92    1.31
                1.250    1.31 | 2.833   17.06 | 4.417    2.62 |  6.00    1.31
                1.333    7.87 | 2.917   17.06 | 4.500    2.62 |  6.08    1.31
                1.417    7.87 | 3.000   17.06 | 4.583    2.62 |  6.17    1.31
                1.500    7.87 | 3.083   17.06 | 4.667    2.62 |  6.25    1.31
                1.583    7.87 | 3.167   17.06 | 4.750    2.62 |

     Max.Eff.Inten.(mm/hr)=      60.35        51.72
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.76 (ii)   12.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.05         0.70         2.736 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83          2.75
     RUNOFF VOLUME    (mm)=      63.59        44.40         57.26
     TOTAL RAINFALL   (mm)=      65.59        65.59         65.59
     RUNOFF COEFFICIENT   =       0.97         0.68          0.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\0696e98e
| Ptotal= 73.00 mm |    Comments: 50yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   24.82 |  3.75   10.22 |  5.50    1.46
                 0.50    1.46 |  2.25   24.82 |  4.00    5.84 |  5.75    1.46
                 0.75    1.46 |  2.50   67.16 |  4.25    5.84 |  6.00    1.46
                 1.00    1.46 |  2.75   67.16 |  4.50    2.92 |  6.25    1.46
                 1.25    1.46 |  3.00   18.98 |  4.75    2.92 |
                 1.50    8.76 |  3.25   18.98 |  5.00    1.46 |
                 1.75    8.76 |  3.50   10.22 |  5.25    1.46 |

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--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    8.76 | 3.250   18.98 |  4.83    1.46
                0.167    0.00 | 1.750    8.76 | 3.333   10.22 |  4.92    1.46
                0.250    0.00 | 1.833   24.82 | 3.417   10.22 |  5.00    1.46
                0.333    1.46 | 1.917   24.82 | 3.500   10.22 |  5.08    1.46
                0.417    1.46 | 2.000   24.82 | 3.583   10.22 |  5.17    1.46
                0.500    1.46 | 2.083   24.82 | 3.667   10.22 |  5.25    1.46
                0.583    1.46 | 2.167   24.82 | 3.750   10.22 |  5.33    1.46
                0.667    1.46 | 2.250   24.82 | 3.833    5.84 |  5.42    1.46
                0.750    1.46 | 2.333   67.16 | 3.917    5.84 |  5.50    1.46
                0.833    1.46 | 2.417   67.16 | 4.000    5.84 |  5.58    1.46
                0.917    1.46 | 2.500   67.16 | 4.083    5.84 |  5.67    1.46
                1.000    1.46 | 2.583   67.16 | 4.167    5.84 |  5.75    1.46
                1.083    1.46 | 2.667   67.16 | 4.250    5.84 |  5.83    1.46
                1.167    1.46 | 2.750   67.16 | 4.333    2.92 |  5.92    1.46
                1.250    1.46 | 2.833   18.98 | 4.417    2.92 |  6.00    1.46
                1.333    8.76 | 2.917   18.98 | 4.500    2.92 |  6.08    1.46
                1.417    8.76 | 3.000   18.98 | 4.583    2.92 |  6.17    1.46
                1.500    8.76 | 3.083   18.98 | 4.667    2.92 |  6.25    1.46
                1.583    8.76 | 3.167   18.98 | 4.750    2.92 |

     Max.Eff.Inten.(mm/hr)=      67.16        58.92
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.56 (ii)   12.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09
                                                           *TOTALS*
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                                                Existing
     PEAK FLOW       (cms)=       2.28         0.81          3.086 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      71.00        51.33          64.51
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.97         0.70           0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   7 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              f21a60dc-ba00-4287-a196-49531b8678fb\8930ea97
| Ptotal= 80.31 mm |    Comments: 100yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   27.30 |  3.75   11.24 |  5.50    1.61
                 0.50    1.61 |  2.25   27.30 |  4.00    6.42 |  5.75    1.61
                 0.75    1.61 |  2.50   73.88 |  4.25    6.42 |  6.00    1.61
                 1.00    1.61 |  2.75   73.88 |  4.50    3.21 |  6.25    1.61
                 1.25    1.61 |  3.00   20.88 |  4.75    3.21 |
                 1.50    9.64 |  3.25   20.88 |  5.00    1.61 |
                 1.75    9.64 |  3.50   11.24 |  5.25    1.61 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7602) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.23         6.02
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    9.64 | 3.250   20.88 |  4.83    1.61
                0.167    0.00 | 1.750    9.64 | 3.333   11.24 |  4.92    1.61
                0.250    0.00 | 1.833   27.30 | 3.417   11.24 |  5.00    1.61
                0.333    1.61 | 1.917   27.30 | 3.500   11.24 |  5.08    1.61
                0.417    1.61 | 2.000   27.30 | 3.583   11.24 |  5.17    1.61
                0.500    1.61 | 2.083   27.30 | 3.667   11.24 |  5.25    1.61
                0.583    1.61 | 2.167   27.30 | 3.750   11.24 |  5.33    1.61
                0.667    1.61 | 2.250   27.30 | 3.833    6.42 |  5.42    1.61
                0.750    1.61 | 2.333   73.88 | 3.917    6.42 |  5.50    1.61
                0.833    1.61 | 2.417   73.88 | 4.000    6.42 |  5.58    1.61
                0.917    1.61 | 2.500   73.88 | 4.083    6.42 |  5.67    1.61
                1.000    1.61 | 2.583   73.88 | 4.167    6.42 |  5.75    1.61
                1.083    1.61 | 2.667   73.88 | 4.250    6.42 |  5.83    1.61
                1.167    1.61 | 2.750   73.88 | 4.333    3.21 |  5.92    1.61
                1.250    1.61 | 2.833   20.88 | 4.417    3.21 |  6.00    1.61
                1.333    9.64 | 2.917   20.88 | 4.500    3.21 |  6.08    1.61
                1.417    9.64 | 3.000   20.88 | 4.583    3.21 |  6.17    1.61
```

```
                1.500    9.64 | 3.083   20.88 | 4.667    3.21 |  6.25    1.61
                1.583    9.64 | 3.167   20.88 | 4.750    3.21 |

     Max.Eff.Inten.(mm/hr)=      73.88        66.01
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.39 (ii)   11.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09
                                                              *TOTALS*
     PEAK FLOW       (cms)=       2.51         0.92          3.432 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75           2.75
     RUNOFF VOLUME    (mm)=      78.31        58.23          71.68
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.98         0.73           0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                   *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\VH Suite 3.0\VO2\voin.dat

  Output  filename: C:\Users\khanj2\AppData\Local\Temp\55342470-c983-4271-84af-a289c66f9715\Scenario.out

  Summary filename: C:\Users\khanj2\AppData\Local\Temp\55342470-c983-4271-84af-a289c66f9715\Scenario.sum



DATE: 06/09/2016                          TIME: 03:31:15

USER:



COMMENTS: ____________________________________________________________


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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              55342470-c983-4271-84af-a289c66f9715\d99491f1
| Ptotal= 25.00 mm |    Comments: 25mm/4hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.17    2.07 |  1.17    5.70 |  2.17    5.19 |  3.17    2.80
                 0.33    2.27 |  1.33   10.78 |  2.33    4.47 |  3.33    2.62
                 0.50    2.52 |  1.50   50.21 |  2.50    3.95 |  3.50    2.48
                 0.67    2.88 |  1.67   13.37 |  2.67    3.56 |  3.67    2.35
                 0.83    3.38 |  1.83    8.29 |  2.83    3.25 |  3.83    2.23
                 1.00    4.18 |  2.00    6.30 |  3.00    3.01 |  4.00    2.14

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--------------------
| CALIB            |
| STANDHYD  (7620) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.05         6.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250
```

```
         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
                0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
                0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
                0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
                0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
                0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
                0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
                0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
                0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
                0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
                0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
                1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21        12.63
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.12 (ii)   19.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.49         0.11          1.520 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.75           1.50
     RUNOFF VOLUME    (mm)=      23.00         9.50          18.41
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.92         0.38           0.74


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              55342470-c983-4271-84af-a289c66f9715\f52869af
| Ptotal= 36.00 mm |    Comments: 2yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   12.24 |  3.75    5.04 |  5.50    0.72
                 0.50    0.72 |  2.25   12.24 |  4.00    2.88 |  5.75    0.72
                 0.75    0.72 |  2.50   33.12 |  4.25    2.88 |  6.00    0.72
                 1.00    0.72 |  2.75   33.12 |  4.50    1.44 |  6.25    0.72
                 1.25    0.72 |  3.00    9.36 |  4.75    1.44 |
                 1.50    4.32 |  3.25    9.36 |  5.00    0.72 |
                 1.75    4.32 |  3.50    5.04 |  5.25    0.72 |

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--------------------
| CALIB            |
| STANDHYD  (7620) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.05         6.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
```

```
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                             ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 1.667    4.32 | 3.250    9.36 |  4.83    0.72
                 0.167    0.00 | 1.750    4.32 | 3.333    5.04 |  4.92    0.72
                 0.250    0.00 | 1.833   12.24 | 3.417    5.04 |  5.00    0.72
                 0.333    0.72 | 1.917   12.24 | 3.500    5.04 |  5.08    0.72
                 0.417    0.72 | 2.000   12.24 | 3.583    5.04 |  5.17    0.72
                 0.500    0.72 | 2.083   12.24 | 3.667    5.04 |  5.25    0.72
                 0.583    0.72 | 2.167   12.24 | 3.750    5.04 |  5.33    0.72
                 0.667    0.72 | 2.250   12.24 | 3.833    2.88 |  5.42    0.72
                 0.750    0.72 | 2.333   33.12 | 3.917    2.88 |  5.50    0.72
                 0.833    0.72 | 2.417   33.12 | 4.000    2.88 |  5.58    0.72
                 0.917    0.72 | 2.500   33.12 | 4.083    2.88 |  5.67    0.72
                 1.000    0.72 | 2.583   33.12 | 4.167    2.88 |  5.75    0.72
                 1.083    0.72 | 2.667   33.12 | 4.250    2.88 |  5.83    0.72
                 1.167    0.72 | 2.750   33.12 | 4.333    1.44 |  5.92    0.72
                 1.250    0.72 | 2.833    9.36 | 4.417    1.44 |  6.00    0.72
                 1.333    4.32 | 2.917    9.36 | 4.500    1.44 |  6.08    0.72
                 1.417    4.32 | 3.000    9.36 | 4.583    1.44 |  6.17    0.72
                 1.500    4.32 | 3.083    9.36 | 4.667    1.44 |  6.25    0.72
                 1.583    4.32 | 3.167    9.36 | 4.750    1.44 |

     Max.Eff.Inten.(mm/hr)=      33.12        22.10
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.05 (ii)   17.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06
                                                              *TOTALS*
     PEAK FLOW       (cms)=       1.10         0.26          1.326 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.92           2.75
     RUNOFF VOLUME    (mm)=      34.00        18.10          28.59
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.94         0.50           0.79


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   3 **
  ****************************



--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              55342470-c983-4271-84af-a289c66f9715\0ffdedaa
| Ptotal= 47.81 mm |    Comments: 5yr/6hr
--------------------
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.25    0.00 |  2.00   16.25 |  3.75    6.69 |  5.50    0.96
                  0.50    0.96 |  2.25   16.25 |  4.00    3.82 |  5.75    0.96
                  0.75    0.96 |  2.50   43.98 |  4.25    3.82 |  6.00    0.96
                  1.00    0.96 |  2.75   43.98 |  4.50    1.91 |  6.25    0.96
                  1.25    0.96 |  3.00   12.43 |  4.75    1.91 |
                  1.50    5.74 |  3.25   12.43 |  5.00    0.96 |
                  1.75    5.74 |  3.50    6.69 |  5.25    0.96 |

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| CALIB            |
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```
| STANDHYD  (7620) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.05         6.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    5.74 | 3.250   12.43 |  4.83    0.96
                0.167    0.00 | 1.750    5.74 | 3.333    6.69 |  4.92    0.96
                0.250    0.00 | 1.833   16.25 | 3.417    6.69 |  5.00    0.96
                0.333    0.96 | 1.917   16.25 | 3.500    6.69 |  5.08    0.96
                0.417    0.96 | 2.000   16.25 | 3.583    6.69 |  5.17    0.96
                0.500    0.96 | 2.083   16.25 | 3.667    6.69 |  5.25    0.96
                0.583    0.96 | 2.167   16.25 | 3.750    6.69 |  5.33    0.96
                0.667    0.96 | 2.250   16.25 | 3.833    3.82 |  5.42    0.96
                0.750    0.96 | 2.333   43.98 | 3.917    3.82 |  5.50    0.96
                0.833    0.96 | 2.417   43.98 | 4.000    3.82 |  5.58    0.96
                0.917    0.96 | 2.500   43.98 | 4.083    3.82 |  5.67    0.96
                1.000    0.96 | 2.583   43.98 | 4.167    3.82 |  5.75    0.96
                1.083    0.96 | 2.667   43.98 | 4.250    3.82 |  5.83    0.96
                1.167    0.96 | 2.750   43.98 | 4.333    1.91 |  5.92    0.96
                1.250    0.96 | 2.833   12.43 | 4.417    1.91 |  6.00    0.96
                1.333    5.74 | 2.917   12.43 | 4.500    1.91 |  6.08    0.96
                1.417    5.74 | 3.000   12.43 | 4.583    1.91 |  6.17    0.96
                1.500    5.74 | 3.083   12.43 | 4.667    1.91 |  6.25    0.96
                1.583    5.74 | 3.167   12.43 | 4.750    1.91 |

     Max.Eff.Inten.(mm/hr)=      43.98        34.36
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.40 (ii)   14.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.47         0.44          1.893 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      45.81        28.24          39.84
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.96         0.59           0.83


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              55342470-c983-4271-84af-a289c66f9715\d7b40490
| Ptotal= 55.69 mm |    Comments: 10yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   18.94 |  3.75    7.80 |  5.50    1.11
                 0.50    1.11 |  2.25   18.94 |  4.00    4.46 |  5.75    1.11
                 0.75    1.11 |  2.50   51.24 |  4.25    4.46 |  6.00    1.11
                 1.00    1.11 |  2.75   51.24 |  4.50    2.23 |  6.25    1.11
```

```
                 1.25    1.11 |  3.00   14.48 |  4.75    2.23 |
                 1.50    6.68 |  3.25   14.48 |  5.00    1.11 |
                 1.75    6.68 |  3.50    7.80 |  5.25    1.11 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7620) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.05         6.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    6.68 | 3.250   14.48 |  4.83    1.11
                0.167    0.00 | 1.750    6.68 | 3.333    7.80 |  4.92    1.11
                0.250    0.00 | 1.833   18.94 | 3.417    7.80 |  5.00    1.11
                0.333    1.11 | 1.917   18.94 | 3.500    7.80 |  5.08    1.11
                0.417    1.11 | 2.000   18.94 | 3.583    7.80 |  5.17    1.11
                0.500    1.11 | 2.083   18.94 | 3.667    7.80 |  5.25    1.11
                0.583    1.11 | 2.167   18.94 | 3.750    7.80 |  5.33    1.11
                0.667    1.11 | 2.250   18.94 | 3.833    4.46 |  5.42    1.11
                0.750    1.11 | 2.333   51.24 | 3.917    4.46 |  5.50    1.11
                0.833    1.11 | 2.417   51.24 | 4.000    4.46 |  5.58    1.11
                0.917    1.11 | 2.500   51.24 | 4.083    4.46 |  5.67    1.11
                1.000    1.11 | 2.583   51.24 | 4.167    4.46 |  5.75    1.11
                1.083    1.11 | 2.667   51.24 | 4.250    4.46 |  5.83    1.11
                1.167    1.11 | 2.750   51.24 | 4.333    2.23 |  5.92    1.11
                1.250    1.11 | 2.833   14.48 | 4.417    2.23 |  6.00    1.11
                1.333    6.68 | 2.917   14.48 | 4.500    2.23 |  6.08    1.11
                1.417    6.68 | 3.000   14.48 | 4.583    2.23 |  6.17    1.11
                1.500    6.68 | 3.083   14.48 | 4.667    2.23 |  6.25    1.11
                1.583    6.68 | 3.167   14.48 | 4.750    2.23 |

     Max.Eff.Inten.(mm/hr)=      51.24        42.06
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.08 (ii)   13.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.71         0.56          2.261 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      53.69        35.31          47.44
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.96         0.63           0.85


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              55342470-c983-4271-84af-a289c66f9715\93ce70aa
```

```
| Ptotal= 65.59 mm |    Comments: 25yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   22.30 |  3.75    9.18 |  5.50    1.31
                 0.50    1.31 |  2.25   22.30 |  4.00    5.25 |  5.75    1.31
                 0.75    1.31 |  2.50   60.35 |  4.25    5.25 |  6.00    1.31
                 1.00    1.31 |  2.75   60.35 |  4.50    2.62 |  6.25    1.31
                 1.25    1.31 |  3.00   17.06 |  4.75    2.62 |
                 1.50    7.87 |  3.25   17.06 |  5.00    1.31 |
                 1.75    7.87 |  3.50    9.18 |  5.25    1.31 |

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--------------------
| CALIB            |
| STANDHYD  (7620) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.05         6.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    7.87 | 3.250   17.06 |  4.83    1.31
                0.167    0.00 | 1.750    7.87 | 3.333    9.18 |  4.92    1.31
                0.250    0.00 | 1.833   22.30 | 3.417    9.18 |  5.00    1.31
                0.333    1.31 | 1.917   22.30 | 3.500    9.18 |  5.08    1.31
                0.417    1.31 | 2.000   22.30 | 3.583    9.18 |  5.17    1.31
                0.500    1.31 | 2.083   22.30 | 3.667    9.18 |  5.25    1.31
                0.583    1.31 | 2.167   22.30 | 3.750    9.18 |  5.33    1.31
                0.667    1.31 | 2.250   22.30 | 3.833    5.25 |  5.42    1.31
                0.750    1.31 | 2.333   60.35 | 3.917    5.25 |  5.50    1.31
                0.833    1.31 | 2.417   60.35 | 4.000    5.25 |  5.58    1.31
                0.917    1.31 | 2.500   60.35 | 4.083    5.25 |  5.67    1.31
                1.000    1.31 | 2.583   60.35 | 4.167    5.25 |  5.75    1.31
                1.083    1.31 | 2.667   60.35 | 4.250    5.25 |  5.83    1.31
                1.167    1.31 | 2.750   60.35 | 4.333    2.62 |  5.92    1.31
                1.250    1.31 | 2.833   17.06 | 4.417    2.62 |  6.00    1.31
                1.333    7.87 | 2.917   17.06 | 4.500    2.62 |  6.08    1.31
                1.417    7.87 | 3.000   17.06 | 4.583    2.62 |  6.17    1.31
                1.500    7.87 | 3.083   17.06 | 4.667    2.62 |  6.25    1.31
                1.583    7.87 | 3.167   17.06 | 4.750    2.62 |

     Max.Eff.Inten.(mm/hr)=      60.35        51.72
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.76 (ii)   12.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       2.02         0.72          2.726 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      63.59        44.40          57.07
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.97         0.68           0.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************


 --------------------
 |    READ STORM    |    Filename: C:\Users\khanj2\AppD
 |                  |              ata\Local\Temp\
 |                  |              55342470-c983-4271-84af-a289c66f9715\0696e98e
 | Ptotal= 73.00 mm |    Comments: 50yr/6hr
 --------------------
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.25    0.00 |  2.00   24.82 |  3.75   10.22 |  5.50    1.46
                  0.50    1.46 |  2.25   24.82 |  4.00    5.84 |  5.75    1.46
                  0.75    1.46 |  2.50   67.16 |  4.25    5.84 |  6.00    1.46
                  1.00    1.46 |  2.75   67.16 |  4.50    2.92 |  6.25    1.46
                  1.25    1.46 |  3.00   18.98 |  4.75    2.92 |
                  1.50    8.76 |  3.25   18.98 |  5.00    1.46 |
                  1.75    8.76 |  3.50   10.22 |  5.25    1.46 |

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 --------------------
 | CALIB            |
 | STANDHYD  (7620) |   Area    (ha)=  18.25
 |ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
 --------------------
                               IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      12.05         6.20
      Dep. Storage     (mm)=       2.00         5.00
      Average Slope     (%)=       3.00         3.00
      Length            (m)=     348.81        40.00
      Mannings n          =      0.013        0.250

          NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    0.00 | 1.667    8.76 | 3.250   18.98 |  4.83    1.46
                 0.167    0.00 | 1.750    8.76 | 3.333   10.22 |  4.92    1.46
                 0.250    0.00 | 1.833   24.82 | 3.417   10.22 |  5.00    1.46
                 0.333    1.46 | 1.917   24.82 | 3.500   10.22 |  5.08    1.46
                 0.417    1.46 | 2.000   24.82 | 3.583   10.22 |  5.17    1.46
                 0.500    1.46 | 2.083   24.82 | 3.667   10.22 |  5.25    1.46
                 0.583    1.46 | 2.167   24.82 | 3.750   10.22 |  5.33    1.46
                 0.667    1.46 | 2.250   24.82 | 3.833    5.84 |  5.42    1.46
                 0.750    1.46 | 2.333   67.16 | 3.917    5.84 |  5.50    1.46
                 0.833    1.46 | 2.417   67.16 | 4.000    5.84 |  5.58    1.46
                 0.917    1.46 | 2.500   67.16 | 4.083    5.84 |  5.67    1.46
                 1.000    1.46 | 2.583   67.16 | 4.167    5.84 |  5.75    1.46
                 1.083    1.46 | 2.667   67.16 | 4.250    5.84 |  5.83    1.46
                 1.167    1.46 | 2.750   67.16 | 4.333    2.92 |  5.92    1.46
                 1.250    1.46 | 2.833   18.98 | 4.417    2.92 |  6.00    1.46
                 1.333    8.76 | 2.917   18.98 | 4.500    2.92 |  6.08    1.46
                 1.417    8.76 | 3.000   18.98 | 4.583    2.92 |  6.17    1.46
                 1.500    8.76 | 3.083   18.98 | 4.667    2.92 |  6.25    1.46
                 1.583    8.76 | 3.167   18.98 | 4.750    2.92 |

      Max.Eff.Inten.(mm/hr)=      67.16        58.92
                 over (min)        5.00        15.00
      Storage Coeff.  (min)=       4.56 (ii)   12.28 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.23         0.09
                                                              *TOTALS*
      PEAK FLOW       (cms)=       2.25         0.83          3.076 (iii)
      TIME TO PEAK    (hrs)=       2.75         2.83           2.75
      RUNOFF VOLUME    (mm)=      71.00        51.33          64.31
      TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
      RUNOFF COEFFICIENT   =       0.97         0.70           0.88
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   7 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              55342470-c983-4271-84af-a289c66f9715\8930ea97
| Ptotal= 80.31 mm |    Comments: 100yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   27.30 |  3.75   11.24 |  5.50    1.61
                 0.50    1.61 |  2.25   27.30 |  4.00    6.42 |  5.75    1.61
                 0.75    1.61 |  2.50   73.88 |  4.25    6.42 |  6.00    1.61
                 1.00    1.61 |  2.75   73.88 |  4.50    3.21 |  6.25    1.61
                 1.25    1.61 |  3.00   20.88 |  4.75    3.21 |
                 1.50    9.64 |  3.25   20.88 |  5.00    1.61 |
                 1.75    9.64 |  3.50   11.24 |  5.25    1.61 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7620) |   Area    (ha)=  18.25
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=  66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.05         6.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     348.81        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    9.64 | 3.250   20.88 |  4.83    1.61
                0.167    0.00 | 1.750    9.64 | 3.333   11.24 |  4.92    1.61
                0.250    0.00 | 1.833   27.30 | 3.417   11.24 |  5.00    1.61
                0.333    1.61 | 1.917   27.30 | 3.500   11.24 |  5.08    1.61
                0.417    1.61 | 2.000   27.30 | 3.583   11.24 |  5.17    1.61
                0.500    1.61 | 2.083   27.30 | 3.667   11.24 |  5.25    1.61
                0.583    1.61 | 2.167   27.30 | 3.750   11.24 |  5.33    1.61
                0.667    1.61 | 2.250   27.30 | 3.833    6.42 |  5.42    1.61
                0.750    1.61 | 2.333   73.88 | 3.917    6.42 |  5.50    1.61
                0.833    1.61 | 2.417   73.88 | 4.000    6.42 |  5.58    1.61
                0.917    1.61 | 2.500   73.88 | 4.083    6.42 |  5.67    1.61
                1.000    1.61 | 2.583   73.88 | 4.167    6.42 |  5.75    1.61
                1.083    1.61 | 2.667   73.88 | 4.250    6.42 |  5.83    1.61
                1.167    1.61 | 2.750   73.88 | 4.333    3.21 |  5.92    1.61
                1.250    1.61 | 2.833   20.88 | 4.417    3.21 |  6.00    1.61
                1.333    9.64 | 2.917   20.88 | 4.500    3.21 |  6.08    1.61
                1.417    9.64 | 3.000   20.88 | 4.583    3.21 |  6.17    1.61
                1.500    9.64 | 3.083   20.88 | 4.667    3.21 |  6.25    1.61
                1.583    9.64 | 3.167   20.88 | 4.750    3.21 |

     Max.Eff.Inten.(mm/hr)=      73.88        66.01
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.39 (ii)   11.77 (ii)
```

```
                                       Prop -Without Bioretention
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09
                                                       *TOTALS*
     PEAK FLOW       (cms)=       2.47         0.95          3.422 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75           2.75
     RUNOFF VOLUME    (mm)=      78.31        58.23          71.48
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.98         0.73           0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  92.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                   *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\VH Suite 3.0\VO2\voin.dat

  Output  filename: C:\Users\khanj2\AppData\Local\Temp\745dcd59-fc6e-458f-bd9a-a1e980c67c10\Scenario.out

  Summary filename: C:\Users\khanj2\AppData\Local\Temp\745dcd59-fc6e-458f-bd9a-a1e980c67c10\Scenario.sum



DATE: 06/09/2016                          TIME: 03:31:29

USER:



COMMENTS: ____________________________________________________________


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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\d99491f1
| Ptotal= 25.00 mm |    Comments: 25mm/4hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.17    2.07 |  1.17    5.70 |  2.17    5.19 |  3.17    2.80
                 0.33    2.27 |  1.33   10.78 |  2.33    4.47 |  3.33    2.62
                 0.50    2.52 |  1.50   50.21 |  2.50    3.95 |  3.50    2.48
                 0.67    2.88 |  1.67   13.37 |  2.67    3.56 |  3.67    2.35
                 0.83    3.38 |  1.83    8.29 |  2.83    3.25 |  3.83    2.23
                 1.00    4.18 |  2.00    6.30 |  3.00    3.01 |  4.00    2.14

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--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n          =      0.013        0.250
```

```
         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                       ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.07 | 1.083    5.70 | 2.083    5.19 |  3.08    2.80
               0.167    2.07 | 1.167    5.70 | 2.167    5.19 |  3.17    2.80
               0.250    2.27 | 1.250   10.78 | 2.250    4.47 |  3.25    2.62
               0.333    2.27 | 1.333   10.78 | 2.333    4.47 |  3.33    2.62
               0.417    2.52 | 1.417   50.21 | 2.417    3.95 |  3.42    2.48
               0.500    2.52 | 1.500   50.21 | 2.500    3.95 |  3.50    2.48
               0.583    2.88 | 1.583   13.37 | 2.583    3.56 |  3.58    2.35
               0.667    2.88 | 1.667   13.37 | 2.667    3.56 |  3.67    2.35
               0.750    3.38 | 1.750    8.29 | 2.750    3.25 |  3.75    2.23
               0.833    3.38 | 1.833    8.29 | 2.833    3.25 |  3.83    2.23
               0.917    4.18 | 1.917    6.30 | 2.917    3.01 |  3.92    2.14
               1.000    4.18 | 2.000    6.30 | 3.000    3.01 |  4.00    2.14

     Max.Eff.Inten.(mm/hr)=      50.21        13.91
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.65 (ii)   18.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.17         0.08          1.197 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.75           1.50
     RUNOFF VOLUME    (mm)=      23.00        10.23          19.17
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.92         0.41           0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      50.21        11.70
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.47 (ii)   18.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.26         0.06
                                                           *TOTALS*
     PEAK FLOW       (cms)=       0.20         0.04          0.212 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.75           1.50
     RUNOFF VOLUME    (mm)=      23.00         5.69          10.88
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.92         0.23           0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
-------------------------------------------------------------------------------

--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   1.197     1.50    19.17
        + ID2= 2 (7615):     4.99   0.212     1.50    10.88
          ==================================================
          ID = 3 (7616):    18.25   1.408     1.50    16.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************



--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\f52869af
| Ptotal= 36.00 mm |    Comments: 2yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   12.24 |  3.75    5.04 |  5.50    0.72
                 0.50    0.72 |  2.25   12.24 |  4.00    2.88 |  5.75    0.72
                 0.75    0.72 |  2.50   33.12 |  4.25    2.88 |  6.00    0.72
                 1.00    0.72 |  2.75   33.12 |  4.50    1.44 |  6.25    0.72
                 1.25    0.72 |  3.00    9.36 |  4.75    1.44 |
                 1.50    4.32 |  3.25    9.36 |  5.00    0.72 |
                 1.75    4.32 |  3.50    5.04 |  5.25    0.72 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    4.32 | 3.250    9.36 |  4.83    0.72
                0.167    0.00 | 1.750    4.32 | 3.333    5.04 |  4.92    0.72
                0.250    0.00 | 1.833   12.24 | 3.417    5.04 |  5.00    0.72
                0.333    0.72 | 1.917   12.24 | 3.500    5.04 |  5.08    0.72
                0.417    0.72 | 2.000   12.24 | 3.583    5.04 |  5.17    0.72
                0.500    0.72 | 2.083   12.24 | 3.667    5.04 |  5.25    0.72
                0.583    0.72 | 2.167   12.24 | 3.750    5.04 |  5.33    0.72
                0.667    0.72 | 2.250   12.24 | 3.833    2.88 |  5.42    0.72
                0.750    0.72 | 2.333   33.12 | 3.917    2.88 |  5.50    0.72
                0.833    0.72 | 2.417   33.12 | 4.000    2.88 |  5.58    0.72
                0.917    0.72 | 2.500   33.12 | 4.083    2.88 |  5.67    0.72
                1.000    0.72 | 2.583   33.12 | 4.167    2.88 |  5.75    0.72
                1.083    0.72 | 2.667   33.12 | 4.250    2.88 |  5.83    0.72
                1.167    0.72 | 2.750   33.12 | 4.333    1.44 |  5.92    0.72
                1.250    0.72 | 2.833    9.36 | 4.417    1.44 |  6.00    0.72
                1.333    4.32 | 2.917    9.36 | 4.500    1.44 |  6.08    0.72
                1.417    4.32 | 3.000    9.36 | 4.583    1.44 |  6.17    0.72
                1.500    4.32 | 3.083    9.36 | 4.667    1.44 |  6.25    0.72
```

```
                                        Prop -With Bioretention
               1.583    4.32 | 3.167    9.36 | 4.750    1.44 |

     Max.Eff.Inten.(mm/hr)=      33.12        23.40
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.50 (ii)   16.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06
                                                           *TOTALS*
     PEAK FLOW       (cms)=       0.85         0.18          1.009 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.92           2.75
     RUNOFF VOLUME    (mm)=      34.00        19.17          29.55
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.94         0.53           0.82


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        21.16
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.10 (ii)   15.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.07
                                                           *TOTALS*
     PEAK FLOW       (cms)=       0.14         0.09          0.214 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.92           2.75
     RUNOFF VOLUME    (mm)=      34.00        11.37          18.16
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.94         0.32           0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   1.009     2.75    29.55
        + ID2= 2 (7615):     4.99   0.214     2.75    18.16
          ==================================================
          ID = 3 (7616):    18.25   1.223     2.75    26.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   3 **
  ****************************
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\0ffdedaa
| Ptotal= 47.81 mm |    Comments: 5yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   16.25 |  3.75    6.69 |  5.50    0.96
                 0.50    0.96 |  2.25   16.25 |  4.00    3.82 |  5.75    0.96
                 0.75    0.96 |  2.50   43.98 |  4.25    3.82 |  6.00    0.96
                 1.00    0.96 |  2.75   43.98 |  4.50    1.91 |  6.25    0.96
                 1.25    0.96 |  3.00   12.43 |  4.75    1.91 |
                 1.50    5.74 |  3.25   12.43 |  5.00    0.96 |
                 1.75    5.74 |  3.50    6.69 |  5.25    0.96 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    5.74 | 3.250   12.43 |  4.83    0.96
                0.167    0.00 | 1.750    5.74 | 3.333    6.69 |  4.92    0.96
                0.250    0.00 | 1.833   16.25 | 3.417    6.69 |  5.00    0.96
                0.333    0.96 | 1.917   16.25 | 3.500    6.69 |  5.08    0.96
                0.417    0.96 | 2.000   16.25 | 3.583    6.69 |  5.17    0.96
                0.500    0.96 | 2.083   16.25 | 3.667    6.69 |  5.25    0.96
                0.583    0.96 | 2.167   16.25 | 3.750    6.69 |  5.33    0.96
                0.667    0.96 | 2.250   16.25 | 3.833    3.82 |  5.42    0.96
                0.750    0.96 | 2.333   43.98 | 3.917    3.82 |  5.50    0.96
                0.833    0.96 | 2.417   43.98 | 4.000    3.82 |  5.58    0.96
                0.917    0.96 | 2.500   43.98 | 4.083    3.82 |  5.67    0.96
                1.000    0.96 | 2.583   43.98 | 4.167    3.82 |  5.75    0.96
                1.083    0.96 | 2.667   43.98 | 4.250    3.82 |  5.83    0.96
                1.167    0.96 | 2.750   43.98 | 4.333    1.91 |  5.92    0.96
                1.250    0.96 | 2.833   12.43 | 4.417    1.91 |  6.00    0.96
                1.333    5.74 | 2.917   12.43 | 4.500    1.91 |  6.08    0.96
                1.417    5.74 | 3.000   12.43 | 4.583    1.91 |  6.17    0.96
                1.500    5.74 | 3.083   12.43 | 4.667    1.91 |  6.25    0.96
                1.583    5.74 | 3.167   12.43 | 4.750    1.91 |

     Max.Eff.Inten.(mm/hr)=      43.98        35.77
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.91 (ii)   14.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.13         0.30          1.425 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      45.81        29.59          40.94
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.96         0.62           0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        36.03
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.66 (ii)   13.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       0.18         0.16          0.339 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      45.81        18.69          26.82
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.96         0.39           0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   1.425     2.75    40.94
        + ID2= 2 (7615):     4.99   0.339     2.75    26.82
          ==================================================
          ID = 3 (7616):    18.25   1.764     2.75    37.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\d7b40490
| Ptotal= 55.69 mm |    Comments: 10yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   18.94 |  3.75    7.80 |  5.50    1.11
                 0.50    1.11 |  2.25   18.94 |  4.00    4.46 |  5.75    1.11
                 0.75    1.11 |  2.50   51.24 |  4.25    4.46 |  6.00    1.11
                 1.00    1.11 |  2.75   51.24 |  4.50    2.23 |  6.25    1.11
                 1.25    1.11 |  3.00   14.48 |  4.75    2.23 |
                 1.50    6.68 |  3.25   14.48 |  5.00    1.11 |
                 1.75    6.68 |  3.50    7.80 |  5.25    1.11 |

--------------------------------------------------------------------------------
```

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--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    6.68 | 3.250   14.48 |  4.83    1.11
                0.167    0.00 | 1.750    6.68 | 3.333    7.80 |  4.92    1.11
                0.250    0.00 | 1.833   18.94 | 3.417    7.80 |  5.00    1.11
                0.333    1.11 | 1.917   18.94 | 3.500    7.80 |  5.08    1.11
                0.417    1.11 | 2.000   18.94 | 3.583    7.80 |  5.17    1.11
                0.500    1.11 | 2.083   18.94 | 3.667    7.80 |  5.25    1.11
                0.583    1.11 | 2.167   18.94 | 3.750    7.80 |  5.33    1.11
                0.667    1.11 | 2.250   18.94 | 3.833    4.46 |  5.42    1.11
                0.750    1.11 | 2.333   51.24 | 3.917    4.46 |  5.50    1.11
                0.833    1.11 | 2.417   51.24 | 4.000    4.46 |  5.58    1.11
                0.917    1.11 | 2.500   51.24 | 4.083    4.46 |  5.67    1.11
                1.000    1.11 | 2.583   51.24 | 4.167    4.46 |  5.75    1.11
                1.083    1.11 | 2.667   51.24 | 4.250    4.46 |  5.83    1.11
                1.167    1.11 | 2.750   51.24 | 4.333    2.23 |  5.92    1.11
                1.250    1.11 | 2.833   14.48 | 4.417    2.23 |  6.00    1.11
                1.333    6.68 | 2.917   14.48 | 4.500    2.23 |  6.08    1.11
                1.417    6.68 | 3.000   14.48 | 4.583    2.23 |  6.17    1.11
                1.500    6.68 | 3.083   14.48 | 4.667    2.23 |  6.25    1.11
                1.583    6.68 | 3.167   14.48 | 4.750    2.23 |

     Max.Eff.Inten.(mm/hr)=      51.24        43.50
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.62 (ii)   13.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.32         0.38          1.695 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      53.69        36.81          48.62
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.96         0.66           0.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        46.04
                over (min)        5.00        15.00
```

```
                                      Prop -With Bioretention
     Storage Coeff.  (min)=       3.44 (ii)   11.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.21         0.22          0.422 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      53.69        24.09          32.97
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.96         0.43           0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   1.695     2.75    48.62
        + ID2= 2 (7615):     4.99   0.422     2.75    32.97
          ==================================================
          ID = 3 (7616):    18.25   2.116     2.75    44.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\93ce70aa
| Ptotal= 65.59 mm |    Comments: 25yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   22.30 |  3.75    9.18 |  5.50    1.31
                 0.50    1.31 |  2.25   22.30 |  4.00    5.25 |  5.75    1.31
                 0.75    1.31 |  2.50   60.35 |  4.25    5.25 |  6.00    1.31
                 1.00    1.31 |  2.75   60.35 |  4.50    2.62 |  6.25    1.31
                 1.25    1.31 |  3.00   17.06 |  4.75    2.62 |
                 1.50    7.87 |  3.25   17.06 |  5.00    1.31 |
                 1.75    7.87 |  3.50    9.18 |  5.25    1.31 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

```
                                  Prop -With Bioretention
               0.083    0.00 | 1.667    7.87 | 3.250   17.06 |  4.83    1.31
               0.167    0.00 | 1.750    7.87 | 3.333    9.18 |  4.92    1.31
               0.250    0.00 | 1.833   22.30 | 3.417    9.18 |  5.00    1.31
               0.333    1.31 | 1.917   22.30 | 3.500    9.18 |  5.08    1.31
               0.417    1.31 | 2.000   22.30 | 3.583    9.18 |  5.17    1.31
               0.500    1.31 | 2.083   22.30 | 3.667    9.18 |  5.25    1.31
               0.583    1.31 | 2.167   22.30 | 3.750    9.18 |  5.33    1.31
               0.667    1.31 | 2.250   22.30 | 3.833    5.25 |  5.42    1.31
               0.750    1.31 | 2.333   60.35 | 3.917    5.25 |  5.50    1.31
               0.833    1.31 | 2.417   60.35 | 4.000    5.25 |  5.58    1.31
               0.917    1.31 | 2.500   60.35 | 4.083    5.25 |  5.67    1.31
               1.000    1.31 | 2.583   60.35 | 4.167    5.25 |  5.75    1.31
               1.083    1.31 | 2.667   60.35 | 4.250    5.25 |  5.83    1.31
               1.167    1.31 | 2.750   60.35 | 4.333    2.62 |  5.92    1.31
               1.250    1.31 | 2.833   17.06 | 4.417    2.62 |  6.00    1.31
               1.333    7.87 | 2.917   17.06 | 4.500    2.62 |  6.08    1.31
               1.417    7.87 | 3.000   17.06 | 4.583    2.62 |  6.17    1.31
               1.500    7.87 | 3.083   17.06 | 4.667    2.62 |  6.25    1.31
               1.583    7.87 | 3.167   17.06 | 4.750    2.62 |

     Max.Eff.Inten.(mm/hr)=      60.35        53.17
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.32 (ii)   12.37 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.56         0.48          2.034 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      63.59        46.06          58.33
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.97         0.70           0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        59.26
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.23 (ii)   10.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09
                                                           *TOTALS*
     PEAK FLOW       (cms)=       0.25         0.29          0.532 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      63.59        31.31          41.00
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.97         0.48           0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

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--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   2.034     2.75    58.33
        + ID2= 2 (7615):     4.99   0.532     2.75    41.00
          ==================================================
          ID = 3 (7616):    18.25   2.566     2.75    53.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\0696e98e
| Ptotal= 73.00 mm |    Comments: 50yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   24.82 |  3.75   10.22 |  5.50    1.46
                 0.50    1.46 |  2.25   24.82 |  4.00    5.84 |  5.75    1.46
                 0.75    1.46 |  2.50   67.16 |  4.25    5.84 |  6.00    1.46
                 1.00    1.46 |  2.75   67.16 |  4.50    2.92 |  6.25    1.46
                 1.25    1.46 |  3.00   18.98 |  4.75    2.92 |
                 1.50    8.76 |  3.25   18.98 |  5.00    1.46 |
                 1.75    8.76 |  3.50   10.22 |  5.25    1.46 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    8.76 | 3.250   18.98 |  4.83    1.46
                0.167    0.00 | 1.750    8.76 | 3.333   10.22 |  4.92    1.46
                0.250    0.00 | 1.833   24.82 | 3.417   10.22 |  5.00    1.46
                0.333    1.46 | 1.917   24.82 | 3.500   10.22 |  5.08    1.46
                0.417    1.46 | 2.000   24.82 | 3.583   10.22 |  5.17    1.46
                0.500    1.46 | 2.083   24.82 | 3.667   10.22 |  5.25    1.46
                0.583    1.46 | 2.167   24.82 | 3.750   10.22 |  5.33    1.46
                0.667    1.46 | 2.250   24.82 | 3.833    5.84 |  5.42    1.46
                0.750    1.46 | 2.333   67.16 | 3.917    5.84 |  5.50    1.46
                0.833    1.46 | 2.417   67.16 | 4.000    5.84 |  5.58    1.46
                0.917    1.46 | 2.500   67.16 | 4.083    5.84 |  5.67    1.46
                1.000    1.46 | 2.583   67.16 | 4.167    5.84 |  5.75    1.46
                1.083    1.46 | 2.667   67.16 | 4.250    5.84 |  5.83    1.46
                1.167    1.46 | 2.750   67.16 | 4.333    2.92 |  5.92    1.46
                1.250    1.46 | 2.833   18.98 | 4.417    2.92 |  6.00    1.46
                1.333    8.76 | 2.917   18.98 | 4.500    2.92 |  6.08    1.46
                1.417    8.76 | 3.000   18.98 | 4.583    2.92 |  6.17    1.46
                1.500    8.76 | 3.083   18.98 | 4.667    2.92 |  6.25    1.46
```

```
                1.583    8.76 | 3.167   18.98 | 4.750    2.92 |

     Max.Eff.Inten.(mm/hr)=      67.16        60.36
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.14 (ii)   11.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09
                                                           *TOTALS*
     PEAK FLOW       (cms)=       1.73         0.56          2.289 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75           2.75
     RUNOFF VOLUME    (mm)=      71.00        53.08          65.62
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.97         0.73           0.90

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        69.51
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.09 (ii)   10.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09
                                                           *TOTALS*
     PEAK FLOW       (cms)=       0.28         0.34          0.618 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.83           2.75
     RUNOFF VOLUME    (mm)=      71.00        36.98          47.19
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.97         0.51           0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   2.289     2.75    65.62
        + ID2= 2 (7615):     4.99   0.618     2.75    47.19
          ==================================================
          ID = 3 (7616):    18.25   2.907     2.75    60.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   7 **
  ****************************
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--------------------
|    READ STORM    |    Filename: C:\Users\khanj2\AppD
|                  |              ata\Local\Temp\
|                  |              745dcd59-fc6e-458f-bd9a-a1e980c67c10\8930ea97
| Ptotal= 80.31 mm |    Comments: 100yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   27.30 |  3.75   11.24 |  5.50    1.61
                 0.50    1.61 |  2.25   27.30 |  4.00    6.42 |  5.75    1.61
                 0.75    1.61 |  2.50   73.88 |  4.25    6.42 |  6.00    1.61
                 1.00    1.61 |  2.75   73.88 |  4.50    3.21 |  6.25    1.61
                 1.25    1.61 |  3.00   20.88 |  4.75    3.21 |
                 1.50    9.64 |  3.25   20.88 |  5.00    1.61 |
                 1.75    9.64 |  3.50   11.24 |  5.25    1.61 |

-------------------------------------------------------------------------------

--------------------
| CALIB            |
| STANDHYD  (7614) |   Area    (ha)=  13.26
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.28         3.98
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     297.32        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.00 | 1.667    9.64 | 3.250   20.88 |  4.83    1.61
                0.167    0.00 | 1.750    9.64 | 3.333   11.24 |  4.92    1.61
                0.250    0.00 | 1.833   27.30 | 3.417   11.24 |  5.00    1.61
                0.333    1.61 | 1.917   27.30 | 3.500   11.24 |  5.08    1.61
                0.417    1.61 | 2.000   27.30 | 3.583   11.24 |  5.17    1.61
                0.500    1.61 | 2.083   27.30 | 3.667   11.24 |  5.25    1.61
                0.583    1.61 | 2.167   27.30 | 3.750   11.24 |  5.33    1.61
                0.667    1.61 | 2.250   27.30 | 3.833    6.42 |  5.42    1.61
                0.750    1.61 | 2.333   73.88 | 3.917    6.42 |  5.50    1.61
                0.833    1.61 | 2.417   73.88 | 4.000    6.42 |  5.58    1.61
                0.917    1.61 | 2.500   73.88 | 4.083    6.42 |  5.67    1.61
                1.000    1.61 | 2.583   73.88 | 4.167    6.42 |  5.75    1.61
                1.083    1.61 | 2.667   73.88 | 4.250    6.42 |  5.83    1.61
                1.167    1.61 | 2.750   73.88 | 4.333    3.21 |  5.92    1.61
                1.250    1.61 | 2.833   20.88 | 4.417    3.21 |  6.00    1.61
                1.333    9.64 | 2.917   20.88 | 4.500    3.21 |  6.08    1.61
                1.417    9.64 | 3.000   20.88 | 4.583    3.21 |  6.17    1.61
                1.500    9.64 | 3.083   20.88 | 4.667    3.21 |  6.25    1.61
                1.583    9.64 | 3.167   20.88 | 4.750    3.21 |

     Max.Eff.Inten.(mm/hr)=      73.88        67.43
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.99 (ii)   11.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.90         0.64         2.541 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75          2.75
     RUNOFF VOLUME    (mm)=      78.31        60.06         72.84
     TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
     RUNOFF COEFFICIENT   =       0.98         0.75          0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  93.0    Ia = Dep. Storage  (Above)
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      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7615) |   Area    (ha)=   4.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.79         2.20
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       3.00         3.00
     Length            (m)=     182.39        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        79.84
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.97 (ii)    9.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.28         0.11
                                                              *TOTALS*
     PEAK FLOW       (cms)=       0.31         0.42          0.730 (iii)
     TIME TO PEAK    (hrs)=       2.75         2.75           2.75
     RUNOFF VOLUME    (mm)=      78.31        42.76          53.42
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.98         0.53           0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (7616) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7614):    13.26   2.541     2.75    72.84
        + ID2= 2 (7615):     4.99   0.730     2.75    53.42
          ==================================================
          ID = 3 (7616):    18.25   3.271     2.75    67.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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Appendix B

Hydraulic Modeling Output

Plan 05 -Georeferenced

River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(m^3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m^2)	(m)	
5042.64	REGIONAL	47.61	198	199.72		199.74	0.000299	0.59	134.23	163.85	0.16
5042.64	100 YR	16.69	198	199.01		199.03	0.000935	0.61	28.27	133.01	0.25
5042.64	50 YR	14.63	198	198.95		198.97	0.000976	0.59	24.61	45.2	0.26
5042.64	25 YR	12.62	198	198.88		198.9	0.001014	0.58	21.72	42.53	0.26
5042.64	10 YR	9.79	198	198.78		198.8	0.001072	0.56	17.61	38.4	0.26
5042.64	5 YR	7.7	198	198.7		198.71	0.00112	0.53	14.49	34.95	0.26
5042.64	2 YR	4.79	198	198.56		198.57	0.001182	0.48	9.99	29.26	0.26
5042.607	REGIONAL	47.61	198	199.71		199.73	0.000553	0.83	137.81	181.21	0.23
5042.607	100 YR	16.69	198	198.68	198.68	198.93	0.015541	2.22	7.51	15.09	1.01
5042.607	50 YR	14.63	198	198.63	198.63	198.87	0.015895	2.16	6.78	14.5	1.01
5042.607	25 YR	12.62	198	198.58	198.58	198.8	0.016237	2.08	6.06	13.89	1.01
5042.607	10 YR	9.79	198	198.5	198.5	198.7	0.016823	1.96	5	12.95	1
5042.607	5 YR	7.7	198	198.44	198.44	198.61	0.017414	1.84	4.18	12.16	1
5042.607	2 YR	4.79	198	198.33	198.33	198.47	0.018991	1.64	2.93	10.86	1.01
5042.55	REGIONAL	47.61	196.81	199.72	198.22	199.72	0.000027	0.27	356.68	371.27	0.05
5042.55	100 YR	16.69	196.81	198.56	197.54	198.61	0.000635	1.02	16.3	75.43	0.25
5042.55	50 YR	14.63	196.81	198.5	197.48	198.55	0.00054	0.92	15.82	71.25	0.23
5042.55	25 YR	12.62	196.81	198.45	197.42	198.49	0.000446	0.82	15.33	67.04	0.21
5042.55	10 YR	9.79	196.81	198.38	197.33	198.4	0.000317	0.67	14.59	55.23	0.17
5042.55	5 YR	7.7	196.81	198.39	197.26	198.41	0.00019	0.52	14.73	55.32	0.13
5042.55	2 YR	4.79	196.81	198.06	197.15	198.07	0.000164	0.41	11.56	53.36	0.12
5042.537		**Bridge (North of Castlemore)**									
5042.527	REGIONAL	47.61	196.85	198.78	198.78	199.57	0.010325	3.94	12.07	129.05	1
5042.527	100 YR	16.69	196.85	198.38	197.98	198.55	0.003338	1.85	9.03	122.8	0.54
5042.527	50 YR	14.63	196.85	198.36	197.91	198.5	0.002651	1.64	8.94	122.61	0.48
5042.527	25 YR	12.62	196.85	198.35	197.84	198.45	0.002081	1.43	8.8	122.32	0.43
5042.527	10 YR	9.79	196.85	198.31	197.74	198.37	0.001405	1.15	8.5	121.71	0.35
5042.527	5 YR	7.7	196.85	198.35	197.66	198.39	0.000759	0.87	8.85	122.43	0.26
5042.527	2 YR	4.79	196.85	198.03	197.53	198.06	0.000871	0.75	6.39	117.37	0.26
5042.511	REGIONAL	47.61	196.8	198.98		198.99	0.000317	0.73	158.93	170.85	0.18
5042.511	100 YR	16.69	196.8	198.49		198.49	0.000209	0.47	82.11	141.43	0.14
5042.511	50 YR	14.63	196.8	198.45		198.46	0.000187	0.44	76.97	139.23	0.13
5042.511	25 YR	12.62	196.8	198.41		198.42	0.000166	0.41	71.51	136.87	0.12
5042.511	10 YR	9.79	196.8	198.35		198.35	0.000135	0.35	62.91	133.06	0.11
5042.511	5 YR	7.7	196.8	198.38		198.38	0.000073	0.26	66.73	134.77	0.08
5042.511	2 YR	4.79	196.8	198.04		198.05	0.00019	0.34	25.04	114.79	0.12
5042.41	REGIONAL	47.61	197	198.9		198.95	0.003703	1.9	68.31	95.1	0.44
5042.41	100 YR	16.69	197	198.3	198.3	198.44	0.008575	2.24	20.48	65.43	0.63
5042.41	50 YR	14.63	197	198.27	198.27	198.41	0.008033	2.14	18.63	64.01	0.61
5042.41	25 YR	12.62	197	198.24	198.24	198.37	0.007409	2.02	16.73	62.51	0.58
5042.41	10 YR	9.79	197	198.19	198.19	198.31	0.006545	1.85	13.59	59.96	0.54
5042.41	5 YR	7.7	197	197.87	197.87	198.31	0.023395	2.94	2.62	3	1
5042.41	2 YR	4.79	197	197.65	197.64	197.96	0.021148	2.45	1.95	3	0.97
5042.34	REGIONAL	52.37	191.5	194	194	194.38	0.009566	3.46	33.87	48.12	0.7
5042.34	100 YR	18.36	191.5	193.48	192.86	193.68	0.004959	2.14	14.29	27.7	0.48
5042.34	50 YR	16.09	191.5	193.4	192.74	193.59	0.004779	2.04	12.16	24.48	0.47
5042.34	25 YR	13.88	191.5	193.55	192.62	193.65	0.002316	1.49	16.38	30.54	0.33
5042.34	10 YR	10.77	191.5	193.3		193.41	0.002775	1.5	10.01	20.71	0.36
5042.34	5 YR	8.47	191.5	193.06		193.17	0.003158	1.46	6.19	11.25	0.37
5042.34	2 YR	5.13	191.5	192.58		192.66	0.003389	1.29	3.99	3.7	0.4
5042.33	REGIONAL	52.37	190.5	193.19		193.27	0.003984	2.14	66.31	86.05	0.42
5042.33	100 YR	18.36	190.5	192.42	192.42	192.64	0.008814	2.52	16.2	42.02	0.59

Plan 05 -Georeferenced

River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(m^3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m^2)	(m)	
5042.33	50 YR	16.09	190.5	192.37	192.37	192.59	0.00828	2.4	14.27	39.18	0.57
5042.33	25 YR	13.88	190.5	191.93	191.93	192.64	0.027862	3.73	3.72	2.69	1.01
5042.33	10 YR	10.77	190.5	191.78	191.72	192.32	0.023066	3.26	3.3	2.67	0.94
5042.33	5 YR	8.47	190.5	191.69		192.08	0.017353	2.76	3.07	2.66	0.82
5042.33	2 YR	5.13	190.5	191.5		191.7	0.01043	2	2.56	2.63	0.65
5042.323	REGIONAL	52.37	190.1	193.13	192.17	193.19	0.000638	1.2	82.44	97.49	0.26
5042.323	100 YR	18.36	190.1	191.91	191.36	192.05	0.002586	1.61	11.37	15.33	0.47
5042.323	50 YR	16.09	190.1	191.79	191.28	191.91	0.002788	1.58	10.19	14.79	0.48
5042.323	25 YR	13.88	190.1	191.67	191.2	191.78	0.00287	1.52	9.11	14.28	0.48
5042.323	10 YR	10.77	190.1	191.47	191.08	191.58	0.003132	1.45	7.43	13.45	0.49
5042.323	5 YR	8.47	190.1	191.29	190.99	191.39	0.003706	1.42	5.97	11.98	0.52
5042.323	2 YR	5.13	190.1	191.01	190.83	191.1	0.004979	1.32	3.88	9.16	0.57
5042.322		**Bridge (Wylie North)**									
5042.321	REGIONAL	52.37	190.09	192.3	192.3	193.19	0.013884	4.19	12.67	44.43	0.98
5042.321	100 YR	18.36	190.09	191.61	191.24	191.88	0.006368	2.3	7.99	6.17	0.65
5042.321	50 YR	16.09	190.09	191.51	191.16	191.75	0.006189	2.19	7.35	6.05	0.63
5042.321	25 YR	13.88	190.09	191.42	191.06	191.63	0.005608	2.02	6.86	5.95	0.6
5042.321	10 YR	10.77	190.09	191.27	190.92	191.43	0.00513	1.82	5.93	5.76	0.57
5042.321	5 YR	8.47	190.09	191.08	190.8	191.23	0.005609	1.74	4.87	5.53	0.59
5042.321	2 YR	5.13	190.09	190.75	190.6	190.89	0.007507	1.63	3.15	5.14	0.67
5042.32	REGIONAL	52.37	189.8	192.33		192.59	0.005736	2.94	43.28	59.32	0.59
5042.32	100 YR	18.36	189.8	191.5	191.26	191.74	0.006123	2.33	12.25	20.35	0.57
5042.32	50 YR	16.09	189.8	191.36	191.11	191.62	0.007017	2.35	9.63	17.35	0.6
5042.32	25 YR	13.88	189.8	191.25	190.87	191.5	0.007193	2.27	7.87	15	0.6
5042.32	10 YR	10.77	189.8	191.1	190.7	191.31	0.006716	2.04	5.89	11.82	0.57
5042.32	5 YR	8.47	189.8	190.94		191.11	0.006513	1.86	4.55	4	0.56
5042.32	2 YR	5.13	189.8	190.64		190.76	0.005663	1.52	3.38	4	0.53
5042.315	REGIONAL	52.37	189.2	192	191.88	192.31	0.006679	3.03	41.95	79.77	0.58
5042.315	100 YR	18.36	189.2	191.31	190.49	191.51	0.004346	2.02	12.88	25.65	0.44
5042.315	50 YR	16.09	189.2	191.16	190.38	191.36	0.004781	2.01	9.45	18.16	0.46
5042.315	25 YR	13.88	189.2	191.08		191.25	0.004197	1.84	8.18	14.43	0.43
5042.315	10 YR	10.77	189.2	190.99		191.1	0.003005	1.51	7.15	4	0.36
5042.315	5 YR	8.47	189.2	190.85		190.93	0.002307	1.28	6.6	4	0.32
5042.315	2 YR	5.13	189.2	190.59		190.64	0.001348	0.92	5.58	4	0.25
5042.314	REGIONAL	52.37	189.2	192.01		192.03	0.000646	1.16	152.31	175.4	0.22
5042.314	100 YR	18.36	189.2	191.22		191.25	0.000782	1.02	50.91	81.27	0.23
5042.314	50 YR	16.09	189.2	191		191.03	0.001084	1.11	35.69	54.21	0.26
5042.314	25 YR	13.88	189.2	190.9		190.93	0.001146	1.1	30.28	49.69	0.27
5042.314	10 YR	10.77	189.2	190.86		190.88	0.000795	0.9	28.3	47.92	0.22
5042.314	5 YR	8.47	189.2	190.69		190.72	0.000888	0.89	21.17	40.95	0.23
5042.314	2 YR	5.13	189.2	190.44		190.46	0.000922	0.8	12.12	29.85	0.23
5042.313	REGIONAL	52.37	188.86	192	190.78	192.03	0.000323	0.99	138.09	100.65	0.19
5042.313	100 YR	18.36	188.86	191.17	190	191.23	0.000649	1.11	17.95	71.48	0.25
5042.313	50 YR	16.09	188.86	190.95	189.93	191.01	0.000734	1.1	15.93	62.66	0.26
5042.313	25 YR	13.88	188.86	190.86	189.86	190.91	0.000649	1	15.1	59.03	0.24
5042.313	10 YR	10.77	188.86	190.84	189.75	190.87	0.000412	0.79	14.86	57.97	0.19
5042.313	5 YR	8.47	188.86	190.69	189.61	190.71	0.000351	0.68	13.45	51.8	0.18
5042.313	2 YR	5.13	188.86	190.44	189.41	190.45	0.000237	0.5	11.12	41.61	0.14
5042.312		**Bridge (Wylie South)**									
5042.311	REGIONAL	52.37	188.8	191.37	190.86	191.87	0.004272	3.12	16.78	98.26	0.67
5042.311	100 YR	18.36	188.8	190.93	190.01	191.03	0.00111	1.37	13.4	46.93	0.33

Plan 05 -Georeferenced

River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(m^3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m^2)	(m)	
5042.311	50 YR	16.09	188.8	190.87	189.94	190.95	0.000957	1.24	12.95	44.66	0.3
5042.311	25 YR	13.88	188.8	190.81	189.87	190.87	0.000808	1.11	12.47	42.27	0.28
5042.311	10 YR	10.77	188.8	190.8	189.76	190.84	0.000489	0.87	12.45	42.17	0.22
5042.311	5 YR	8.47	188.8	190.67	189.67	190.7	0.000404	0.74	11.41	37.01	0.19
5042.311	2 YR	5.13	188.8	190.43	189.52	190.44	0.000266	0.54	9.57	27.88	0.15
5042.31	REGIONAL	52.37	189.2	191.39		191.52	0.004507	2.5	53.08	58.5	0.54
5042.31	100 YR	18.36	189.2	190.88		190.95	0.002772	1.64	26.71	43.36	0.4
5042.31	50 YR	16.09	189.2	190.82		190.89	0.002638	1.56	24.18	41.18	0.39
5042.31	25 YR	13.88	189.2	190.75		190.82	0.002482	1.48	21.65	38.87	0.38
5042.31	10 YR	10.77	189.2	190.78		190.81	0.001372	1.11	22.55	39.71	0.28
5042.31	5 YR	8.47	189.2	190.63		190.67	0.001514	1.09	17.03	34.27	0.29
5042.31	2 YR	5.13	189.2	190.37		190.41	0.001672	1	9.48	24.98	0.3
5042.3	REGIONAL	52.37	189	190.51		190.64	0.007543	2.57	59.03	113.9	0.67
5042.3	100 YR	18.36	189	190.22	190.22	190.34	0.00584	1.96	27.19	105.75	0.57
5042.3	50 YR	16.09	189	190.2	190.2	190.31	0.005407	1.86	24.69	105.09	0.54
5042.3	25 YR	13.88	189	190.17	190.17	190.28	0.00504	1.77	21.78	104.3	0.52
5042.3	10 YR	10.77	189	189.82	189.82	190.24	0.019509	2.85	3.77	4.6	1.01
5042.3	5 YR	8.47	189	189.7	189.7	190.05	0.019459	2.63	3.22	4.6	1
5042.3	2 YR	5.13	189	189.5	189.5	189.75	0.019903	2.23	2.3	4.6	1.01

Plan 06 -Georef Revised 2015 Flows

River Sta	Profile	Q Total (m^3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m^2)	Top Width (m)	Froude # Chl
5042.64	REGIONAL	64.15	198	200.09		200.1	0.000203	0.57	204.53	258.56	0.14
5042.64	100 YR	23.05	198	199.17		199.19	0.000689	0.61	50.3	139.98	0.23
5042.64	50 YR	20.05	198	199.1		199.12	0.000792	0.61	40.15	136.82	0.24
5042.64	25 YR	17.22	198	199.02		199.04	0.000913	0.61	30.17	133.63	0.25
5042.64	10 YR	13.48	198	198.91		198.93	0.000998	0.59	22.95	43.68	0.26
5042.64	5 YR	10.54	198	198.81		198.83	0.001055	0.56	18.72	39.55	0.26
5042.64	2 YR	6.51	198	198.64		198.66	0.001147	0.51	12.68	32.78	0.26
5042.607	REGIONAL	64.15	198	200.08		200.1	0.000423	0.85	225.25	429.91	0.2
5042.607	100 YR	23.05	198	198.82	198.82	199.11	0.014838	2.4	9.62	16.69	1.01
5042.607	50 YR	20.05	198	198.76	198.76	199.03	0.01516	2.32	8.64	15.96	1.01
5042.607	25 YR	17.22	198	198.69	198.69	198.95	0.015507	2.24	7.68	15.23	1.01
5042.607	10 YR	13.48	198	198.61	198.61	198.83	0.016042	2.11	6.38	14.16	1.01
5042.607	5 YR	10.54	198	198.53	198.53	198.73	0.016713	2	5.28	13.21	1.01
5042.607	2 YR	6.51	198	198.4	198.4	198.56	0.017916	1.77	3.69	11.66	1
5042.55	REGIONAL	64.15	196.81	200.09	198.51	200.09	0.000027	0.3	513.33	561.93	0.06
5042.55	100 YR	23.05	196.81	198.72	197.7	198.8	0.000893	1.29	17.87	79.64	0.3
5042.55	50 YR	20.05	196.81	198.64	197.62	198.71	0.000783	1.17	17.1	78.37	0.28
5042.55	25 YR	17.22	196.81	198.57	197.55	198.62	0.00066	1.05	16.43	76.49	0.26
5042.55	10 YR	13.48	196.81	198.48	197.45	198.51	0.000487	0.87	15.54	68.87	0.22
5042.55	5 YR	10.54	196.81	198.4	197.36	198.42	0.000351	0.71	14.79	55.36	0.18
5042.55	2 YR	6.51	196.81	198.26	197.22	198.27	0.000184	0.48	13.45	54.53	0.13
5042.537		**Bridge (North of Castlemore)**									
5042.527	REGIONAL	64.15	196.85	199.13	199.13	200.09	0.009613	4.35	14.75	210.09	1
5042.527	100 YR	23.05	196.85	198.36	198.17	198.7	0.006697	2.59	8.9	122.52	0.77
5042.527	50 YR	20.05	196.85	198.38	198.08	198.63	0.004794	2.22	9.05	122.83	0.65
5042.527	25 YR	17.22	196.85	198.38	198	198.56	0.003539	1.9	9.04	122.82	0.56
5042.527	10 YR	13.48	196.85	198.35	197.87	198.47	0.002314	1.52	8.87	122.46	0.45
5042.527	5 YR	10.54	196.85	198.32	197.77	198.4	0.001572	1.23	8.59	121.9	0.37
5042.527	2 YR	6.51	196.85	198.22	197.61	198.26	0.000809	0.83	7.85	120.38	0.26
5042.511	REGIONAL	64.15	196.8	199.43		199.44	0.000188	0.66	238.67	181.12	0.14
5042.511	100 YR	23.05	196.8	198.58		198.59	0.00027	0.57	95.99	147.18	0.16
5042.511	50 YR	20.05	196.8	198.54		198.55	0.000242	0.52	89.79	144.64	0.15
5042.511	25 YR	17.22	196.8	198.5		198.5	0.000214	0.48	83.33	141.94	0.14
5042.511	10 YR	13.48	196.8	198.43		198.43	0.000175	0.42	73.9	137.91	0.12
5042.511	5 YR	10.54	196.8	198.37		198.37	0.000144	0.37	65.32	134.14	0.11
5042.511	2 YR	6.51	196.8	198.24		198.24	0.000104	0.29	49.1	126.7	0.09
5042.41	REGIONAL	64.15	197	199.4		199.42	0.001361	1.34	120.73	112.62	0.28
5042.41	100 YR	23.05	197	198.38	198.38	198.53	0.009602	2.47	26.04	69.53	0.67
5042.41	50 YR	20.05	197	198.34	198.34	198.49	0.009308	2.39	23.34	67.57	0.66
5042.41	25 YR	17.22	197	198.31	198.31	198.45	0.0087	2.27	20.95	65.78	0.63
5042.41	10 YR	13.48	197	198.26	198.26	198.39	0.007686	2.07	17.56	63.17	0.59
5042.41	5 YR	10.54	197	198.21	198.21	198.33	0.006754	1.89	14.51	60.72	0.55
5042.41	2 YR	6.51	197	197.78	197.78	198.17	0.023033	2.78	2.34	3	1
5042.34	REGIONAL	77.73	191.5	194.29	194.29	194.68	0.009653	3.75	50.18	61.36	0.72
5042.34	100 YR	23.69	191.5	193.51	193.42	193.82	0.00755	2.66	15.19	28.96	0.6
5042.34	50 YR	20.57	191.5	193.54	192.96	193.75	0.005261	2.24	16.02	30.07	0.5
5042.34	25 YR	17.68	191.5	193.46	192.82	193.65	0.004907	2.11	13.66	26.78	0.48
5042.34	10 YR	13.78	191.5	193.55	192.62	193.64	0.002328	1.49	16.17	30.27	0.33
5042.34	5 YR	10.82	191.5	193.31		193.42	0.002766	1.5	10.11	20.9	0.36
5042.34	2 YR	6.7	191.5	192.82		192.92	0.00326	1.37	4.89	3.7	0.38
5042.33	REGIONAL	77.73	190.5	193.48		193.55	0.003814	2.24	92.95	99.82	0.42
5042.33	100 YR	23.69	190.5	192.66		192.78	0.005445	2.15	28	56.38	0.47
5042.33	50 YR	20.57	190.5	192.47	192.47	192.69	0.00886	2.58	18.49	45.17	0.59
5042.33	25 YR	17.68	190.5	192.4	192.4	192.63	0.00865	2.49	15.64	41.22	0.58
5042.33	10 YR	13.78	190.5	191.93	191.93	192.63	0.027816	3.72	3.7	2.69	1.01
5042.33	5 YR	10.82	190.5	191.78	191.72	192.32	0.023195	3.27	3.3	2.67	0.94
5042.33	2 YR	6.7	190.5	191.6		191.89	0.013458	2.36	2.83	2.65	0.73

Plan 06 -Georef Revised 2015 Flows

River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(m^3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m^2)	(m)	
5042.323	REGIONAL	77.73	190.1	193.39	192.61	193.48	0.000833	1.48	111.01	121.44	0.3
5042.323	100 YR	23.69	190.1	192.54	191.52	192.64	0.001077	1.37	17.24	55.7	0.32
5042.323	50 YR	20.57	190.1	192.02	191.43	192.16	0.00244	1.66	12.39	22.36	0.46
5042.323	25 YR	17.68	190.1	191.88	191.33	192.01	0.002638	1.6	11.05	15.18	0.47
5042.323	10 YR	13.78	190.1	191.66	191.2	191.78	0.002875	1.52	9.06	14.26	0.48
5042.323	5 YR	10.82	190.1	191.47	191.08	191.58	0.003124	1.45	7.46	13.46	0.49
5042.323	2 YR	6.7	190.1	191.14	190.91	191.24	0.004343	1.38	4.84	10.49	0.55
5042.322		**Bridge (Wylie North)**									
5042.321	REGIONAL	77.73	190.09	192.88	192.88	193.23	0.005467	3.16	61.06	101.61	0.65
5042.321	100 YR	23.69	190.09	191.77	191.45	192.12	0.007584	2.63	9	6.37	0.71
5042.321	50 YR	20.57	190.09	191.68	191.33	191.99	0.006869	2.44	8.43	6.26	0.67
5042.321	25 YR	17.68	190.09	191.59	191.22	191.85	0.006207	2.25	7.85	6.15	0.64
5042.321	10 YR	13.78	190.09	191.42	191.05	191.63	0.005588	2.02	6.83	5.94	0.6
5042.321	5 YR	10.82	190.09	191.27	190.91	191.44	0.005129	1.82	5.94	5.76	0.57
5042.321	2 YR	6.7	190.09	190.91	190.7	191.06	0.006481	1.7	3.95	5.32	0.63
5042.32	REGIONAL	77.73	189.8	192.52	192.47	192.86	0.007543	3.54	55.17	64.39	0.68
5042.32	100 YR	23.69	189.8	191.67	191.48	191.93	0.006343	2.52	16.04	24.04	0.59
5042.32	50 YR	20.57	189.8	191.57	191.37	191.82	0.006255	2.42	13.8	21.93	0.58
5042.32	25 YR	17.68	189.8	191.47	191.22	191.71	0.006055	2.29	11.8	19.86	0.57
5042.32	10 YR	13.78	189.8	191.24	190.86	191.49	0.007198	2.26	7.8	14.89	0.6
5042.32	5 YR	10.82	189.8	191.11	190.7	191.32	0.006708	2.04	5.94	11.89	0.57
5042.32	2 YR	6.7	189.8	190.8		190.94	0.005982	1.68	3.98	4	0.54
5042.315	REGIONAL	77.73	189.2	192.3		192.54	0.005894	3.04	66.61	86.35	0.55
5042.315	100 YR	23.69	189.2	191.43	190.73	191.68	0.005412	2.34	16.25	31.3	0.5
5042.315	50 YR	20.57	189.2	191.36	190.59	191.58	0.004854	2.17	14.18	27.95	0.47
5042.315	25 YR	17.68	189.2	191.3	190.45	191.48	0.004163	1.97	12.54	25	0.43
5042.315	10 YR	13.78	189.2	191.07		191.24	0.004168	1.83	8.13	14.25	0.43
5042.315	5 YR	10.82	189.2	190.99		191.11	0.00302	1.51	7.16	4	0.36
5042.315	2 YR	6.7	189.2	190.73		190.79	0.001782	1.1	6.11	4	0.28
5042.314	REGIONAL	77.73	189.2	192.27		192.29	0.000704	1.28	198.82	190.14	0.23
5042.314	100 YR	23.69	189.2	191.34		191.37	0.000934	1.16	60.79	94.8	0.25
5042.314	50 YR	20.57	189.2	191.27		191.29	0.000869	1.09	54.42	86.32	0.24
5042.314	25 YR	17.68	189.2	191.21		191.24	0.000747	1	50.1	80.06	0.22
5042.314	10 YR	13.78	189.2	190.89		190.93	0.001147	1.1	30.07	49.5	0.27
5042.314	5 YR	10.82	189.2	190.86		190.88	0.000793	0.9	28.48	48.08	0.22
5042.314	2 YR	6.7	189.2	190.57		190.6	0.000912	0.85	16.36	35.5	0.23
5042.313	REGIONAL	77.73	188.86	192.24	191.25	192.27	0.000467	1.26	162.91	106.95	0.23
5042.313	100 YR	23.69	188.86	191.24	190.14	191.33	0.000958	1.39	18.62	74.44	0.31
5042.313	50 YR	20.57	188.86	191.19	190.05	191.27	0.000779	1.23	18.19	72.57	0.28
5042.313	25 YR	17.68	188.86	191.16	189.98	191.22	0.000608	1.08	17.89	71.25	0.24
5042.313	10 YR	13.78	188.86	190.86	189.86	190.91	0.000645	0.99	15.07	58.88	0.24
5042.313	5 YR	10.82	188.86	190.84	189.76	190.87	0.000413	0.79	14.89	58.11	0.19
5042.313	2 YR	6.7	188.86	190.57	189.51	190.58	0.000292	0.59	12.31	46.81	0.16
5042.312		**Bridge (Wylie South)**									
5042.311	REGIONAL	77.73	188.8	191.78	191.36	191.86	0.001019	1.62	115.3	110.13	0.33
5042.311	100 YR	23.69	188.8	191.05	190.17	191.19	0.00148	1.65	14.33	88.94	0.38
5042.311	50 YR	20.57	188.8	190.98	190.08	191.1	0.001264	1.49	13.8	48.91	0.35
5042.311	25 YR	17.68	188.8	190.91	189.99	191	0.001065	1.33	13.27	46.27	0.32
5042.311	10 YR	13.78	188.8	190.8	189.86	190.87	0.000801	1.11	12.45	42.17	0.28
5042.311	5 YR	10.82	188.8	190.81	189.76	190.85	0.000491	0.87	12.47	42.29	0.22
5042.311	2 YR	6.7	188.8	190.55	189.59	190.57	0.000332	0.64	10.51	32.56	0.17
5042.31	REGIONAL	77.73	189.2	191.57	191.29	191.76	0.006185	3.09	64.27	63.5	0.64
5042.31	100 YR	23.69	189.2	191		191.08	0.003015	1.8	32.41	47.9	0.43
5042.31	50 YR	20.57	189.2	190.93		191.01	0.002898	1.71	29.04	45.28	0.42
5042.31	25 YR	17.68	189.2	190.86		190.93	0.002737	1.62	25.95	42.72	0.4
5042.31	10 YR	13.78	189.2	190.75		190.81	0.002474	1.47	21.54	38.77	0.38
5042.31	5 YR	10.82	189.2	190.78		190.81	0.001369	1.11	22.67	39.82	0.28

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River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(m^3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m^2)	(m)	
5042.31	2 YR	6.7	189.2	190.5		190.54	0.001606	1.05	13	29.67	0.3
5042.3	REGIONAL	77.73	189	190.78		190.87	0.005157	2.37	90.28	121.36	0.57
5042.3	100 YR	23.69	189	190.27	190.27	190.4	0.006876	2.18	32.1	107.05	0.62
5042.3	50 YR	20.57	189	190.24	190.24	190.37	0.00626	2.05	29.38	106.33	0.59
5042.3	25 YR	17.68	189	190.21	190.21	190.33	0.005697	1.93	26.5	105.57	0.56
5042.3	10 YR	13.78	189	190.17	190.17	190.28	0.005025	1.76	21.63	104.27	0.52
5042.3	5 YR	10.82	189	189.82	189.82	190.24	0.019508	2.86	3.79	4.6	1.01
5042.3	2 YR	6.7	189	189.6	189.6	189.9	0.01964	2.44	2.75	4.6	1.01

Appendix C

Low Impact Development BMPs
(Source: LID Guidelines, CVC, TRCA, 2010)

Figure 4.7.1 Permeable pavement types

Permeable interlocking concrete pavers (block pavers): Concrete pavers are designed with gaps between them that allow stormwater to infiltrate into the aggregate reservoir. The gaps are approximately 10% of the surface area and are filled with small stone.

Permeable paver parking lot in Mississauga, ON (Source: CVC)

Plastic or concrete grid systems are concrete or durable plastic grids filled with gravel or a pervious planting mix for grass or low ground cover. The grids provide support for vehicles or foot t*raffic while preven*ting compaction and rutting of the fill material. Grid systems are appropriate for applications such as walkways, overflow parking, firelanes, maintenance and utility acccess lanes, or driveways.

Residential driveway (Source: R. Bannerman); Plastic grid filled with gravel (Source: Gravelpave$^{\copyright}$**)**

Pervious Concrete and Porous Asphalt have pavement mixes with reduced or no fines which creates stable void spaces. The void spaces allow stormwater to drain through to the underlying stone reservoir. They require different pouring and setting procedures than their impervious versions.

Pervious concrete(Source: Hunt and Collins, 2008); Porous asphalt parking lot (Source: University of New Hampshire Stormwater Center)

Figure 4.5.1 Forms of bioretention

Bioretention Cells can be used in development types with large landscaping areas, parks, parking lot islands, or any areas without tight space constraints. They will have side slopes of 2:1 or shallower. Often, they take inflow as sheet flow, but in some cases, such as parking lots, they may be surrounded by curbs and have concentrated inflow.

Left – York University (Source: TRCA); Right – Riverwood Park, Mississauga, Ontario (Source: CVC)

Rain gardens capture roof, lawn and driveway runoff from low to medium density residential lots in a shallow depression in the front, side, or rear yard of the home depending on the development's drainage pattern. These can be simple gardens constructed by the homeowner as a retrofit, or they can be professionally designed into a residential development and may have an underdrain connected to the main storm drain pipe.

Left and Right - front yard rain gardens that takes runoff from the residential lot and street (Source: City of Maplewood, Minnesota)

Stormwater planters (or foundation planters) are typically used in ultra urban areas adjacent to buildings and in plazas. They differ from traditional landscaping beds by receiving runoff from other surfaces.

(Source: City of Portland, BES)

Extended tree pits (also known as parallel bioretention) are located within the road right of way and take advantage of the landscaped space between the sidewalk and street. They can be designed to take runoff from the sidewalk or street. They are typically designed to be offline, that is when they are full the stormwater will bypass the practice and flow to the downstream street inlet.

Source: left – City of Portland, BES; right – CVC.

Curb extensions are, like extended tree pits, installed in the road right-of-way and can also act as a traffic calming device. In place of an otherwise raised concrete surface, the area is constructed as a depression with vegetation and used for stormwater treatment.

Source: City of Portland, BES

- *On Private Property*: If bioretention practices are installed on private lots, property owners or managers will need to be educated on their routine maintenance needs, understand the long-term maintenance plan, and may be subject to a legally binding maintenance agreement. An incentive program such as a storm sewer user fee based on the area of impervious cover on a property that is directly connected to a storm sewer (*i.e.*, does not first drain to a pervious area or LID practice) could be used to encourage property owners or managers to maintain existing practices. Alternatively, bioretention areas could be located in an expanded road right-of-way or “stormwater easement” so that municipal staff can access the facility in the event it fails to function properly.

- *Foundations and Seepage:* Bioretention facilities should be set back at least 4 metres from building foundations. Stormwater planters located near building foundations will need to have an impermeable liner under the bioretention media or the foundation will need to be waterproofed.

Figure 4.5.2 Example applications of bioretention

Bioretention Cells	
Landscaped islands in parking lots: Parking islands can be used to both improve parking lot aesthetics and treat lot runoff. The parking lot grading is designed for sheet flow towards linear landscaping areas between rows of spaces. A curb-less edge or curb cuts are used to convey water into the depressed landscaped area. (Source: CWP)	
Parking lot edges: Small parking lots can be graded so that flows reach a curb-less edge or curb cut before reaching catchbasins or inlets. The turf at the edge of the parking lot is used as filter strip pretreatment and the depression for bioretention is located in the pervious area adjacent to the parking lot. (Source: CWP).	
Rights-of-way, traffic islands, and medians: Landscaped or unused space within the right-of-way can be turned into bioretention for treating road runoff. The road cross section can be designed to slope towards the center median or traffic islands rather than the outer edge. A linear configuration can be used to receive sheet flow from the roadway or a grass channel or pipe may convey flows to the bioretention. (Source: Seattle Public Utilities)	
Roundabouts, cul-de-sacs, and entrance loops: The road cross section is designed to slope towards the center island. A curb-less edge or curb cuts are used. (Source: CWP)	

<table>
<tr>
<td>Pervious areas between buildings and sidewalks: Landscaping around buildings and between buildings and sidewalks can be turned into multi-functional spaces with bioretention. Roof leaders, sidewalks and other impervious areas around the building can be directed to these practices. Densely vegetated practices can also provide some urban heat island cooling to the site. (Source: CWP)</td>
<td></td>
</tr>
<tr>
<td>Courtyards: Runoff collected in a storm drain system or roof leaders can be directed to bioretention in courtyards. (Source: City of Portland, BES)</td>
<td></td>
</tr>
<tr>
<td colspan="2"><i>Rain Garden</i>
Rain gardens capture roof, lawn, and driveway runoff from lots in a shallow depression. These can be simple gardens constructed as a retrofit, or professionally designed and may have an underdrain. They are designed to capture runoff from small drainage areas, typically less than 1000 square metres.

Left – Single family home rain garden (Source: City of Maplewood, MN); Right – commercial development rain garden (Source: City of Burnsville, MN).</td>
</tr>
</table>

Stormwater Planters

Stormwater planters generally receive runoff from adjacent rooftop downspouts. They can also be used to establish a pervious area within the hardscape of a plaza, courtyard, pedestrian zone, or streetscape. While they treat a very small drainage area, a significant portion of rooftop and plaza runoff may be captured and treated this way.

Source: Left – City of Portland, BES; Right – CWP

Extended Tree Pits

These facilities are installed in the sidewalk area where tree pits are typically found. Instead of using only the small square pit area, a row of pits is utilized as an enlarged planting area. Stormwater from the roadway is diverted into the expanded tree pit using curb cuts or trench drains. If large mature canopy trees are desired, then additional soil volume should be provided in the tree pit.

Sources: Left - City of Portland, BES; Right - Tavella Design Group, Bridgeport, CT.

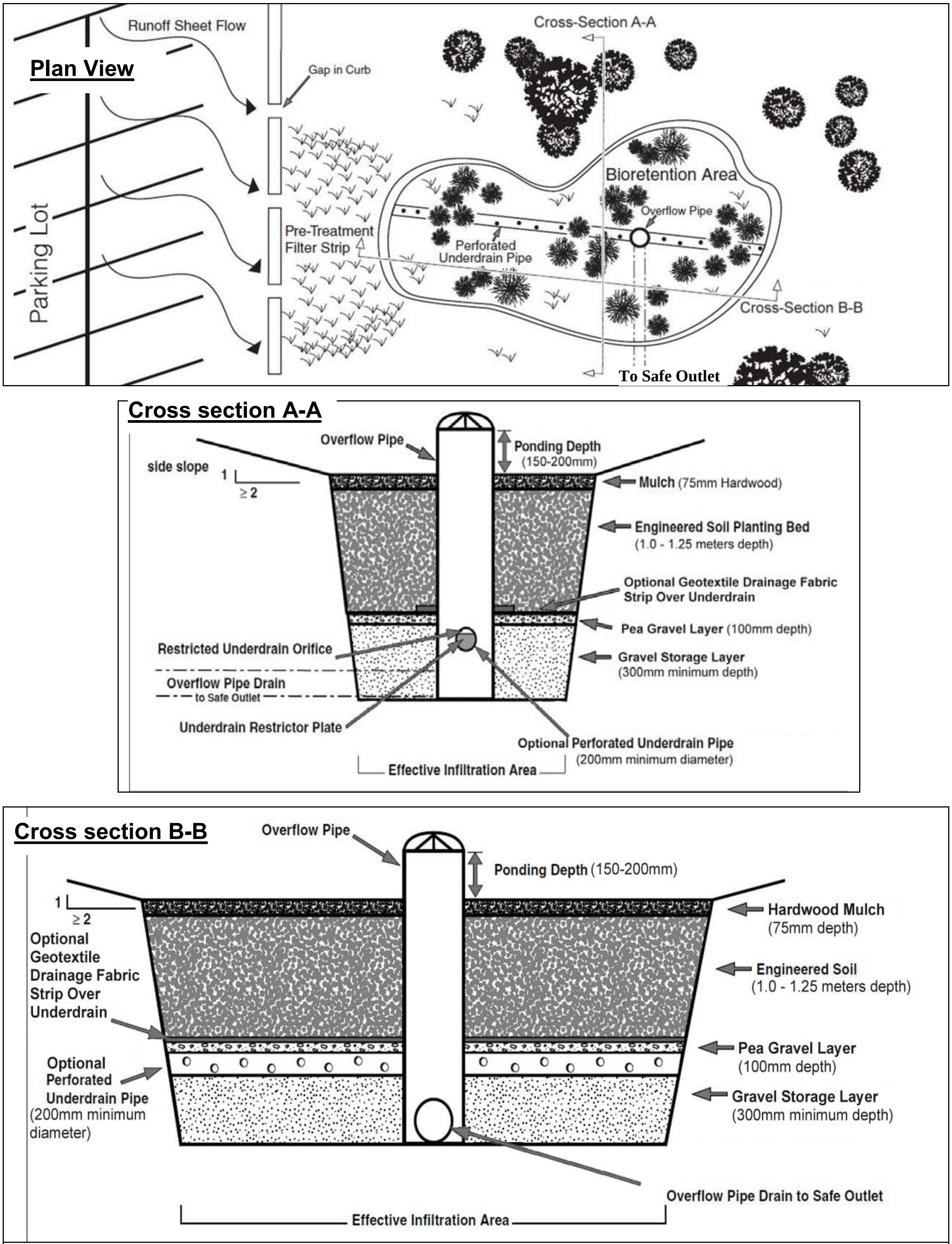
Stormwater Curb Extensions

Similar to extended tree pits, these practices are also installed in the public right-of-way. However, curb extensions are typically traffic calming and street parking control device. In its adaptation to a stormwater BMP, the otherwise raised concrete is constructed as a depressed vegetation area and used for stormwater treatment. These practices work well as retrofits to residential neighborhoods.

Source: Left – City of Portland, BES; Middle and Right – CWP

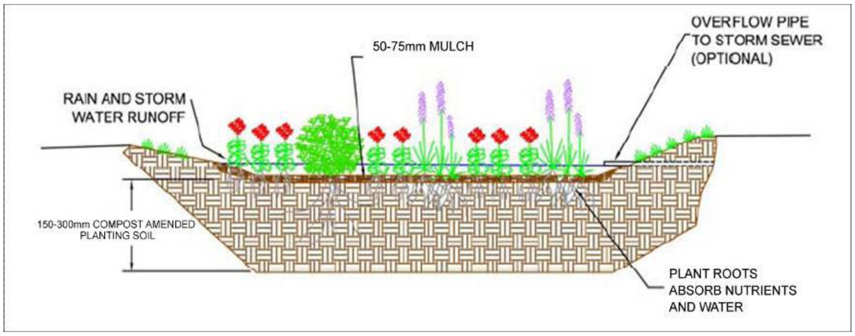
Typical Details

Figure 4.5.3 Plan view and cross sections of a typical bioretention cell



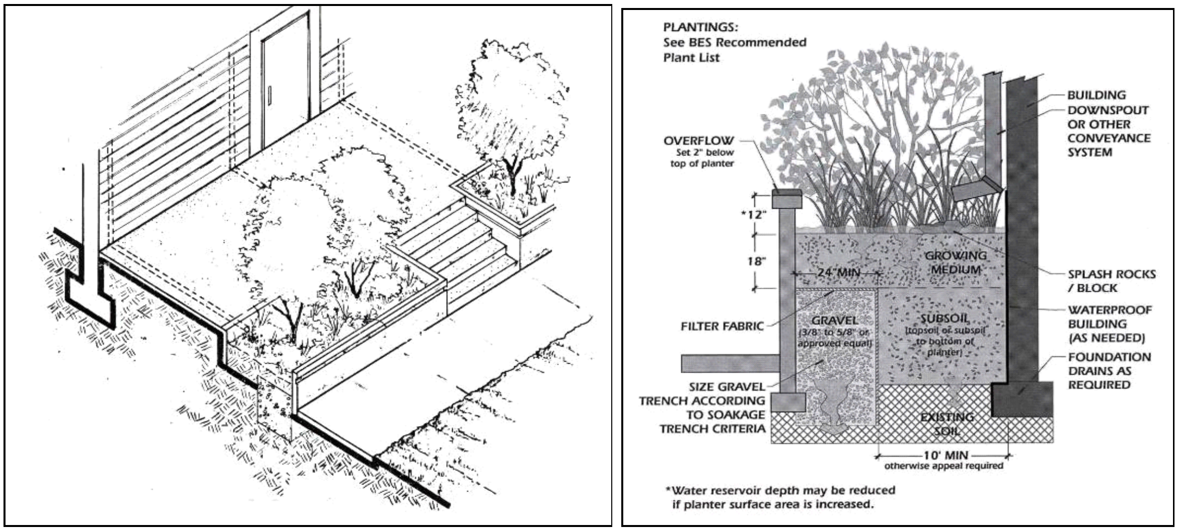
Source: adapted from Wisconsin Department of Natural Resources bioretention details

Figure 4.5.4 Rain garden cross section



Source: MDE, 2000

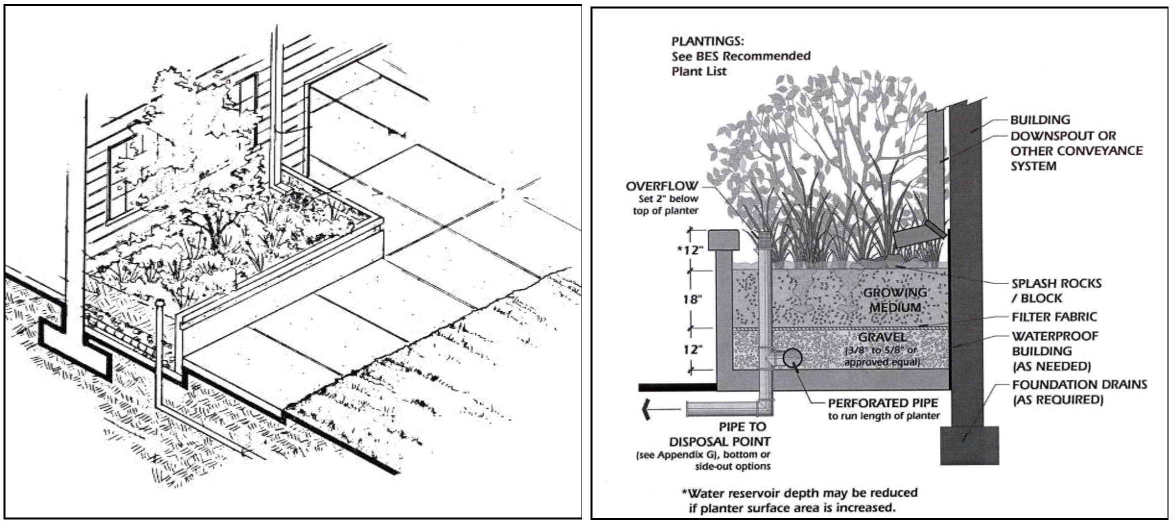
Figure 4.5.5 Infiltrating stormwater planter box



*Water reservoir depth may be reduced if planter surface area is increased.

Source: City of Portland, 2004

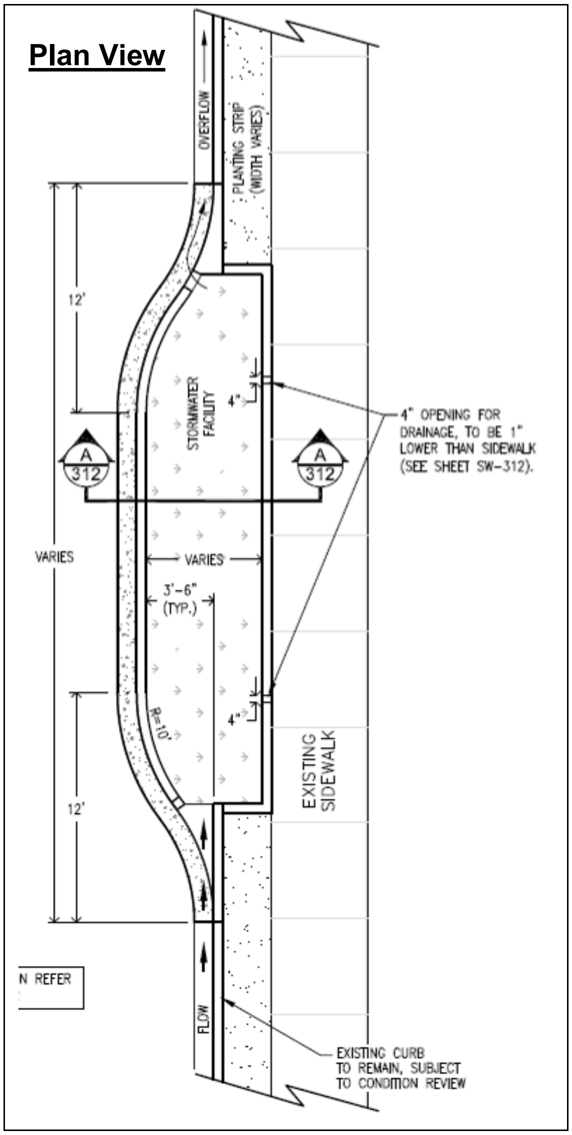
Figure 4.5.6 Stormwater planter box biofilter (filtration only)

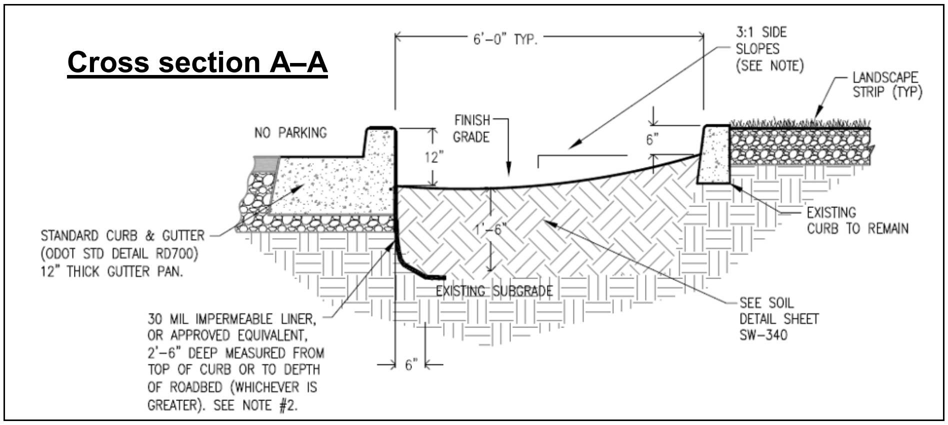


*Water reservoir depth may be reduced if planter surface area is increased.

Source: City of Portland, 2004

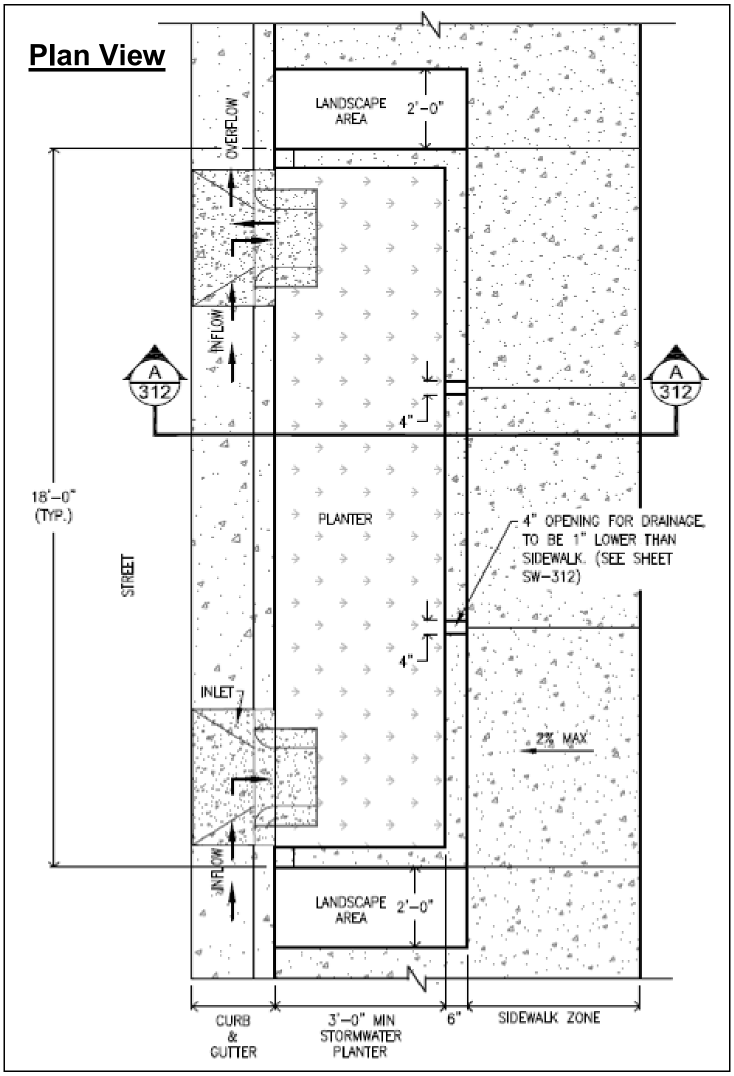
Figure 4.5.7 Plan view and cross section of a stormwater curb extension

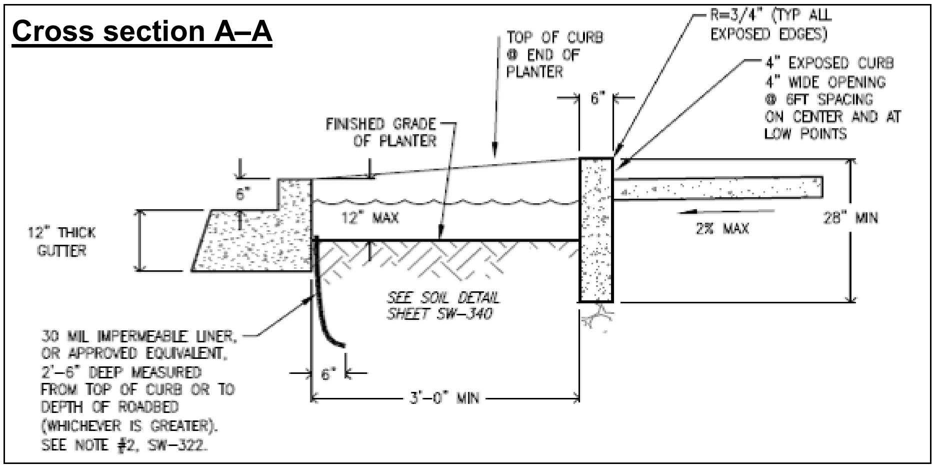




Source: City of Portland, 2004

Figure 4.5.8 Plan view and cross section of an extended tree pit





Source: City of Portland, 2004

4.8 Enhanced Grass Swale

4.8.1 Overview

Description
Enhanced grass swales are vegetated open channels designed to convey, treat and attenuate stormwater runoff (also referred to as enhanced vegetated swales). Check dams and vegetation in the swale slows the water to allow sedimentation, filtration through the root zone and soil matrix, evapotranspiration, and infiltration into the underlying native soil. Simple grass channels or ditches have long been used for stormwater conveyance, particularly for roadway drainage. Enhanced grass swales incorporate design features such as modified geometry and check dams that improve the contaminant removal and runoff reduction functions of simple grass channel and roadside ditch designs (Figure 4.8.1). A dry swale is a design variation that incorporates an engineered soil media bed and optional perforated pipe underdrain system (see Section 4.9 – Dry Swale). Enhanced grass swales are not capable of providing the same water balance and water quality benefits as dry swales, as they lack the engineered soil media and storage capacity of that best management practice.

Where development density, topography and depth to water table permit, enhanced grass swales are a preferred alternative to both curb and gutter and storm drains as a stormwater conveyance system. When incorporated into a site design, they can reduce impervious cover, accent the natural landscape, and provide aesthetic benefits.

Figure 4.8.1 Enhanced grass swales can be applied in road rights-of-way or along parking lots

Source: Seattle Public Utilities (left); Sue Donaldson (right)

Figure 4.8.2 Enhanced grass swales feature check dams that temporarily pond runoff to increase pollutant retention and infiltration and decrease flow velocity

Source: Delaware Department of Transportation (left); Center for Watershed Protection (right)

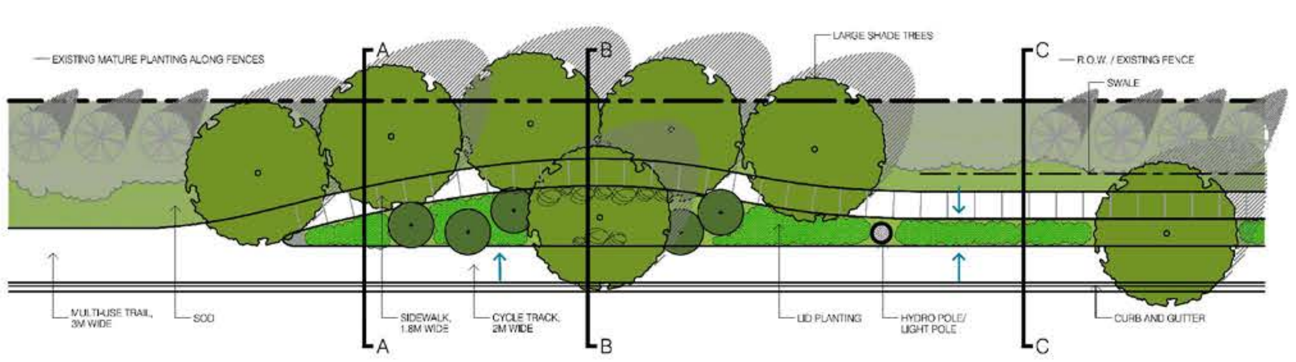
Common Concerns

If they are properly designed and maintained, enhanced grass swales can provide stormwater treatment and improved site aesthetics. However, there are some common concerns associated with their use:

- *Risk of Groundwater Contamination*: Most pollutants in urban runoff are well retained by infiltration practices and soils and therefore, have a low to moderate potential for groundwater contamination (Pitt *et al.*, 1999). Chloride and sodium from de-icing salts applied to roads and parking areas during winter are not well attenuated in soil and can easily travel to shallow groundwater. Infiltration of de-icing salt constituents is also known to increase the mobility of certain heavy metals in soil (*e.g.*, lead, copper and cadmium), thereby raising the potential for elevated concentrations in underlying groundwater (Amrhein *et al.*, 1992; Bauske and Goetz, 1993). However, very few studies that have sampled groundwater below infiltration facilities or roadside ditches receiving de-icing salt laden runoff have found concentrations of heavy metals that exceed drinking water standards (*e.g.*, Howard and Beck, 1993; Granato *et al.*, 1995). To minimize risk of groundwater contamination the following management approaches are recommended (Pitt *et al.*, 1999; TRCA, 2009b):
    - stormwater infiltration practices should not receive runoff from high traffic areas where large amounts of de-icing salts are applied (*e.g.*, busy highways), nor from pollution hot spots (*e.g.*, source areas where land uses or activities have the potential to generate highly contaminated runoff such as vehicle fuelling, servicing or demolition areas, outdoor storage or handling areas for hazardous materials and some heavy industry sites);
    - prioritize infiltration of runoff from source areas that are comparatively less contaminated such as roofs, low traffic roads and parking areas; and,
    - apply sedimentation pretreatment practices (*e.g.*, oil and grit separators) before infiltration of road or parking area runoff.

Appendix D

Landscaping Sketches



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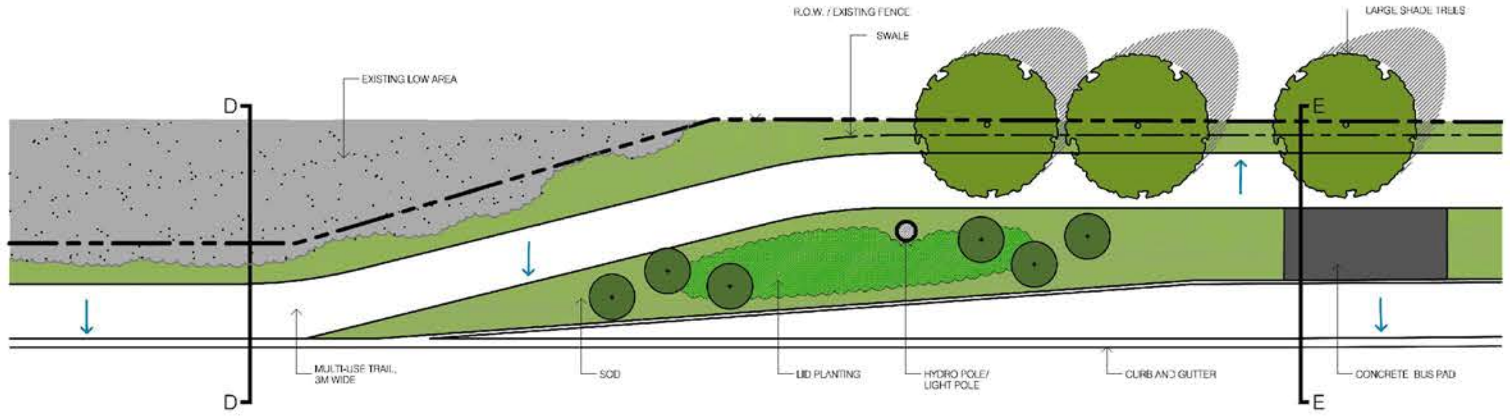

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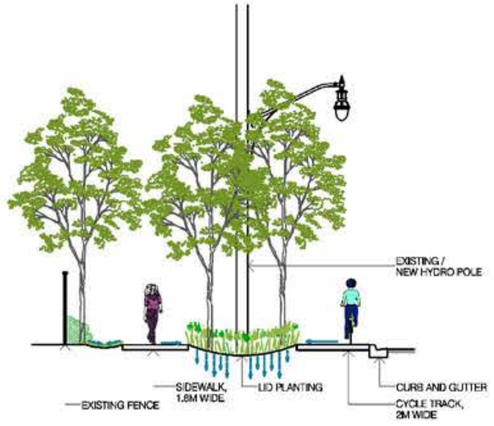

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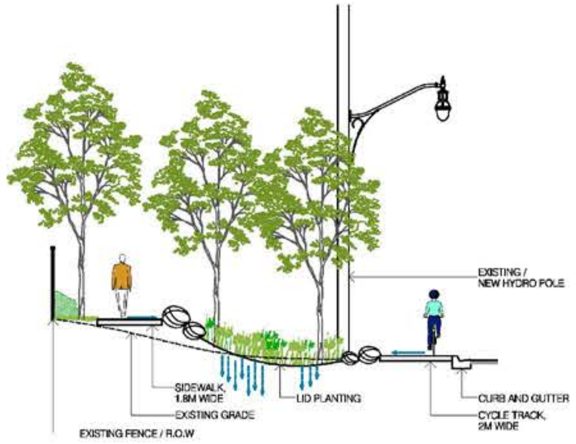

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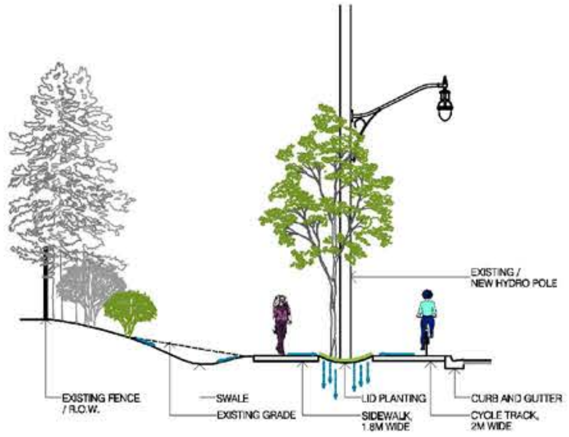

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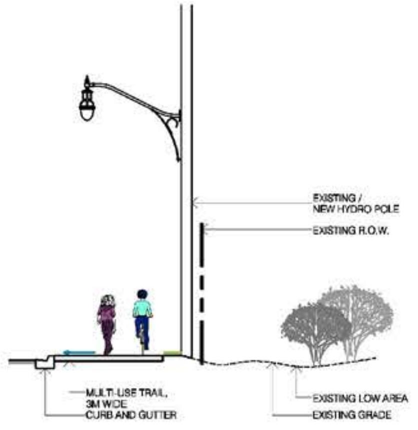

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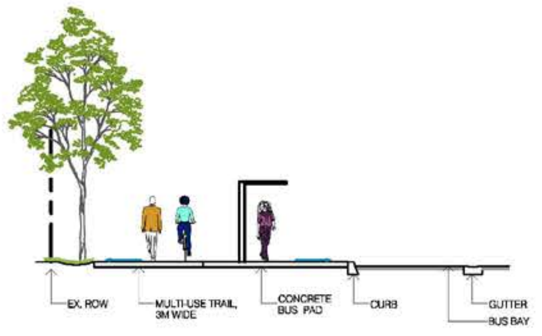

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THE GORE ROAD - STREETSCAPE ENHANCEMENT CONCEPT - SECTIONS
QUEEN STREET TO CASTLEMORE ROAD

DATE: MAY, 2016

Region of Peel
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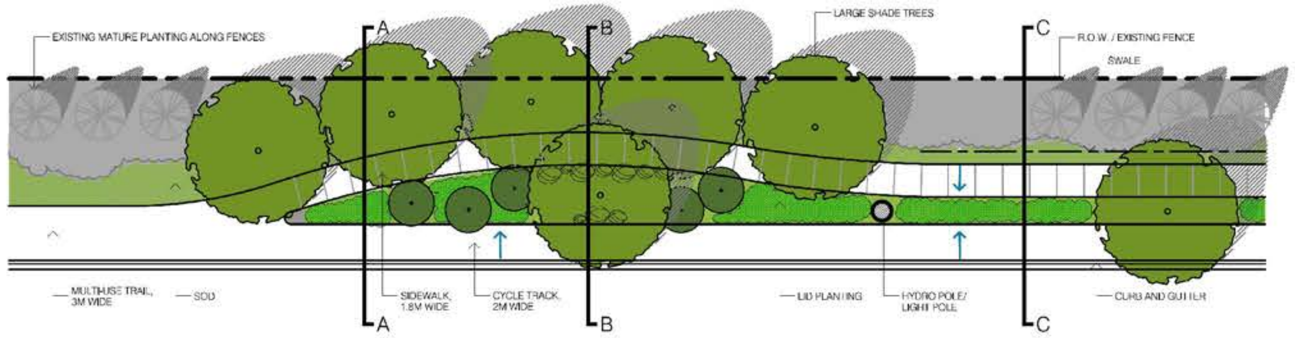
Appendix M

Streetscape Enhancement Concept - Sections



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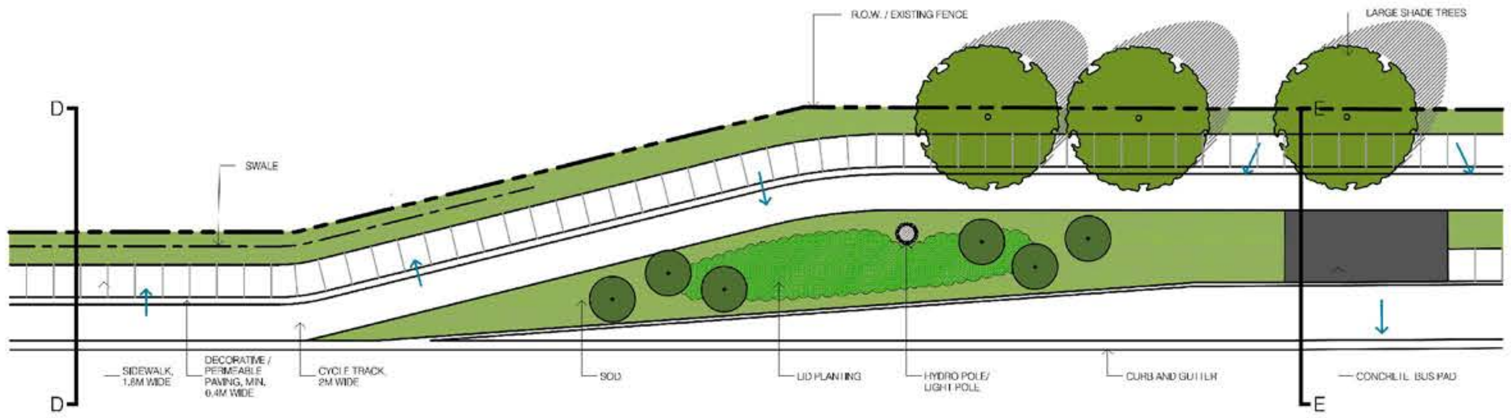

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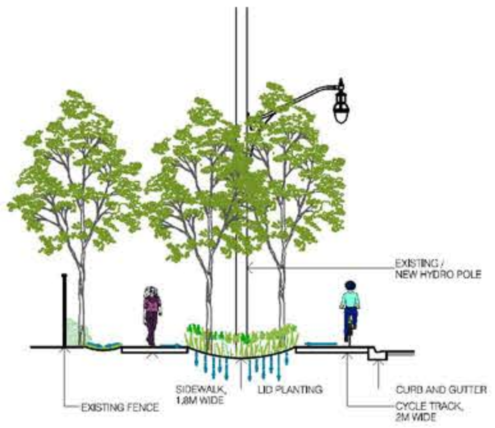

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Scale N.T.S.

SECTION B-B
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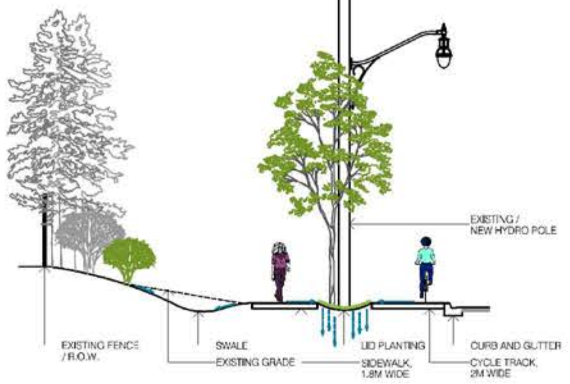

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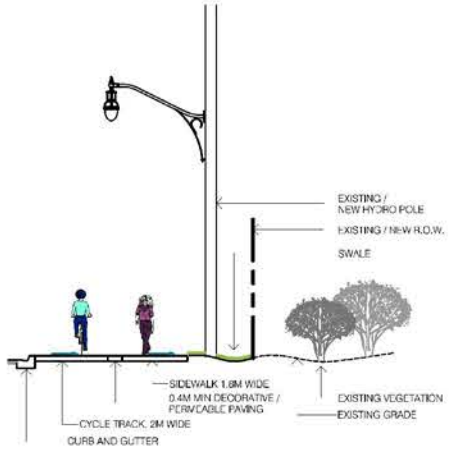

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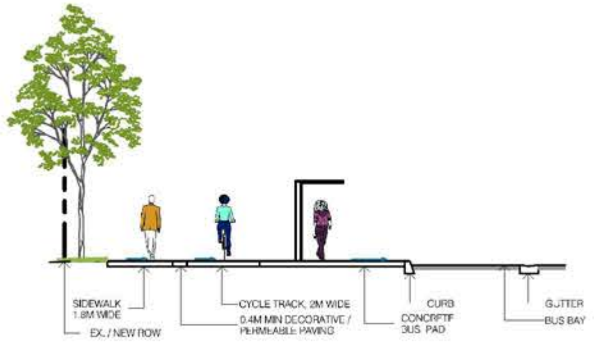

SECTION E-E
Scale N.T.S.

THE GORE ROAD - STREETSCAPE ENHANCEMENT CONCEPT - SECTIONS
QUEEN STREET TO CASTLEMORE ROAD

DATE: SEPTEMBER, 2016

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QUEEN STREET EAST

- LID FEATURES
- MEANDERING SIDEWALK AND TREES
- SMALLER TREES UNDER OVERHEAD HYDRO

EBENEZER ROAD

- EXTEND LANDSCAPE CHARACTER OF HISTORIC COMMUNITY HALL TO THE SIDEWALK

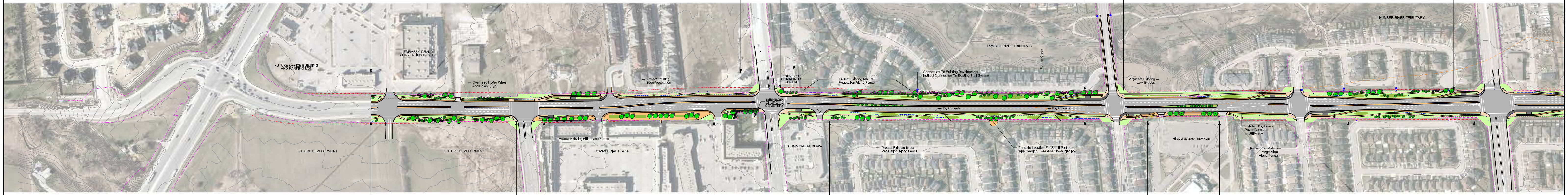
- LID FEATURES CONNECTED BY SHALLOW SWALES
- MEANDERING SIDEWALK AND TREES
- SIDEWALK AND CYCLE TRACK CONNECTION TO EXISTING DEVELOPMENT
- IDENTIFY CONNECTIONS TO EXISTING TRAIL SYSTEM
- ACKNOWLEDGE THE ORIGINAL SITE TOPOGRAPHY THROUGH SIGNAGE, PAVEMENT AND LANDSCAPE FEATURES

DON MINAKER DRIVE

- LID FEATURES CONNECTED BY SHALLOW SWALES
- MEANDERING SIDEWALK AND TREES
- SIDEWALK CONNECTIONS TO EXISTING DEVELOPMENT

- IDENTIFY CONNECTIONS TO EXISTING TRAIL SYSTEM
- ACKNOWLEDGE THE ORIGINAL SITE TOPOGRAPHY THROUGH SIGNAGE, PAVEMENT AND LANDSCAPE FEATURES

COTTRELLE BOULEVARD



- LID FEATURES
- MEANDERING SIDEWALK AND TREES
- SIDEWALK CONNECTION TO FUTURE DEVELOPMENT

FOGAL ROAD

- PUBLIC REALM ZONE
- TREES IN TREE PITS / PLANTERS WITH CONTINUOUS SOIL TRENCHES
- PERMEABLE PAVING

- RAIN GARDEN
- BENCHES , PLANTERS, BICYCLE RINGS
- MAINTAIN / ENHANCE CONNECTIONS TO COMMERCIAL PLAZA'S MEDICAL BUILDING

- LID FEATURES CONNECTED BY SHALLOW SWALES
- LID FEATURES AT EXISTING CULVERT DISCHARGE LOCATIONS
- MEANDERING SIDEWALK AND TREES
- LOW PLANTING UNDER OVERHEAD HYDRO
- GRADE CHANGES IN SIDEWALK TO BE COMPLIANT WITH AODA REQUIREMENTS
- POSSIBLE INTERMEDIATE REST AREA

TYLER AVENUE

- PUBLIC REALM ZONE
- TREES IN TREE PITS / PLANTERS WITH CONTINUOUS SOIL TRENCHES
- SMALLER TREES DUE TO OVERHEAD HYDRO
- DECORATIVE / PERMEABLE PAVING
- RAIN GARDEN
- BENCHES , PLANTERS, BICYCLE RINGS
- OPTION FOR EXTENSION OF TEMPLE PROGRAMING FOR FESTIVALS
- POSSIBLE PLANTING OF ANNUALS AND PERENNIALS
- POSSIBLE SHADE STRUCTURES

- RELATIVELY FLAT
- LID FEATURES
- MAINTAIN CONNECTIONS TO SUBDIVISION
- LOW PLANTING DUE TO OVERHEAD HYDRO

THE GORE ROAD - STREETSCAPE ENHANCEMENT CONCEPT
QUEEN STREET TO COTTRELLE BLVD

DATE: SEPTEMBER, 2016
SCALE: 1:1000

0 25m 50m

-·-·-	Proposed ROW for Future Development	●	Large Shade Deciduous Tree	▭	Sidewalk
-·-·-	Proposed Property Line	●	Small Deciduous Tree	▭	Cycle Track
-·-·-	Existing ROW	●	Coniferous Tree	▭	Multi-Use Trail
-·-·-	TRCA Regulated Area	🟩	Sodded area	▭	Decorative / Permeable Paving
●	Connection to Trails	🟩	LID Planting/Rain Garden/Bioswale	▭	Bus Stop
●	Connection to Subdivision	🟩	Median Planting - Small Deciduous Trees	▭	Bus Bay
·	Hydro Pole / Light Pole	-·-·-	Swale / Bioswale		

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COTTRELLE BOULEVARD

- MINIMUM SPACE BETWEEN SIDEWALK AND CYCLE TRACK TO ACCOMODATE NARROW AVAILABLE CORRIDOR DUE TO CHANGE IN ADJACENT GRADES.
- RETAINING STRUCTURES MAY BE REQUIRED TO ACCOMODATE GRADES.
- SHALLOW SWALES/ BIOSWALES TO CONVEY STORMWATER

PANNAHILL DRIVE

- NO LID FEATURES PROPOSED IN BOULEVARD DUE TO LIMITED SPACE

STRATHDALE ROAD

- MINIMUM INTERVENTION DUE TO EXISTING LOW GRADES AND MATURE VEGETATION
- INTERPRETATIVE SIGNAGE HIGHLIGHTING NATURAL CHARACTERISTICS & HISTORY

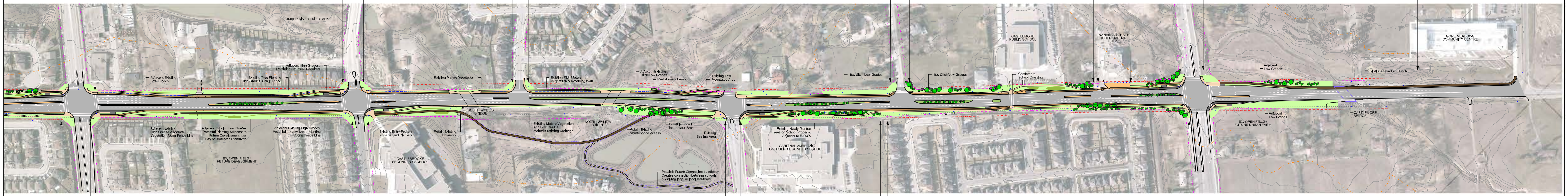
FITZPATRICK DRIVE

- MICRO LID FEATURES ADJACENT TO SCHOOL
- MAINTAIN ACCESS TO SCHOOL
- EXISTING DITCH AND LOW GRADES BETWEEN FITZPATRICK & SCHOOL REQUIRE NO FURTHER INTERVENTION

- URBAN PUBLIC REALM

CASTLEMORE ROAD

- NEIGHBORHOOD MULTI-USE TRAIL CONNECTION TO COMMUNITY CENTRE
- LID FEATURES WITH LOW PLANTING
- EXISTING WIDE SWALE PLANTING



- LOW PLANTING DUE TO OVERHEAD HYDRO
- MAINTAIN CONNECTIONS TO SUBDIVISION

- OVERHEAD HYDRO - LIMITED OPPORTUNITIES FOR TREES
- ENHANCED GRASS SWALES; SMALL LID FEATURE
- MAINTAIN PEDESTRIAN CONNECTION TO EXISTING DEVELOPMENT
- AODA

- MULTI-USE TRAIL CONNECTION BETWEEN TWO SCHOOLS
- PATHWAY AT POND WITH INTERPRETATIVE SIGNAGE
- RECREATIONAL USE OF STORM WATER FACILITY
- POSSIBLE LOOKOUT SERVING PEDESTRIANS AND CYCLISTS
- NATIVE SPECIES PLANTING ALONG PATHWAYS / TRCA REGULATED AREA
- LID FEATURES AND BIOSWALES IN BOULEVARD WHERE APPROPRIATE

- OVERHEAD HYDRO NEAR PROPERTY LINE
- DOMINANT EXISTING LANDSCAPE MINIMIZES NEED FOR MAJOR INTERVENTION
- MINIMUM BOULEVARD WIDTH AVAILABLE AT TWO BRIDGE STRUCTURES
- CPTED AND ACCESSIBILITY TO BE CONSIDERED DURING THE DESIGN OF THE MULTI-USE TRAIL

CASTLE OAKS CROSSING

- LID FEATURES CONNECTED BY ENHANCED SHALLOW SWALES
- SMALL TO MEDIUM TREE PLANTING DUE TO OVERHEAD HYDRO
- MAINTAIN CONNECTIONS TO SCHOOL
- CPTED

- MINIMUM SPACE BETWEEN CYCLE TRACK AND SIDEWALK IN AREAS WITH ADJACENT HIGH GRADES.
- RETAINING STRUCTURES MAY BE REQUIRED TO ACCOMODATE GRADES AND FOR ACCESSIBILITY.
- SMALL TO MEDIUM TREE PLANTING DUE TO OVERHEAD HYDRO
- MAINTAIN CONNECTION TO SUBDIVISION

THE GORE ROAD - STREETSCAPE ENHANCEMENT CONCEPT
COTTRELLE BLVD TO CASTLEMORE ROAD

DATE: SEPTEMBER, 2016
SCALE: 1:1000 0 25m 50m

Proposed ROW for Future Development
Proposed Property Line
Existing ROW
TRCA Regulated Area
● Connection to Trails
▼ Connection to Subdivision
· Hydro Pole / Light Pole

● Large Shade Deciduous Tree
● Small Deciduous Tree
● Coniferous Tree
🟩 Sodded area
🟩 LID Planting/Rain Garden/Bioswale
▨ Median Planting - Small Deciduous Trees
Swale / Bioswale

▨ Sidewalk
▨ Cycle Track
▨ Multi-Use Trail
▨ Decorative / Permeable Paving
▨ Bus Stop
▨ Bus Bay

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Working for you