GOVERNMENT REVIEW TEAM SEPT, OCT, 2008

TABLE OF CONTENTS

Government Review Team Circulation Table					
No	**Agency**	**Project**	**Name**	**Date**	**Date Responded to City of Mississauga**
1	Ministry of the Environment	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Jeffrey Dea	Sept 16 - 08	No response provided MOE to confirm
2	Ministy of the Envionment Water and Wastewater Unit	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Mohammed Nizamuddin	Sept 26 - 08	No response provided MOE to confirm
3	Ministry of the Environment Air and noise Unit	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Victor Low	Sept 26 - 08	No response provided MOE to confirm
4	Ministry of Environment Central Region – Technical Support	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Dorothy Moszynski	Sept 26 - 08	No response provided MOE to confirm
5	Ministry of Environment Water Resource Unit	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Ellen Schmarje	Sept 26 - 08	No response provided MOE to confirm
6	Ministry of Environment EA Project Coordination Section	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Jeffrey Dea	Sept 26 - 08	No response provided MOE to confirm
7	Credit Valley Conservation Authority	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Liam Marray	Oct 07 - 08	See Final Correspondence: Minutes of Meeting Dated January 12, 2009
8	Toronto and Region Conservation Authority	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Sharon Lingertat	Oct 07 – 08	TRCA responded with a letter Dated November 27, 2008

Government Review Team Circulation Table					
No	**Agency**	**Project**	**Name**	**Date**	**Date Responded to City of Mississauga**
9	Ontario Realty Corporation	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Anil Wijessooriya/ Lisa Myslicki	Oct 07 – 08	ORC responded to Mississauga's e-mail of September 26, 2008 with an e-mail dated October 6, 2008. Final E-mail correspondence received Dated March 11, 2009
10	Ministry of Transportation	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008 BRT Project	Lou Politano	Oct 07 – 08	MTO Comments provided on November 3, 2008
11	Hydro One	Mississauga BRT Project Draft Environmental Assessment Addendum dated September 2008	Dave Ellis	Oct 07 – 08	No response Provided to GRT circulation

McCORMICK
RANKIN
CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of the Environment **DATE:** Sept16-08

ATTENTION: Jeffrey Dea **OUR FILE NO:** 6964

RE: Mississauga BRT

TRANSMITTAL

We are enclosing herewith:

Qty	Drawing No.	Rev.	Title
1			DRAFT Environmental Assessment Addendum (September 2008)

	For your information/action		
X	For your approval and/or comments		Reviewed
	For use with Notice of Change/Record of Revision		Reviewed as noted
	As requested		Revise and resubmit

Remarks:

McCormick Rankin Corporation
Per: Andrew Shea

McCORMICK
RANKIN
CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of the Environment
Water and Wastewater Unit

DATE: September 26th, 2008

ATTENTION: Mohammed Nizamuddin

OUR FILE NO: 6964

TRANSMITTAL

RE: Mississauga Bus Rapid Transit
Environmental Assessment Addendum

W:\6k\6964 Mississauga BRT Preliminary Design\6964.700 Preliminary Design Guideway\6964.702 Functional Planning\6964.702 - EA Addendum\6964as - Trans to XXXXX re EA Addendum review - Sept26-08rev.doc

We are enclosing herewith:

Qty	Drawing No.	Rev.	Title
			DRAFT Mississauga Bus Rapid Transit Project - Environmental Assessment Addendum (September 2008)

	For your information/action		
X	**For your review and comment**		**Reviewed**
	For use with Notice of Change/Record of Revision		**Reviewed as noted**
	As requested		**Revise and resubmit**

Remarks:

Please find enclosed a DRAFT copy of an Environmental Assessment Addendum (EA Addendum) documenting proposed revisions to the design approved as part of the Mississauga Transitway Environmental Assessment Report (1992). Please note that a final EA Addendum report will be circulated at a later date. It is our understanding that you have been contacted by Mr. Jeffrey Dea, Project Officer, Environmental Assessment Project Coordination Section, and have been requested to review the Draft EA Addendum and provide any comments that you may have directly to him.

It is important to note that the enclosed EA Addendum focuses on an alternatives evaluation for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

If you have any questions, please contact the undersigned or Mr. Jeffrey Dea at 416-314-7213.

McCormick Rankin Corporation
Per: Andrew Shea

McCORMICK
RANKIN
CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of the Environment
Air and Noise Unit

DATE: September 26th, 2008

ATTENTION: Victor Low

OUR FILE NO: 6964

TRANSMITTAL

RE: Mississauga Bus Rapid Transit
Environmental Assessment Addendum

W:\6k\6964 Mississauga BRT Preliminary Design\6964.700 Preliminary Design Guideway\6964.702 Functional Planning\6964.702 - EA Addendum\6964as - Trans to MOE Noise re EA Addendum review - Sept26-08rev.doc

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Per: Andrew Shea

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2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of the Environment
Central Region - Technical Support

DATE: September 26th, 2008

ATTENTION: Dorothy Moszynski

OUR FILE NO: 6964

TRANSMITTAL

RE: Mississauga Bus Rapid Transit
Environmental Assessment Addendum

W:\6k\6964 Mississauga BRT Preliminary Design\6964.700 Preliminary Design Guideway\6964.702 Functional Planning\6964.702 - EA Addendum\6964as - Trans to MOE Tech re EA Addendum review - Sept26-08rev.doc

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Per: Andrew Shea

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2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of the Environment
Water Resource Unit

DATE: September 26th, 2008

ATTENTION: Ellen Schmarje

OUR FILE NO: 6964

TRANSMITTAL

RE: Mississauga Bus Rapid Transit
Environmental Assessment Addendum

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Per: Andrew Shea

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Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of the Environment
EA Project Coordination Section

DATE: September 26th, 2008

ATTENTION: Jeffrey Dea

OUR FILE NO: 6964

TRANSMITTAL

RE: Mississauga Bus Rapid Transit
Environmental Assessment Addendum

W:\6k\6964 Mississauga BRT Preliminary Design\6964.700 Preliminary Design Guideway\6964.702 Functional Planning\6964.702 - EA Addendum\6964as - Trans to J Dea re EA Addendum review - Sept26-08rev.doc

We are enclosing herewith:

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3			DRAFT Mississauga Bus Rapid Transit Project - Environmental Assessment Addendum (September 2008)

	For your information/action		
X	For your review and comment		Reviewed
	For use with Notice of Change/Record of Revision		Reviewed as noted
	As requested		Revise and resubmit

Remarks:

Please find enclosed a DRAFT copy of an Environmental Assessment Addendum (EA Addendum) documenting proposed revisions to the design approved as part of the Mississauga Transitway Environmental Assessment Report (1992). Please note that a final EA Addendum report will be circulated at a later date. In order to expedite the final review process and address comments as early as possible, we are requesting your comments regarding the draft EA Addendum. Please provide any comments by the end of October 2008.

It is important to note that the enclosed EA Addendum focuses on an alternatives evaluation for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

If you have any questions, please contact the undersigned.

McCormick Rankin Corporation
Per: Andrew Shea

McCORMICK
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2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Credit Valley Conservation Authority **DATE:** October 7th, 2008

ATTENTION: Liam Marray **OUR FILE NO:** 6964

RE: Mississauga BRT Project

TRANSMITTAL

We are enclosing herewith:

Qty	Drawing No.	Rev.	Title
1			Hard copies of the Draft EA Addendum Report (dated September, 2008)

	For your information/action		
X	For your approval and/or comments		Reviewed
	For use with Notice of Change/Record of Revision		Reviewed as noted
	As requested		Revise and resubmit

Remarks:

McCormick Rankin Corporation
Per: Andrew Shea

McCORMICK
RANKIN
CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Toronto and Region Conservation Authority

DATE: October 7th, 2008

ATTENTION: Sharon Lingertat

OUR FILE NO: 6964

RE: Mississauga BRT Project

TRANSMITTAL

We are enclosing herewith:

Qty	Drawing No.	Rev.	Title
4			Hard copies of the Draft EA Addendum Report (dated September, 2008)

	For your information/action		
	For your approval and/or comments		**Reviewed**
	For use with Notice of Change/Record of Revision		**Reviewed as noted**
X	**As requested**		**Revise and resubmit**

Remarks:

McCormick Rankin Corporation
Per: Andrew Shea

File: C:\Documents and Settings\ing\Local Settings\Temporary Internet Files\Content.Outlook\A5ORO3ER\6964as - Trans to TRCA Oct07-08.doc

McCORMICK
RANKIN
CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ontario Realty Corporation **DATE:** October 7th, 2008

ATTENTION: Anil Wijesooriya **OUR FILE NO:** 6964

RE: Mississauga BRT Project

TRANSMITTAL

We are enclosing herewith:

Qty	Drawing No.	Rev.	Title
2			Hard copies of the Draft EA Addendum Report (dated September, 2008)

	For your information/action		
	For your approval and/or comments		Reviewed
	For use with Notice of Change/Record of Revision		Reviewed as noted
X	As requested		Revise and resubmit

Remarks:

Please distribute 1 copy of the Draft EA Addendum Report for the Mississauga BRT project to Geoff Woods for his review.

McCormick Rankin Corporation
Per: Andrew Shea

McCORMICK
RANKIN
CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Ministry of Transportation **DATE:** October 7th, 2008

ATTENTION: Lou Politano **OUR FILE NO:** 6964

RE: Mississauga BRT Project

TRANSMITTAL

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Remarks:

McCormick Rankin Corporation
Per: Andrew Shea

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CORPORATION

2655 North Sheridan Way
Mississauga, Ontario, L5K 2P8
Tel: (905)823-8500
Fax: (905) 823-8503
E-mail: mrc@mrc.ca
Website: www.mrc.ca

TO: Hydro One **DATE:** October 8th, 2008

ATTENTION: Dave Ellis **OUR FILE NO:** 6964

RE: Mississauga BRT Project

TRANSMITTAL

We are enclosing herewith:

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	For your information/action		
X	**For your approval and/or comments**		**Reviewed**
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	As requested		**Revise and resubmit**

Remarks:

Further to your discussions with Willy Ing of the City of Mississauga, please find attached a draft copy of the Mississauga BRT EA Addendum for your review/comment.

McCormick Rankin Corporation
Per: Andrew Shea

File: C:\Documents and Settings\ing\Local Settings\Temporary Internet Files\Content.Outlook\A5ORO3ER\6964as - Trans to Hydro One D Ellis Oct08-08.doc

C V C

Willy Ing

From: Schijns, Steve [SSchijns@mrc.ca]
Sent: 2008/11/25 2:56 PM
To: Marray, Liam; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Bright, Katie; Willy Ing; Kauppinen, Andrea
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum
Attachments: S6964-307-001GA.PDF; 6964jgs-Cooksville Creek Hydraulics Technical Memo-Oct 22 2008.pdf

Liam – we are anxious to finalize the CEAA report, EA Addendum, and BRT Preliminary Design Report and would be pleased to meet with you at your convenience. CVC is the sole remaining stakeholder with CEAA comments outstanding. Please advise when we can meet.

Attached for your information is a drawing of the proposed lowering of the Cooksville Creek culvert obvert east of Hurontario Street, as well as a summary of the investigation into the hydraulic impact of the proposal.

Thank you

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Marray, Liam [mailto:LMarray@creditvalleycons.com]
Sent: November 3, 2008 7:14 PM
To: Willy Ing; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy

I apologize for the delay in responding. CVC would like to set-up a meeting with you and your consultants to discuss.

Liam Marray

From: Willy Ing [Willy.Ing@mississauga.ca]
Sent: November 3, 2008 4:38 PM
To: Marray, Liam
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Liam,

Comments were due October 31st. Please advise if CVC will be sending comments.

Willy

From: Schijns, Steve [mailto:SSchijns@mrc.ca]
Sent: 2008/10/02 1:26 PM
To: Marray, Liam; Willy Ing
Cc: Scott W Anderson; Andrew Shea; Geoff Wright
Subject: RE: Mississauga Bus Rapid Transit Project - DraftEnvironmentalAssessment Addendum

Liam – the EA Addendum deals in part with the revised approach to the BRT project crossing at Cooksville Creek / Hurontario Street, and the reconfiguration of interchange ramps at Winston Churchill Boulevard / 403. Other issues dealt with the EA Addendum fall within the TRCA jurisdiction. Unless informed otherwise, we will send CVC one copy of the draft report for review and comment.

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: September 29, 2008 8:53 AM
To: Liam Marray
Cc: Andrew Shea; Geoff Wright; Scott W Anderson; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - DraftEnvironmentalAssessment Addendum

Hi Liam,

With respect to the EA Addendum, I believe the main issue is the Cooksville Creek. However, I will copy this e-mail to Steve Schijns and Andrew Shea asking them to provide you with any further details and that they forward you the necessary copies of the draft EA Addendum.

Should you have any questions or concerns please let me know.

Willy

>>> "Marray, Liam" <LMarray@creditvalleycons.com> 2008/09/29 8:02 am >>>
Willy
CVC is interested in participating in the review of the EA addendum. However, from this email there is no scope of work identified and therefore, it is difficult to determine, which staff should be involved. Can you provide more detail with respect to the addendum?

Liam Marray
Credit Valley Conservation
Senior Planner/Ecologist
1255 Old Derry Road West
Meadowvale, Ontario L5N 6R4
Tel: (905) 670-1615 Ext. 239
Fax: (905) 670-2210

Email: lmarray@creditvalleyca.ca

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: September 26, 2008 11:19 AM
To: Marray, Liam
Cc: Geoff Wright
Subject: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Dear Mr. Marray:

The City of Mississauga in partnership with GO Transit are undertaking an Environmental Assessment Addendum of the Mississauga Transitway, now known as the Mississauga Bus Rapid Transit (BRT) which received approval from the Ministry of the Environment (MOE) in 1992.

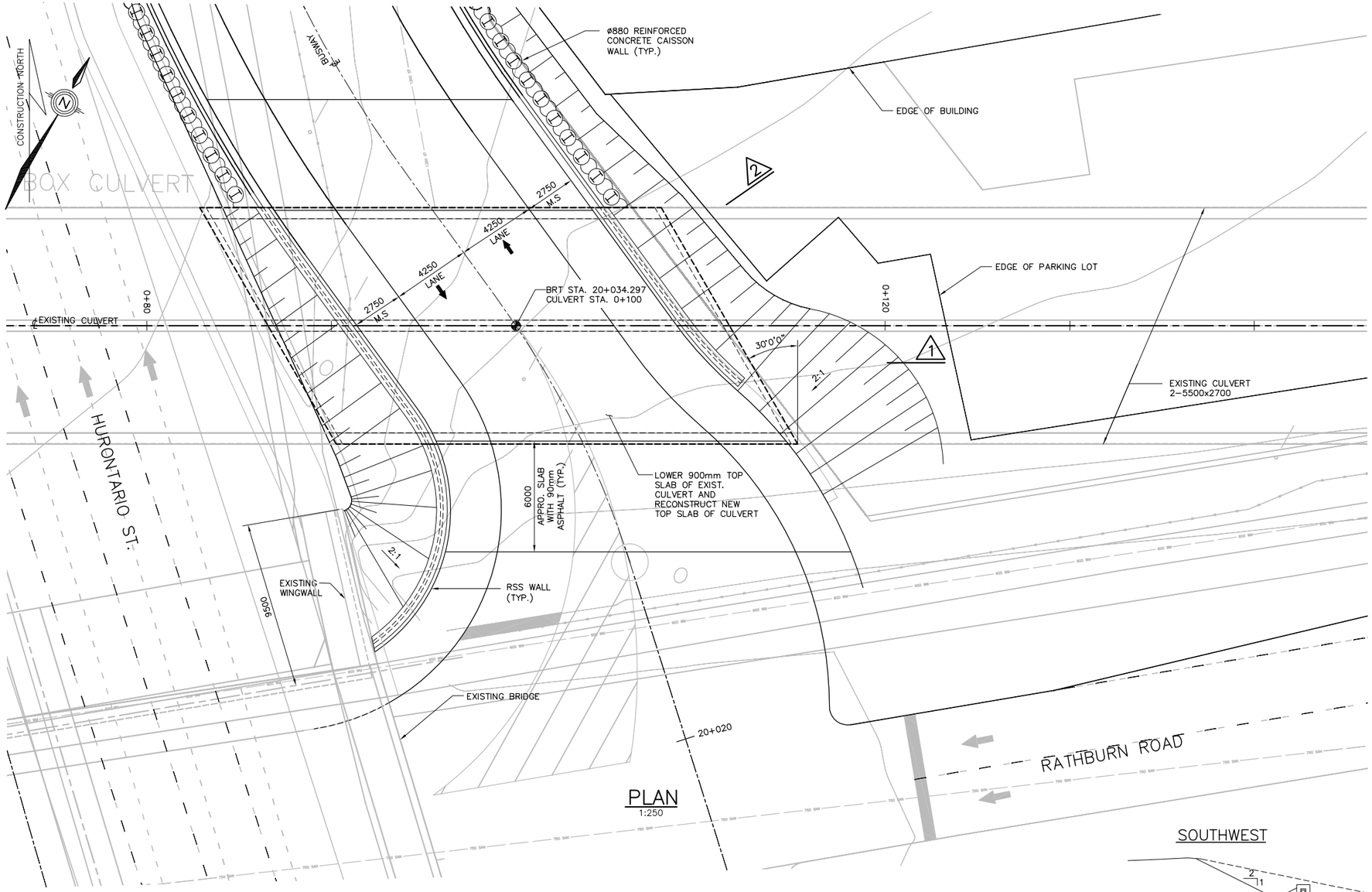
In order to move this addendum forward, the Ministry of the Environment suggests that there may be benefit to engaging some members of the Government Review Team (GRT) at a preliminary stage to expedite the final addendum review process. According to the GRT Master Distribution list, we are to contact the conservation authority in the affected area. As such, we are engaging the Credit Valley Conservation (CVC) to determine if the CVC would be interested in participating in this draft EA Addendum review process, and if possible, that any comments from the CVC be provided to the City of Mississauga by the end of October 2008.

It is important to note that the EA Addendum focuses on alternatives/evaluations for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

Please provide a response to this e-mail in 5 working days to the City of Mississauga.

Should you have any questions you may contact Mr. Geoff Wright, Director Bus Rapid Transit Project Office at 905-615-3200 Ext 4940 e-mail: geoff.wright@mississauga.ca, or you may contact me directly, my information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca



PLAN
1:250

GENERAL NOTES

CLASS OF CONCRETE

ALL CONCRETE	30 MPa

CLEAR COVER TO REINFORCING STEEL

SLAB	
TOP	70±20
BOTTOM	50±10
REMAINDER UNLESS OTHERWISE NOTED	70±20

REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 AND SS12-2, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES

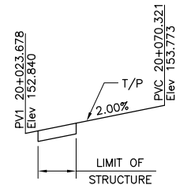
THE CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO COMMENCING CONSTRUCTION.

ALL ELEVATIONS ARE TO GEODETIC DATUM.

ABBREVIATIONS

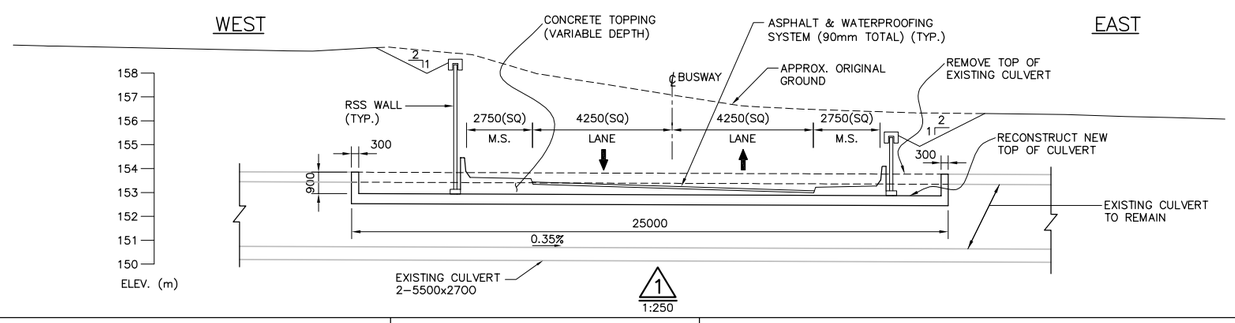
T/P	DENOTES TOP OF PAVEMENT
M.S.	DENOTES MAINTANANCE STRIP

SOUTH NORTH



PROFILE OF BUSWAY
N.T.S.

WEST EAST



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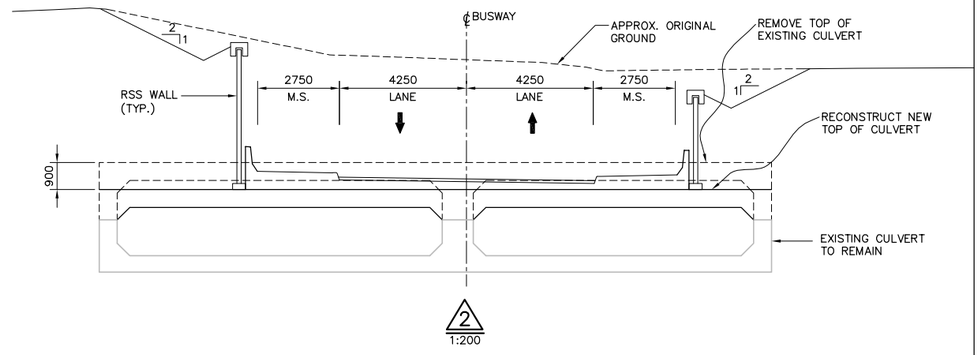
1:250

SOUTHWEST NORTHEAST



2
1:200

McCORMICK RANKIN CORPORATION

MISSISSAUGA
Leading today for tomorrow

MISSISSAUGA BUS RAPID TRANSIT PRELIMINARY DESIGN

BRT At Cooksville Creek
Preliminary General Arrangement

Date: NOVEMBER 2008

Scale: AS SHOWN

FIGURE NO. ---

FILE LOCATION=S:\6964\7-BRT AT COOKSVILLE CREEK\
DRAWING NAME: S6964-307-001GA.DWG
DRAWN BY: AMY ZHANG
MODIFIED: 08/11/19 08:50:38
DATE PLOTTED: 08/11/19 08:50:38

TECHNICAL MEMORANDUM

To: Sunil Jain
McCormick Rankin Corporation
File: 6964/3

From: Jeff Schroeder
Date: Oct. 22, 2008

RE: Mississauga BRT Preliminary Design
Cooksville Creek Hydraulic Assessment

1.0 INTRODUCTION

1.1 Study Purpose

Hydraulic assessments were completed for the BRT crossing of Cooksville Creek as part of the Mississauga BRT Preliminary Design.

This Technical Memo details the development of the hydraulic models and the evaluation of the hydraulic impact of the Cooksville Creek crossing.

1.2 Proposed Structure

The proposed BRT alignment crosses over the 209.7 metre long twin 5500x2700mm culverts underneath Hurontario Street and Rathburn Road (See Exhibit 1). Due to grading issues, the profile of the BRT would cut into the top of the twin culverts (See Exhibit 2). The alignment centreline of the proposed BRT would cut into the top of the existing culverts by 0.5 metres approximately 125 metres upstream of the Rathburn Road outlet.

1.3 Study Scope

This Technical Memo includes the following:

- Identification of design flows during 2-year, 5-year, 10-year, 25-year, 50-year, 100-year and Regional rainfall events;
- Development of hydraulic models for calculating water surface elevations;
- Impact assessment results and recommendations.

2.0 DESIGN FLOWS

2.1 Design Storms

Peak flows for the 2-year, 5-year, 10-year, 25-year, 50-year, 100-year and Regional rainfall events were provided by the Credit Valley Conservation (CVC) in the HEC-2 model Cook.hec. Table 1 summarizes the peak flows at each crossing.

Table 1 - Summary of Peak Flows (m^3/s)

2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
55.0	65.0	70.0	90.0	105.0	115.0	145.0

3.0 HYDRAULIC MODELLING

3.1 Model Setup

The CVC provided an original HEC-2 model for Cooksville Creek. For the analysis the original model was converted into the river analysis program HEC-RAS and the converted model was used as a base and comparison model for the proposed BRT model.

HEC-RAS is a well established backwater model developed by the U.S. Army Corps of Engineers and widely used to estimate water surface elevations in river systems. The HEC-RAS model is particularly well suited for assessing the impacts of culverts and bridges on water surface elevations. It is the *de facto* standard for water surface elevation calculations and flood risk mapping in Ontario and many other North American jurisdictions. However, HEC-RAS was not designed to easily handle a situation where the height of a culvert is reduced part way through its length and then expanded again.

The approach used was to split the twin culverts into three separate structures with a small space in between instead of one long structure. The first structure underneath Rathburn Road covers a length of 115 metres, the second structure underneath the proposed BRT location covers a length of 15 metres and the third structure underneath Hurontario Street is 79.7 metres long.

Two existing conditions models were created for the analysis. One model simulates the twin culverts as one long structure (conventional method) and the second model simulates the twin culverts as three separate structures as mentioned above. The reason for creating two existing models is the need to compare the differences in results between the conventional modelling method and the alternative modelling approach. The results from the future conditions model (using the alternative modelling approach) were then compared to the results from the alternative existing conditions model. The only difference between the alternative existing conditions model and the future conditions model is that the middle twin culvert section only has a height of 2.2 metres instead of 2.7 metres.

As a further comparison and check, the hydraulic program XP-STORM was used and models were setup similarly to the conventional and alternative methods mentioned above.

3.2 Modelling Results

Table 2 compares the conventional modelling method with the alternative modelling method for existing conditions using HEC-RAS.

Table 2 – Flood Elevation Comparison-Conventional Method (Ex1) vs. Alternative Method (Ex2) (HEC-RAS) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.
8.473	0	151.17	151.17	0.00	152.02	152.02	0.00	152.72	152.72	0.00	153.19	153.19	0.00
8.52	40	150.98	150.98	0.00	151.86	151.86	0.00	152.57	152.57	0.00	153.06	153.06	0.00
8.549	70	151.58	151.58	0.00	152.34	152.34	0.00	152.92	152.92	0.00	153.40	153.40	0.00
8.55	71	151.43	151.43	0.00	152.22	152.22	0.00	152.82	152.82	0.00	153.30	153.30	0.00
8.555	75	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	151.36	151.36	0.00	151.64	154.48	2.84	151.83	156.02	4.19	155.59	156.03	0.44
8.76	299.7	154.85	154.85	0.00	155.22	155.22	0.00	155.47	155.47	0.00	155.74	155.74	0.00

Table 3 compares existing conditions with future conditions using HECRAS for the alternative modelling method.

Table 3 – Flood Elevation Comparison-Existing vs. Future Conditions (HEC-RAS) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex2	Fut	Diff.	Ex2	Fut	Diff.	Ex2	Fut	Diff.	Ex2	Fut	Diff.
8.473	0	151.17	151.17	0.00	152.02	152.02	0.00	152.72	152.72	0.00	153.19	153.19	0.00
8.52	40	150.98	150.98	0.00	151.86	151.86	0.00	152.57	152.57	0.00	153.06	153.06	0.00
8.549	70	151.58	151.58	0.00	152.34	152.34	0.00	152.92	152.92	0.00	153.40	153.40	0.00
8.55	71	151.43	151.43	0.00	152.22	152.22	0.00	152.82	152.82	0.00	153.30	153.30	0.00
8.555	75	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	151.36	151.36	0.00	154.48	154.97	0.49	156.02	156.03	0.01	156.03	156.03	0.00
8.76	299.7	154.85	154.85	0.00	155.22	155.22	0.00	155.47	155.47	0.00	155.74	155.74	0.00

The results indicate that there is a significant difference in results between the conventional and alternative method models for existing conditions at the structure inlet upstream of Hurontario Street. The results for the conventional method more accurately reflect actual conditions but the results for the alternative method model are needed to assess the impact of the BRT crossing. It should be noted that the flood elevations do not differ 15 metres upstream of the structure inlet. The results in Table 3 indicate that there is little impact from lowering the top of the twin culverts by 0.5 metres at the proposed BRT crossing except for the 25-year storm. However the increases in flood levels would not cause an increase in flood risk. Flows do not overtop Hurontario Street or spill onto Rathburn Road during any storm including the Regional Storm.

Table 4 compares the conventional modelling method with the alternative modelling method for existing conditions using XP-STORM.

Table 4 – Flood Elevation Comparison-Conventional Method (Ex1) vs. Alternative Method (Ex2) (XP-STORM) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.
8.555	0	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	152.14	152.65	0.51	152.78	154.00	1.22	153.53	154.85	1.32	154.45	156.50	2.05

Table 5 compares existing conditions with future conditions using XP-STORM for the alternative modelling method.

Table 5 – Flood Elevation Comparison-Existing vs. Future Conditions (HEC-RAS) (XP-STORM) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.
8.555	0	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	152.65	152.65	0.00	154.00	154.05	0.05	154.85	154.85	0.00	156.50	156.60	0.10

Although XP-STORM produces different results from HEC-RAS, the flood elevation differences between existing and future conditions are comparable.

4.0 SUMMARY OF FINDINGS

Key findings are as follows:

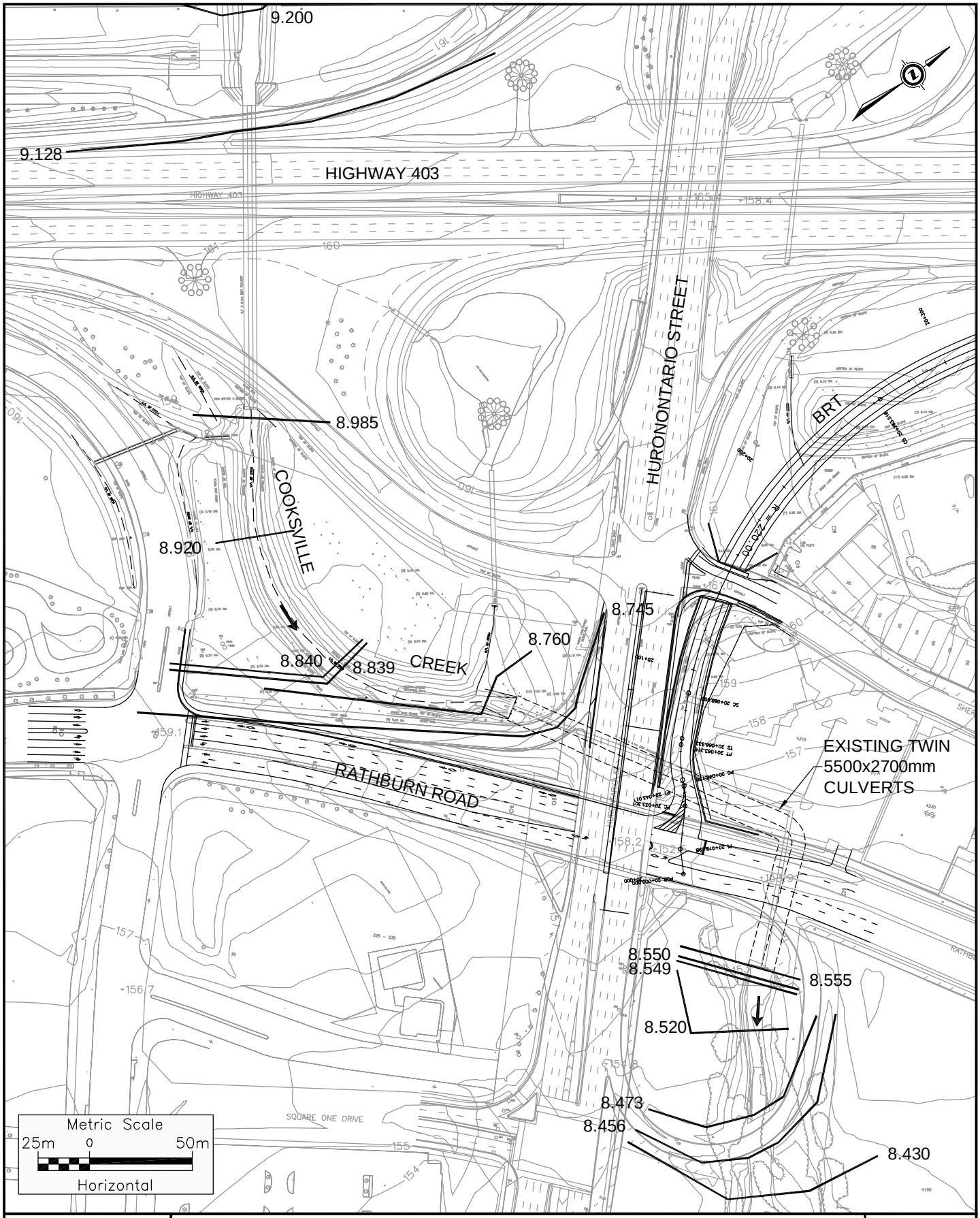
i) The HEC-RAS results indicate that there is a significant difference in results between the conventional and alternative modelling methods for existing conditions at the structure inlet. However the flood elevations did not differ 15 metres upstream of the structure inlet. The results also indicate that there is little impact from lowering the top of the culvert by 0.5 metres at the proposed BRT crossing.

ii) Although XP-STORM produces different results from HEC-RAS, the flood elevation differences between existing and future conditions are comparable.

iii) It is recommended that a smooth transition be made between the existing twin culverts and the impacted section to minimize hydraulic losses and to ensure that any debris does not get trapped by an abrupt change in cross-section.

All of which is respectfully submitted,
McCormick Rankin Corporation

Jeff Schroeder, C.E.T.



MODIFIED: Oct. 23, 2008 1:11 PM

DRAWING NAME: K:\DRAWINGS\6900-6999\6964 - MISSISSAUGA BRT\DRAINAGE\HEC-RAS SECTIONS\K6964-BRT COOKSVILLE HECRAS SECTION LOCATIONS.DWG

MRC

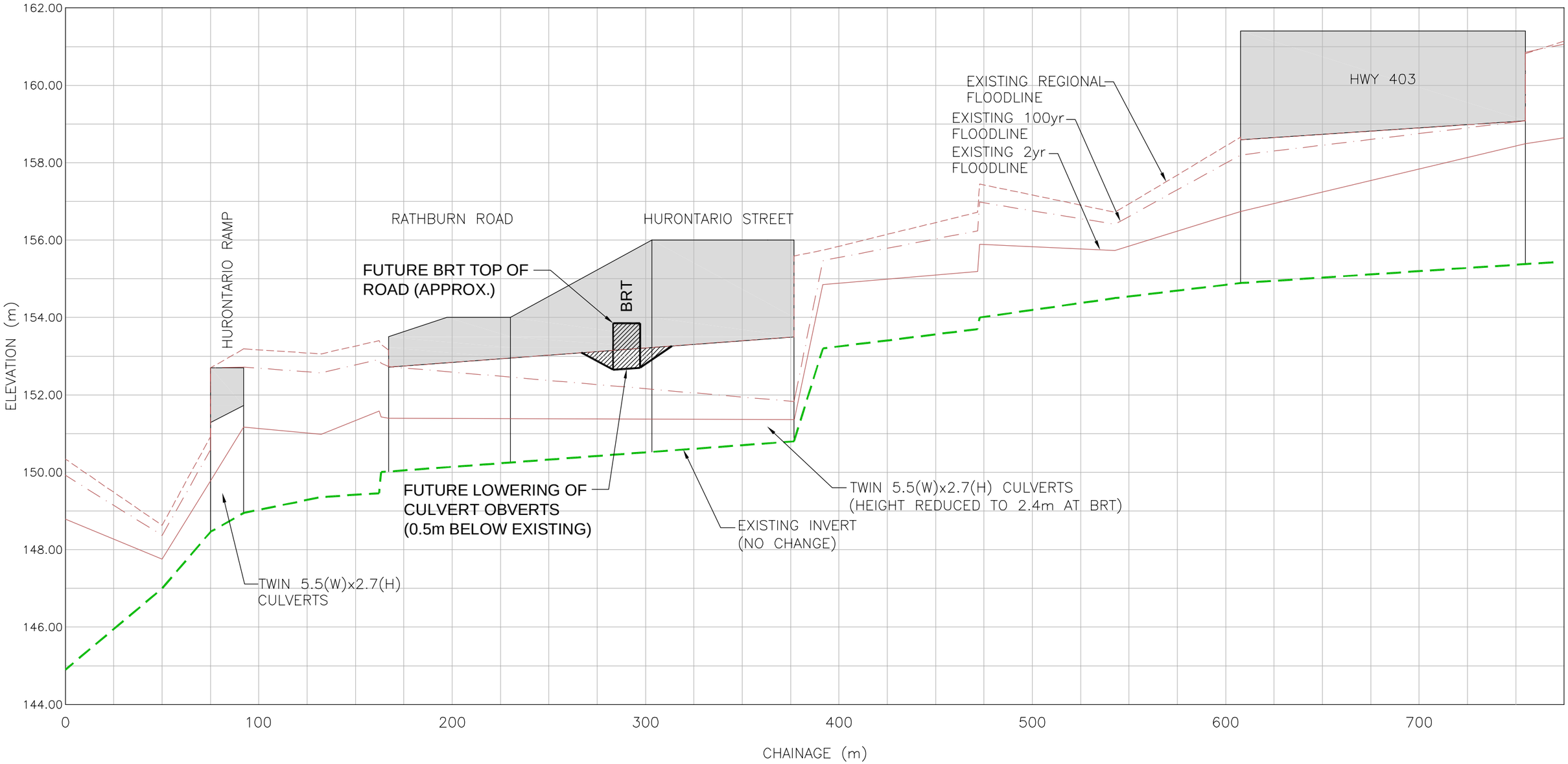
HEC-RAS SECTION LOCATIONS

BRT AT COOKSVILLE CREEK

EXHIBIT

1

MODIFIED: Oct. 23, 2008 1:08 PM



Metric Scale
1m 0 2m
Vertical

Metric Scale
25m 0 50m
Horizontal

MRC	COOKSVILLE CREEK PROFILES BRT AT COOKSVILLE CREEK	EXHIBIT 2

DRAWING NAME: K:\DRAWINGS\6900-6999\6964 - MISSISSAUGA BRT\DRAINAGE\K6964-COOKSVILLE CREEK PROFILE.DWG

Willy Ing

From: Schijns, Steve [SSchijns@mrc.ca]
Sent: 2008/11/26 4:29 PM
To: Marray, Liam; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Bright, Katie; Willy Ing; Kauppinen, Andrea
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum
Attachments: S6964-307-001GA.PDF

For your information, the structural General Arrangement drawing accompanying yesterday's e-mail regarding Cooksville Creek was outdated and inconsistent with the design memo; attached is the correct GA (please replace).

Regards,

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Schijns, Steve
Sent: November 25, 2008 2:56 PM
To: 'Marray, Liam'; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Bright, Katie; Willy Ing; Kauppinen, Andrea
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Liam – we are anxious to finalize the CEAA report, EA Addendum, and BRT Preliminary Design Report and would be pleased to meet with you at your convenience. CVC is the sole remaining stakeholder with CEAA comments outstanding. Please advise when we can meet.

Attached for your information is a drawing of the proposed lowering of the Cooksville Creek culvert obvert east of Hurontario Street, as well as a summary of the investigation into the hydraulic impact of the proposal.

Thank you

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Marray, Liam [mailto:LMarray@creditvalleycons.com]
Sent: November 3, 2008 7:14 PM
To: Willy Ing; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy

I apologize for the delay in responding. CVC would like to set-up a meeting with you and your consultants to discuss.

Liam Marray

From: Willy Ing [Willy.Ing@mississauga.ca]
Sent: November 3, 2008 4:38 PM
To: Marray, Liam
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Liam,

Comments were due October 31st. Please advise if CVC will be sending comments.

Willy

From: Schijns, Steve [mailto:SSchijns@mrc.ca]
Sent: 2008/10/02 1:26 PM
To: Marray, Liam; Willy Ing
Cc: Scott W Anderson; Andrew Shea; Geoff Wright
Subject: RE: Mississauga Bus Rapid Transit Project - DraftEnvironmentalAssessment Addendum

Liam – the EA Addendum deals in part with the revised approach to the BRT project crossing at Cooksville Creek / Hurontario Street, and the reconfiguration of interchange ramps at Winston Churchill Boulevard / 403. Other issues dealt with the EA Addendum fall within the TRCA jurisdiction. Unless informed otherwise, we will send CVC one copy of the draft report for review and comment.

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: September 29, 2008 8:53 AM
To: Liam Marray

Cc: Andrew Shea; Geoff Wright; Scott W Anderson; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - DraftEnvironmentalAssessment Addendum

Hi Liam,

With respect to the EA Addendum, I believe the main issue is the Cooksville Creek. However, I will copy this e-mail to Steve Schijns and Andrew Shea asking them to provide you with any further details and that they forward you the necessary copies of the draft EA Addendum.

Should you have any questions or concerns please let me know.

Willy

>>> "Marray, Liam" <LMarray@creditvalleycons.com> 2008/09/29 8:02 am >>>
Willy
CVC is interested in participating in the review of the EA addendum. However, from this email there is no scope of work identified and therefore, it is difficult to determine, which staff should be involved. Can you provide more detail with respect to the addendum?

Liam Marray
Credit Valley Conservation
Senior Planner/Ecologist
1255 Old Derry Road West
Meadowvale, Ontario L5N 6R4
Tel: (905) 670-1615 Ext. 239
Fax: (905) 670-2210
Email: lmarray@creditvalleyca.ca

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: September 26, 2008 11:19 AM
To: Marray, Liam
Cc: Geoff Wright
Subject: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Dear Mr. Marray:

The City of Mississauga in partnership with GO Transit are undertaking an Environmental Assessment Addendum of the Mississauga Transitway, now known as the Mississauga Bus Rapid Transit (BRT) which received approval from the Ministry of the Environment (MOE) in 1992.

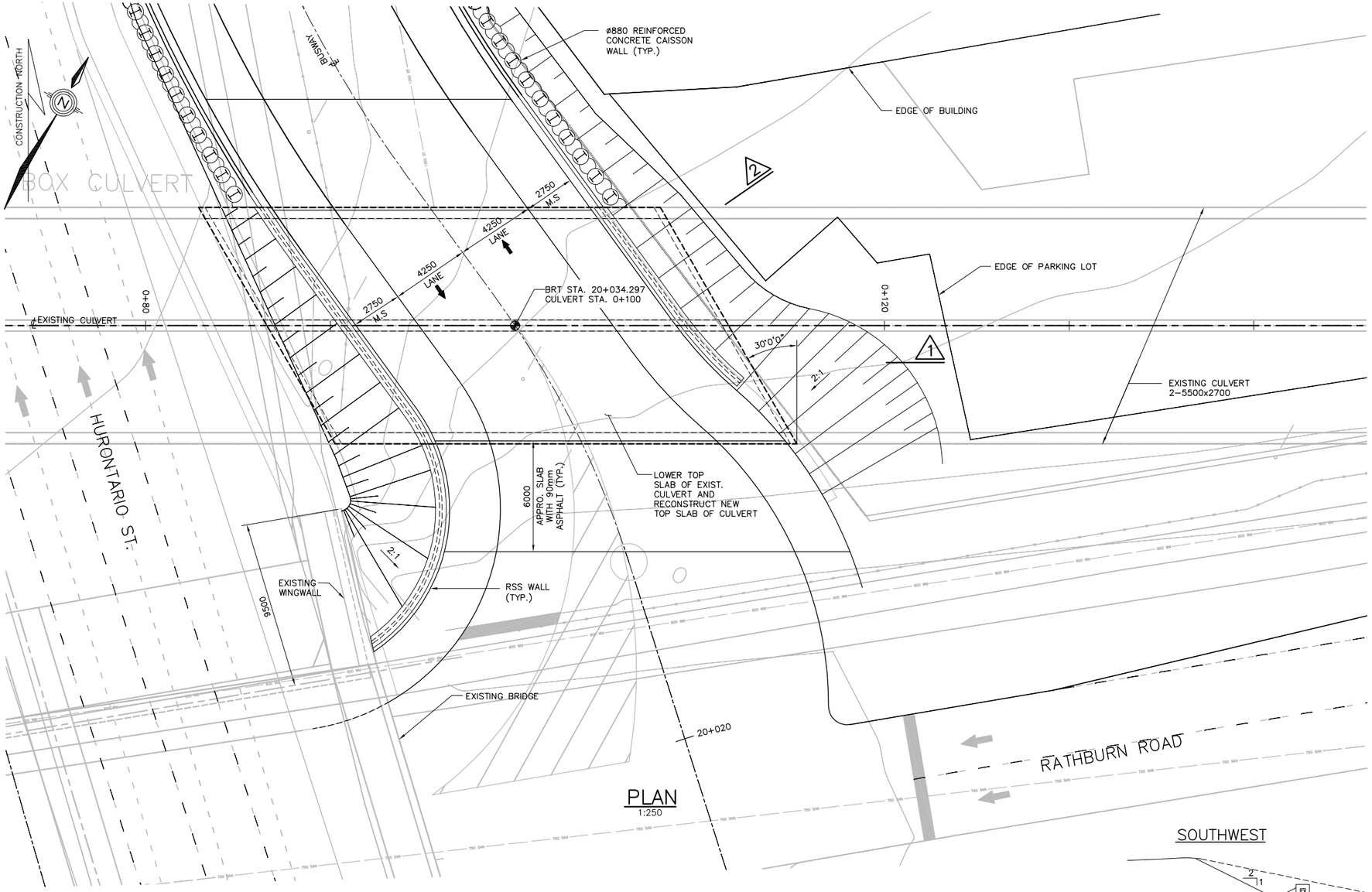
In order to move this addendum forward, the Ministry of the Environment suggests that there may be benefit to engaging some members of the Government Review Team (GRT) at a preliminary stage to expedite the final addendum review process. According to the GRT Master Distribution list, we are to contact the conservation authority in the affected area. As such, we are engaging the Credit Valley Conservation (CVC) to determine if the CVC would be interested in participating in this draft EA Addendum review process, and if possible, that any comments from the CVC be provided to the City of Mississauga by the end of October 2008.

It is important to note that the EA Addendum focuses on alternatives/evaluations for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

Please provide a response to this e-mail in 5 working days to the City of Mississauga.

Should you have any questions you may contact Mr. Geoff Wright, Director Bus Rapid Transit Project Office at 905-615-3200 Ext 4940 e-mail: geoff.wright@mississauga.ca, or you may contact me directly, my information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca



PLAN
1:250

GENERAL NOTES

CLASS OF CONCRETE

ALL CONCRETE	30 MPa

CLEAR COVER TO REINFORCING STEEL

SLAB	
TOP	70±20
BOTTOM	50±10
REMAINDER UNLESS OTHERWISE NOTED	70±20

REINFORCING STEEL

REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12–1 AND SS12–2, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES

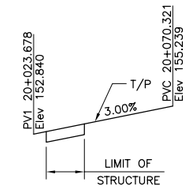
THE CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO COMMENCING CONSTRUCTION.

ALL ELEVATIONS ARE TO GEODETIC DATUM.

ABBREVIATIONS

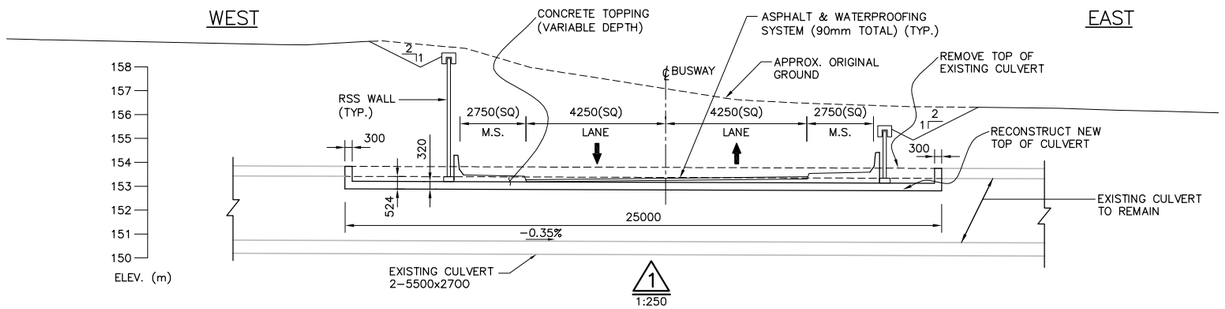
T/P DENOTES TOP OF PAVEMENT
M.S. DENOTES MAINTANANCE STRIP

SOUTH NORTH

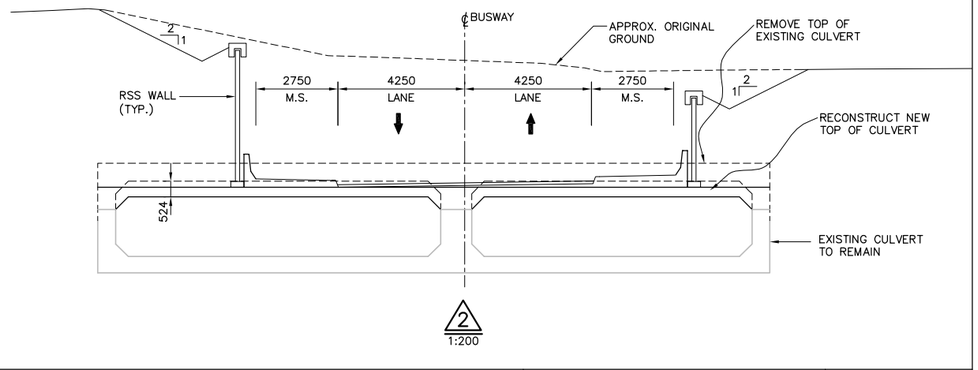


PROFILE OF BUSWAY
N.T.S.

WEST EAST



SOUTHWEST NORTHEAST



McCORMICK RANKIN CORPORATION	MISSISSAUGA Leading today for tomorrow	MISSISSAUGA BUS RAPID TRANSIT PRELIMINARY DESIGN	BRT At Cooksville Creek Preliminary General Arrangement	Date: NOVEMBER 2008 Scale: AS SHOWN FIGURE NO. ---

FILE LOCATION=S:\6964\7-BRT AT COOKSVILLE CREEK\
DRAWING NAME: S6964-307-001GALDWG
DRAWN BY: AMY ZHANG
MODIFIED: 08/11/26 16:16:57
DATE PLOTTED: 08/11/26 16:16:57

Willy Ing

From: Schijns, Steve [SSchijns@mrc.ca]
Sent: 2009/01/12 2:28 PM
To: Bricks, Mike
Cc: Turvey, Dale; Bright, Katie; Shea, Andrew; Willy Ing; Geoff Wright; Scott W Anderson; stephanie.davies@gotransit.com; Kauppinen, Andrea
Subject: RE: Mississauga BRT and Cooksville Creek

Mike – as you know, I met with Liam Marray and Rizwan Haq of CVC this afternoon, to get their input on the BRT EA Addendum. Their key points are
- some minor text update at Winston Churchill
- correlate drainage comments in Addendum with PDR SWM plan
- MRC hydraulic engineer to discuss Cooksville Creek analysis with R Haq
- preliminary determination by CVC is that the Cooksville Creek culvert alteration is not a HADD, as long as the two-stage construction process as proposed is followed
- due to staff turnover at CVC, it would be useful to hold a briefing meeting for them within the first month of the detail design assignment(s)

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
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Website: www.mrc.ca

MINUTES OF MEETING

PROJECT:	Mississauga BRT		
FILE NO.:	6964		
DATE:	January 12, 2009	**TIME:**	1 pm
PLACE:	Credit Valley Conservation offices, Mississauga		
PRESENT:	Liam Marray, CVC (Senior Planner / Ecologist) Rizwan Haq, CVC (Supervisor – Engineering Plan Review) Stephen Schijns, MRC		
PURPOSE:	CVC comments on draft BRT EA Addendum (distributed October 2008)		

PROCEEDINGS: **ACTION BY**:

1.1 Winston Churchill Boulevard

L. Murray noted that the Addendum and PDR should note that all wetlands are regulated (they weren't at the time of the 1992 EA), and that the CVC requires a compensation, mitigation, and/or replication of function plan for the loss of any regulated wetlands. MRC

L. Murray requested that MRC identify if any rare or endangered species are located in the area of the changed alignment. Ecoplans

R. Haq requested that the Addendum include enough information from the Preliminary Design Report to allow the reader to determine if storm water management can be achieved. MRC

S. Schijns will provide CVC with a copy of the draft PDR for review, to complement the EA Addendum material. MRC

1.2 Cooksville Creek

R. Haq requested that MRC perform the hydraulic analysis of the mid-culvert reduction on the basis of a continuous pipe with a restricted opening size. MRC should quantify the spillover across Rathburn Road and determine the spill pathway, noting if it is any different from the existing situation. He requested that the hydraulic analysis and conclusions be confirmed by a Professional Engineer rather than a Technician (CET). MRC MRC MRC

He requested MRC provide a digital model of the hydraulic analysis. S. Schijns advised that the MRC drainage engineer will contact Mr. Haq by phone (1-800-668-5557) to review and confirm his requirements and comments.	MRC MRC
S. Schijns described the culvert reconstruction process at Cooksville Creek, noting that there would be no exposure of the creek to the construction work (water would be diverted into the cell that is not being reconstructed). L. Marray advised that, on that basis and on the review of the project, CVC's preliminary position was that there was no HADD involved. This position would be reviewed in the course of the detail design.	Ecoplans CVC

1.3 Design

S. Schijns went through the project status and timing. L. Marray suggested that the detail design team(s) hold a CVC briefing within the first month of their assignment(s). This would ensure that CVC's new staff are up to date on the project.	Detail Design

The foregoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned within 48 hours of receiving these minutes at 905-823-8500.

Minutes prepared by,

McCormick Rankin Corporation

Stephen Schijns, P. Eng.

cc: Attendees
M. Bricks, K. Bright – Ecoplans
D. Turvey, A. Shea, K. Rodger, A. Kauppinen - MRC
G. Wright, S. Anderson, W. Ing – City of Mississauga (BRT)
S. Davies, M. Adebayo – GO Transit

T R C A

Willy Ing

From: Sharon Lingertat [SLingertat@trca.on.ca]
Sent: 2008/11/27 1:55 PM
To: mbricks@ecoplans.com
Cc: Geoff Wright; Willy Ing; Beth Williston; Carolyn Woodland; Quentin Hanchard; Chandra Sharma
Subject: CFN 39971 - Mississauga Bus Rapid Transit Comments
Attachments: KSS100_20081127_18423375.pdf

Mike,

Please find attached our comments on the draft Addendum.

Thanks,
Sharon Lingertat
Planner II, Environmental Assessment Planning
Toronto and Region Conservation Authority
Tel: (416) 661-6600 ext. 5717
Fax: (416) 661-6898
Email: slingertat@trca.on.ca
www.trca.on.ca

TORONTO AND REGION Conservation

for The Living City

November 27, 2008 CFN 39971

BY MAIL AND EMAIL (mbricks@ecoplans.com)

Mr. Mike Bricks
Ecoplans Limited
2655 North Sheridan Way, Suite 280
Mississauga, ON L5K 2P8

Dear Mr. Bricks:

Re: Response to Draft Environmental Assessment (EA) Addendum
Mississauga Bus Rapid Transit (BRT) - (Eastgate Parkway at Highway 403 to Eglinton Avenue at Renforth Drive)
Etobicoke Creek Watershed; City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the draft Environmental Assessment (EA) Addendum report, dated September 2008, on October 8, 2008. It is our understanding that an Individual EA was approved by the Ministry of the Environment (MOE) for a bus-only roadway in the Highway 403/Eglinton Avenue corridor on July 6, 1993. In 2005 an Addendum was approved which included several design changes to the original EA including station changes at Cawthra Road and Renforth Drive. Staff understands that this second Addendum involves revisions, within TRCA's jurisdiction, to the design at Tomken Road, Dixie Station and Eastgate Parkway at Fieldgate Drive.

Changes at Tomken Road include shifting the alignment of the busway over Tomken Road such that it is constructed as an overpass rather than an underpass to avoid floodproofing measures. At Dixie Road, the addendum proposes removing the west side bus ramp and creating a full-move bus-only signalized intersection on Dixie Road, locating a larger parking lot on the west side of Dixie Road, with access from Encino Street, and providing a bus link to the parking lot access area with a turnaround loop and layover area at the Encino Street connector. At Eastgate Parkway the approved plan was to construct the busway under Eastgate Parkway. This option would require relocation of several buried and aerial utilities. In addition, a pumping station would be required to drain the busway during storm events. The proposed alternative involves elevating the busway over Eastgate Parkway and under Fieldgate Drive.

While staff has no objection in principle to the preferred changes, the comments provided in Appendix A must be addressed in the final EA document, and should be included as an appendix in the final EA report.

Please ensure that the TRCA receives a copy of the Notice of Study Completion and one (1) hard copy and one (1) digital copy, in pdf form, of the final EA Addendum. The final EA document should be accompanied by a covering letter which uses the numbering scheme provided in this letter and identifies how these comments have been addressed.

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

Yours truly,

Sharon Lingertat

Sharon Lingertat
Planner II, Environmental Assessments
Planning and Development

SL/

BY EMAIL

cc: Mississauga: Geoff Wright (geoff.wright@mississauga.ca)
Willy Ing (willy.ing@mississauga.ca)
TRCA: Beth Williston, Manager, Environmental Assessments
Carolyn Woodland, Director, Planning and Development
Quentin Hanchard, Manager, Development, Planning and Regulation
Chandra Sharma, Etobicoke/Mimico Watershed Specialist

F:\EA\Letters for Mailing\39971 – draft Addendum

APPENDIX A

1. Section 2.1 refers to the Preliminary Design Reports for the Little Etobicoke Creek and Etobicoke Creek crossings. Please clarify whether TRCA staff will have an opportunity to review the design briefs, prior to detailed design.

2. Section 4.1.1.5 refers to future land use within and adjacent to the BRT corridor. In the absence of any specific detail, please try to accommodate flexibility into the designs of the proposed stormwater management (SWM) facilities such that additional treatment can be accommodated, where required, for future development.

3. Please ensure that the "west" and "east" designations are accurate in the descriptions for Outlets 8 and 9 in section 4.1.1.6.

4. The information provided for Outlet 10 (Section 4.1.16) indicates that the Eastgate Parkway Trunk sewer was designed to convey flows up to the Regional event. Please note that TRCA has recently updated the Etobicoke Creek hydrology model such that new Regional flow rates have been established. The new rates will need to be considered as part of the drainage strategy for the proposed busway.

5. Section 5.5.2.4 outlines the hydraulic and SWM criteria for the project. It is noted that appropriate erosion and sediment (ESC) measures will be implemented during construction. Please ensure that the ESC plan is submitted at detailed design.

6. Section 5.5.2.4 notes that TRCA and CVC will be consulted at detail design regarding the placement of fill. As noted in comment 9 below, TRCA staff will require a hydraulic assessment to confirm that the placement of fill within the floodplain will not have any adverse impacts on flood levels.

7. Section 5.5.2.4 refers to preliminary pond sizing and preliminary design of conveyance systems. Please clarify whether this information will be submitted as part of the preliminary design process.

8. The proposed option to lift the busway over Tomken Road is preferable from a flood management perspective. In Section 7.2 it is noted that the existing berms will need to be extended to augment protection of the residential areas to the south. Portions of the existing berms are located with the Regional Floodplain. Please clarify the extent of the proposed berm modifications. Where modifications are proposed within the Regional Floodplain, please undertake a hydraulic assessment to confirm that there are no adverse impacts to flood levels. Table 7-1 should also be updated to reflect the potential for floodplain impacts as a result of the proposed alternative (i.e., busway over Tomken Road).

9. The proponent has indicated in Section 7.5.2.4 that the proposed extension of the Etobicoke Creek crossing will have a negligible impact on flood levels. Please submit a hydraulic assessment that shows results for all frequency events and the Regional storm event.

10. Section 4.1.2 provides an overview of the natural features in and around the proposed alignment and it is recognized that the majority of the natural features found along the proposed alignment

are of 'low sensitivity', due to prior disturbance and invasive species. However, the document does not include a detailed description of the specific features and functions that will be impacted. As a result, impact assessment and potential mitigation and compensation have not been determined at this time. Further detail will be required at detailed design, once the areas to be disturbed are confirmed.

11. Staff suggests that at detailed design the existing flora and fauna data be augmented with further amphibian and fish surveys, specifically digger crayfish. This will allow for an environmental impact study (EIS) to determine the impacts as a result of the proposed busway, parking lots and stations. It should be clarified that the scale of this study can be scoped down significantly. Once the more intensive data is collected, a characterization of the possible impacts to the features, functions and any linkages between them will be required. If the data and analysis determine that the natural features are of low quality, TRCA staff will be in a position to support their removal or alteration, if appropriate mitigation and compensation is provided.

12. It appears that the initial intent of Section 4.1.2, Natural Environment, was to include a discussion on mitigation and compensation in the EA Addendum. However, this section refers to Section XX which does not exist. Please update this section accordingly.

13. Table 14c in the original EA (January 1992) indicates that there will be "possible removal of some vegetation and alteration of wet pockets...". Given the current alignment constraints, it appears as if several existing "wet pockets" will be removed entirely. The EA also indicates that natural vegetation will be supplemented with plantings and landscaping. TRCA staff requirements for a net ecological gain have been highlighted in previous comments and meetings. While several of the features to be impacted are tolerant, common communities, mitigation for the loss of these features will be required. Please include in the EA Addendum a commitment to supplement for vegetation loss such that compensation for this loss as a result of the proposed works can be provided in a manner reasonable to all parties and landowners involved.

14. Drawing 7.4, for example, shows the proposed location of the SWM ponds along with proposed landscape plans. Please note that details for these features will be reviewed, and comments provided, at detailed design.

15. Please provide a commitment in the EA Addendum that a net ecological gain will be achieved for this project. Areas and requirements will be further considered at detailed design.

16. Land ownership constraints and restoration opportunities will be assessed to provide the greatest possible net ecological gain as land ownership issues may not provide compensation opportunities along or near the Bus Rapid Transit (BRT) alignment. However, as indicated during previous meetings and site visits, staff would like to work with the City to determine appropriate locations for off site compensation. The Region of Peel is currently starting an EA for the Hanlan Feedermain and the City of Mississauga is going to be starting detailed design for the rehabilitation of the Little Etobicoke Creek valley between Highway 401 and Eglinton Avenue. Proposed works in this reach may not fully restore the valley to its full potential and there may be additional opportunities, using existing construction access in the valley, for significant planting within the valley. If a net ecological gain is not possible for lands along the BRT route, this requirement may be satisfied by enhancing city lands where opportunities and access exist.

17. It should be noted that the digger crayfish found in and near the alignment are considered fish under the Federal *Fisheries Act*. Following internal discussions with Fisheries and Oceans Canada (DFO) staff, any crayfish sites that are connected to a watercourse are considered federal fisheries waters. This means that the mineral meadow marsh on the north side of the alignment, immediately east of Little Etobicoke Creek, is considered fish habitat. Works in and around this feature will require a *Fisheries Act* review.

18. Please consider additional surveys for digger crayfish. This will allow for identification of other locations where alteration to features containing digger crayfish requires a *Fisheries Act* review.

19. At detailed design, MNR should be contacted to determine wildlife collection/rescue requirements for any features to be altered or removed.

20. The above mentioned EIS should also consider impacts and possible improvements to fish habitat at the Etobicoke Creek and Little Etobicoke Creek crossings. Discussions have taken place with Ecoplans and MRC regarding possible improvements at Little Etobicoke Creek. Additionally, concrete repairs near pier locations for the Etobicoke Creek crossing should also be considered.

21. Section 7.5.1.2 indicates that between Cawthra Road and Tomken Road no utility relocation is required. Please note that consideration should also be made for the Regulated wetland features located north of Eastgate Parkway.

22. The above-noted requirements should be included in the EA Addendum and it should be made clear to the proponent and in the file that these issues will need to be addressed at detailed design.

23. Please submit geotechnical and hydrogeology reports with the detailed design submission.

24. Please ensure that details for proposed retaining walls are provided at the detailed design stage.

25. Please ensure that the Regulation Limits are included on your detailed design submissions.

26. TRCA correspondence is missing from the report. Please add TRCA letters dated November 30, 2007, April 4, 2008, April 25, 2008 and October 3, 2008 to Appendix C, Agency Consultation.

O R C

Willy Ing

From: ORC [Lisa.Myslicki@ontariorealty.ca]
Sent: 2008/10/06 3:12 PM
To: Willy Ing
Cc: MacKenzie, John (ORC); Derry, Mike (ORC); Grace, Patrick (ORC); Rusin, Peter (ORC)
Subject: RE: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum
Attachments: Mississauga Draft EA addendum response.pdf

Good afternoon,

Please find the attached for your information. Guidelines regarding ORC's Class EA can be found at:

http://www.ontariorealty.ca/Assets/MEI+Class+EA+Document+(amended)_11Sep2008.pdf

I recommend you review the document in order to determine the EA class, related to your specific undertaking and associated requirements.

Please note that amendments to ORC's Class EA are currently underway.

Furthermore, the following information may be useful in completing the Mississauga EA. Please note that the MOE has indicated ORC may not be able to defer to the MEA, at this moment.

However, that being said, our current guidelines indicate that the MEA can be deferred to, if the ORC EA requirements are integrated into the Municipal Class EA process. The MEA must specifically articulate the undertaking i.e "granting of easement on provincially owned lands managed by ORC" or "Sale of provincially owned lands, managed by Hydro One, on behalf of ORC". The statement must make specific reference to the fact that the land is provincially owned and managed by ORC. Also, it must meet the 7 point analysis criteria in the ORC Class EA.

The 7-point analysis criteria for a Category B: Consultation and Documentation Report include:
Describe the Undertaking
Description of Environmental Effects, Mitigation and Monitoring
Consult directly with affected agencies and public
Reporting
Confirmation of Category B
Notice of Completion and 30 day review
Category Elevation and Part II Order if requested by any

Please note that a Category B is the EA class that the majority of the undertakings will fall under but, again, please read the Class EA to identify what class your specific undertaking will be associated with.

I must stress again that we are currently in the process of undergoing amendments to the Class EA and the MOE has indicated that ORC may not be able to defer to the MEA. The process of deferring our EA is currently under review and as such, although the MEA may have articulated the above, ORC may not be able to defer. However, it would be highly recommended for the proponent to provide the MEA to ORC (with the appendices). The ORC can utilize the MEA to complete the Class EA. During the consultation portion of the EA, the individuals related to each specific stakeholder can be reconsulted (i.e the same person at the Conservation Authority will be contacted and will have any mitigation measures already planned).

Apologies for not being able to provide a more definite route and I hope this information will be satisfactory.

Regards,

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corp.
☎ **Direct: 416 212 3768**
🖷 (416) 212-1131
✉ **Lisa.Myslicki@ontariorealty.ca**
please consider the environment before printing this e-mail.

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Monday, October 06, 2008 11:42 AM
To: MacKenzie, John (ORC)
Cc: Geoff Wright; Grace, Patrick (ORC); Rusin, Peter (ORC)
Subject: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Dear Mr. MacKenzie:
This e-mail is a follow up to our message of September 26, 2008 noted below.

In our e-mail, the City of Mississauga and GO Transit requested a response from the Ontario Realty Corporation (ORC) within 5 working days regarding the possibility of the ORC participating in a review of our Draft Mississauga Bus Rapid Transit Environmental Assessment Document. As no response has been received from the ORC, we will assume that the ORC is not interested in participating.

However, if there is still interest, please advise our office very soon.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Dear Mr. MacKenzie:

The City of Mississauga in partnership with GO Transit are undertaking an Environmental Assessment Addendum of the Mississauga Transitway, now known as the Mississauga Bus Rapid Transit (BRT) which received approval from the Ministry of the Environment (MOE) in 1992.

In order to move this addendum forward, the Ministry of the Environment suggests that there may be benefit to engaging some members of the Government Review Team (GRT) at a preliminary stage to expedite the final addendum review process. We are engaging the Ontario Realty Corporation (ORC) to determine if the ORC would be interested in participating in this draft EA Addendum review process, and if possible, that any comments from the ORC be provided to the City of Mississauga by the end of October 2008.

It is important to note that the EA Addendum focuses on alternatives/evaluations for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

For your information, the City of Mississauga has been working with Patrick Grace and Peter Rusin regarding the property matters to support the BRT through Mississauga.

Please provide a response to this e-mail in 5 working days to the City of Mississauga.

Should you have any questions you may contact Mr. Geoff Wright, Director Bus Rapid Transit Project Office at 905-615-3200 Ext 4940 e-mail: geoff.wright@mississauga.ca, or you may contact me directly, my information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Ontario Realty Corporation
Société immobilière de l'Ontario

1 Dundas Street West,
Suite 2000, Toronto, Ontario
M5G 2L5

October 6, 2008

To Whom It May Concern,

RE: ORC Initial Comments on Environmental Screening – Mississauga Bus Rapid Transit Project – Draft EA addendum

Thank you for circulating Ontario Realty Corporation (ORC) on your Draft EA addendum. The ORC is the strategic manager of the government's real property with a mandate of maintaining and optimizing value of the portfolio, while ensuring real estate decisions reflect public policy objectives of the government.

Our preliminary review of your notice and supporting information indicates that ORC-managed property is directly in the study area. As a result, your proposal may have the potential to impact this property and/or the activities of tenants present on ORC-managed lands.

Potential Negative Impacts to ORC 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 MNR and 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 ORC 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. ORC requests circulation of the draft EA report prior to finalization if potential impacts to ORC managed lands are present as part of this study.

Cultural Heritage Issues
If proposed alternatives may impact cultural heritage features on ORC managed lands, we would request that the examination of cultural heritage features be enhanced to include issues such as cultural landscapes, archaeology and places of sacred and secular value.

Potential Triggers Related to ORC's Class EA

The ORC Class Environmental Assessment (ORC Class EA) applies to a range of realty and planning activities including leasing or letting, planning approvals, selling, demolition and property maintenance/repair. For details on the ORC Class EA please visit the Environment and Heritage page of our website found at http://www.orc.on.ca/Page133.aspx. If the ORC Class EA is triggered, consideration should be given to explicitly referring to the ORC's undertaking in your EA study.

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

The undertaking of physical work on ORC lands also triggers the ORC Class EA. If any work is proposed on ORC lands, please contact the undersigned at your earliest convenience to discuss next steps.

Specific Comments

Please note that ORC lands maybe in the study area; however, at the moment a map is not easily accessible at the moment. Please correspond with Patrick Grace and Peter Rusin with regards to the above matter.

Concluding Comments

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,

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corporation - Professional Services
1 Dundas Street West,
Suite 2000, Toronto, Ontario
M5G 2L5
(416) 212-3768
lisa.myslicki@ontariorealty.ca

Willy Ing

From: Myslicki, Lisa (ORC) [Lisa.Myslicki@ontariorealty.ca]
Sent: 2008/12/04 3:47 PM
To: Willy Ing
Subject: RE: Mississauga BRT EA Addendum

Good afternoon Willy,

Thank you for your prompt reply. In order for ORC to be able to defer to another EA, the EA must follow the below criteria, we can defer to it. Even if there is a point or two missing, we may just need that gap filled in before we can sign off on the deferral (i.e missing archaeology or Phase I ESA). Once ORC has reviewed the MEA, and approved the deferral, the proponent/client will be required to fill out a deferral form.

Generally, the sale of land and easement on Parkway Belt lands, is considered a Category B EA. As such, it would need to meet the 7 point analysis criteria and granted approval by the regulatory agencies

The 7-point analysis criteria in the MEI (for ORC) Class EA for non-energy projects (Sept 2008) steps for a Category B: Consultation and Documentation Report are the following:

1. Describe the Undertaking

2. Description of Environmental Effects, Mitigation and Monitoring

3. Consult directly with affected agencies and public

4. Reporting

5. Confirmation of Category B

6. Notice of Completion and 30 day review

7. Category Elevation and Part II Order if requested by any

I highly recommend you review the Class EA in order to determine what Class your undertaking will fall under. The above is a general guideline to the 7 point Analysis for Class B **only**.

Below is the link to ORC's Class EA.

http://www.ontariorealty.ca/What_We_Do/Environment___Heritage.htm

If the MEA follows the 7 point analysis, there are some specific things that I can point out to you to watch for.

1. The EA needs to make reference to the need for land acquisition/easements. This is imperative because otherwise technically the EA does not cover ORC's undertaking.
2. Appropriate archaeological work has been done or committed to. A statement that archaeological Stage 2/3 work will be done later (usually once a final alignment is confirmed at the detailed design stage) is acceptable.
3. A Phase I ESA is done for our lands. This may not be in the EA but can been done separately as a due diligence tool.
4. The EA has to include **ORC's** typical consultations. Importantly, the MNR must be consulted or a strong attempt to do so must be made. However, from experience, usually MNR is not involved in MEA projects and a form letter that they ignored will not suffice for ORC.
5. The EA has to be to a reasonable level of detail. Some MEA projects don not require a great deal of assessment and as such, do not provide the level of detail ORC can be comfortable with. This means that if the 7 point analysis criteria was completed but not documented or detailed to the level, that ORC would require, we cannot defer.

Thank you for identifying Point 1 form me in the MEA. I am assuming then, that there will be no property acquisition? I look forward to seeing the circulation to the MNR and TRCA.

I hope this helps and thanks you for your patience. Have a good day,

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corp.
☎ **Direct: 416 212 3768**
(416) 212-1131
Lisa.Myslicki@ontariorealty.ca
please consider the environment before printing this e-mail.

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Thursday, December 04, 2008 3:27 PM
To: Myslicki, Lisa (ORC)
Subject: Mississauga BRT EA Addendum

Hi Lisa,

Attached is Vol 1 Section 5.2.10 excerpt on the bottom of page 279 indicating that "…it is assumed that the City would enter into a long-term lease or easement arrangement with the property owner which would protect both parties' interest." To date there has been no change to the assumption.

Please advise if there is further clarification required on this matter.

I will get back to you on the TRCA and MNR correspondence.

Willy

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Transportation and Works Department

City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4

www.mississauga.ca

Leading today for tomorrow

November 7, 2008

BY COURIER

Ms. Lisa Myslicki
Environmental Coordinator
Ontario Realty Corporation
Professional Services
1 Dundas Street West, Suite 2000
Toronto, ON M5G 2L5

RE: Mississauga Bus Rapid Transit Project

Dear Ms. Myslicki:

Further to your letter and email of October 6, 2008, we thank you for providing ORC's comments regarding the draft Environmental Assessment (EA) Addendum. As you have noted, portions of the Mississauga BRT will be located on lands managed by the ORC. The City of Mississauga continues to consult with ORC staff regarding the necessary agreements for use of ORC managed lands for this undertaking.

We understand that ORC does have a requirement to fulfill the ORC Class EA when disposing of or leasing land; however, we feel that since the 'ORC project' is ancillary to the EA approved BRT project, ORC's EA requirements have been addressed in a coordinated manner by the Minister of the Environment's approval of the Individal Environmental Assessment (IEA). We feel that this is in keeping with Section 9.7.1 of the ORC Class EA, and we would like to take this opportunity to provide information regarding the environmental assessment process to date and how the work addresses the requirements of the ORC Class EA.

The Mississauga Bus Rapid Transit facility (also known as the Mississauga Transitway) is also the Mississauga segment of the Greater Toronto Transit Authority's (GO Transit's) Inter-Regional Bus Rapid Transit. This Bus Rapid Transit (BRT) facility was planned and approved under the Ontario *Environmental Assessment Act* (approved on July 6, 1993), and an EA Addendum for an updated plan was approved on March 4, 2005. The project is now getting underway courtesy of funding from the federal, provincial, and municipal governments. As part of the current work, an additional EA Addendum will be filed. The Preliminary Design of the facility is currently being undertaken and construction is scheduled to be completed by 2013.

We are confident that the environmental assessment work completed for this project does and will continue to address ORC's seven-point analysis criteria for a Category B Consultation and Documentation Report. The following provides an overview of how the IEA Report addressed each of the seven requirements.

1. **Describe the Undertaking**
   - The IEA Report clearly documents the need for provincially-owned property which is ancillary to the transit project (refer to Section 5.2.10).

2. **Description of Environmental Effects, Mitigation and Monitoring**
   - The IEA Report documents the potential environmental effects of the project, the associated mitigation measures, and commitments to future work (refer to Section 5.3). Each factor included in ORC's seven-point, site-specific analysis (per Section 4.2 of ORC's Class EA) has been addressed. Monitoring commitments are identified in Section 6.3 of the IEA Report.

3. **Consult Directly with Affected Agencies and the Public**
   - The IEA Report documents consultation directly with effected parties, including but not limited to agencies and the general public (refer to Section 2.5). Stakeholder involvement was a key component throughout the planning process.

4. **Reporting**
   - The IEA Report documents all the issues typically discussed in a Category B Consultation and Documentation Report.

5. **Confirmation of Category B**
   - The IEA Report clearly identifies the need to acquire provincially-owned property. The property requirements have some potential for adverse environmental effects; however, the effects are well understood from a technical perspective and are minor in nature. This is in keeping with a Category B undertaking.

6. **Notice of Completion and 30 Day Calendar Review**
   - The IEA Report was made available for public and agency review in accordance with the Ontario *Environmental Assessment Act*. The IEA formal government review and approval process is more rigorous than the ORC's Notice of Completion requirements.

7. **Part II Order Requests (if any)**
   - The IEA formal government review and approval process is more rigorous than the Part II Order Process. As noted in Section 9.3.3 of ORC's Class EA, Part II Order Requests do not apply to undertakings which have been approved under an Individual Environmental Assessment.

It is worth noting that the EA Addenda document design revisions since the approval of the IEA and that the information requirements of the seven-point analysis criteria are also addressed within the EA Addenda. For ease of reference, enclosed is a hard copy as well as a CD containing a copy of both the IEA Report and the first EA Addendum. ORC has recently received a draft copy of the second EA Addendum.

We would appreciate confirmation that ORC is in agreement that the work completed to date does address the requirements under the ORC Class EA.

Should you have any further questions regarding this project or require additional information, please do no hesitate to contact Willy Ing, BRT Project Leader, at 905-615-3200 extension 5791 or by email: willy.ing@mississauga.ca

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office
905-615-3200, ext. 4940

c: Patrick Grace, ORC
Peter Rusin, ORC
Anil Wijesooriya, ORC
Geoff Woods, ORC
Dale Turvey, MRC
Steve Schijns, MRC
Mike Bricks, Ecoplans

Encl. CD
Mississauga Transitway Environmental Assessment Report (January 1992) Volume One
Mississauga Transitway Environmental Assessment Report (January 1992) Volume Two Appendices A-M
Mississauga Transitway Environmental Assessment Report (January 1992) Volume Three Appendices N-V
Mississauga Transitway Highway 403 Eglinton Avenue Corridor Environmental Assessment Addendum (October 2004)

Willy Ing

From: Myslicki, Lisa (ORC) [Lisa.Myslicki@ontariorealty.ca]
Sent: 2008/12/04 3:47 PM
To: Willy Ing
Subject: RE: Mississauga BRT EA Addendum

Good afternoon Willy,

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1. The EA needs to make reference to the need for land acquisition/easements. This is imperative because otherwise technically the EA does not cover ORC's undertaking.
2. Appropriate archaeological work has been done or committed to. A statement that archaeological Stage 2/3 work will be done later (usually once a final alignment is confirmed at the detailed design stage) is acceptable.
3. A Phase I ESA is done for our lands. This may not be in the EA but can been done separately as a due diligence tool.
4. The EA has to include **ORC's** typical consultations. Importantly, the MNR must be consulted or a strong attempt to do so must be made. However, from experience, usually MNR is not involved in MEA projects and a form letter that they ignored will not suffice for ORC.
5. The EA has to be to a reasonable level of detail. Some MEA projects don not require a great deal of assessment and as such, do not provide the level of detail ORC can be comfortable with. This means that if the 7 point analysis criteria was completed but not documented or detailed to the level, that ORC would require, we cannot defer.

Thank you for identifying Point 1 form me in the MEA. I am assuming then, that there will be no property acquisition? I look forward to seeing the circulation to the MNR and TRCA.

I hope this helps and thanks you for your patience. Have a good day,

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corp.
☎ **Direct: 416 212 3768**
(416) 212-1131
Lisa.Myslicki@ontariorealty.ca
please consider the environment before printing this e-mail.

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Thursday, December 04, 2008 3:27 PM
To: Myslicki, Lisa (ORC)
Subject: Mississauga BRT EA Addendum

Hi Lisa,

Attached is Vol 1 Section 5.2.10 excerpt on the bottom of page 279 indicating that "…it is assumed that the City would enter into a long-term lease or easement arrangement with the property owner which would protect both parties' interest." To date there has been no change to the assumption.

Please advise if there is further clarification required on this matter.

I will get back to you on the TRCA and MNR correspondence.

Willy

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Willy Ing

From: Geoff Wright
Sent: 2009/01/19 9:40 AM
To: Myslicki, Lisa (ORC)
Cc: Willy Ing; mbricks@ecoplans.com; Bright, Katie
Subject: RE: Mississauga BRT Project

Hi Lisa:

I believe you were provided the information that was circulated to MNR in October.

As far as additional comments that we can offer, MNR was provided the opportunities to review and comment on the potential impacts of the BRT Project as part of the IEA process. This included using lands owned by ORC that would either have to be bought, leased or deeded in easement to the City ('your project'). I believe you already have a copy of the IEA Report which shows the BRT property requirements. This is the same document the MOE provided MNR as part of the formal Government Review they undertook to approve the project.

MNR was further asked as part of the current Preliminary Design Study whether they had an interest in the study and declined to participate and indicated that the environmental issues are local and best dealt with through the Conservation Authorities.

Given that MOE formally approved this project under the Ontario Environmental Assessment Act and MNR declined to participate in the current study as they were of the opinion that the environmental issues were local and best dealt with through the Conservation Authorities, it can be concluded that MNR does not have a concern with the BRT Project or the ancillary 'ORC Project'.

Perhaps we could arrange a phone conversation if you still have questions or require additional information.

Regards,

Geoff Wright, P.Eng., MBA
Director, Transportation Project Office
City of Mississauga
201 City Centre Drive
Mississauga, ON L5B 2T4

tel: 905-615-3200 ext. 4940
fax: 905-896-5504
web: www.mississauga.ca/brt

From: Myslicki, Lisa (ORC) [mailto:Lisa.Myslicki@ontariorealty.ca]
Sent: January 16, 2009 11:30 AM
To: Geoff Wright
Subject: RE: Mississauga BRT Project

Yes,

But my concern is that they were circulated on your undertaking not ours. Our undertaking is impact of sale or easement not Sites that would best suit the Mississauga BRT.
By evaluating the documentation they were provided with, I can ascertain if the information they were given also identifies our undertaking.

I hope this provides clarification.

Regards,

Lisa Myslicki
Environmental Coordinator
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☎ **Direct: 416 212 3768**
(416) 212-1131
✉ **Lisa.Myslicki@ontariorealty.ca**
please consider the environment before printing this e-mail.

From: Geoff Wright [mailto:Geoff.Wright@mississauga.ca]
Sent: Friday, January 16, 2009 11:17 AM
To: Myslicki, Lisa (ORC)
Cc: Willy Ing; mbricks@ecoplans.com; Scott W Anderson
Subject: RE: Mississauga BRT Project

Hi Lisa,

As part of the formal government review conducted by MOE on the Individual Environmental Assessment (IEA) Report, MNR was provided with a copy of the full IEA Report. As part of the current Preliminary Design Study, no formal documentation has been provided to MNR as they have indicated that the environmental issues are local and best dealt with through the Conservation Authorities (see attached memo to file).

If you have additional questions, please give me a call at your convenience.

Geoff Wright, P.Eng., MBA
Director, Transportation Project Office
City of Mississauga
201 City Centre Drive
Mississauga, ON L5B 2T4

tel: 905-615-3200 ext. 4940
fax: 905-896-5504
web: www.mississauga.ca/brt

From: Myslicki, Lisa (ORC) [mailto:Lisa.Myslicki@ontariorealty.ca]
Sent: January 15, 2009 12:37 PM
To: Geoff Wright
Subject: RE: Mississauga BRT Project

Hi Geoff,

Thank you for your comments regarding MNR. What was circulated to them? What Site maps were provided to them?

Thank you,

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corp.
☎ **Direct: 416 212 3768**
(416) 212-1131
✉ **Lisa.Myslicki@ontariorealty.ca**
please consider the environment before printing this e-mail.

From: Geoff Wright [mailto:Geoff.Wright@mississauga.ca]
Sent: Friday, December 12, 2008 4:32 PM
To: Myslicki, Lisa (ORC)
Cc: Willy Ing; Stephanie.Davies@gotransit.com; Schijns, Steve; Turvey, Dale; Wijesooriya, Anil (ORC); Rusin, Peter (ORC); Grace, Patrick (ORC); Woods, Geoff (ORC)
Subject: Mississauga BRT Project

Lisa,

Please see the attached letter and associated enclosures.

If you have any questions, please give me a call at your convenience.

Regards,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office
City of Mississauga
201 City Centre Drive
Mississauga, ON L5B 2T4

tel: 905-615-3200 ext. 4940
fax: 905-896-5504
web: www.mississauga.ca/brt

Willy Ing

From: Willy Ing
Sent: 2009/03/03 10:04 AM
To: 'Myslicki, Lisa (ORC)'
Subject: RE: Mississauga BRT ORC

Lisa,
Some of our bus only roadways and parking lot driveways cross the ORC managed lands, but we will need ORC's help to clarify these areas. So it is both. I would suggest that I meet with you to go our latest BRT property plan. If possible, it may also be beneficial to have Patrick Grace attend too. Let me know.
Willy

From: Myslicki, Lisa (ORC) [mailto:Lisa.Myslicki@ontariorealty.ca]
Sent: 2009/03/03 9:48 AM
To: Willy Ing
Subject: RE: Mississauga BRT ORC

Willy,

Will this be impacting ORC managed Hydro corridor land or are there also other ORC lands in the study area?

Lisa Myslicki
Environmental Coordinator
Ontario Realty Corp.
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(416) 212-1131
Lisa.Myslicki@ontariorealty.ca
please consider the environment before printing this e-mail.

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Tuesday, March 03, 2009 9:33 AM
To: Myslicki, Lisa (ORC)
Subject: RE: Mississauga BRT ORC

Thanks Lisa, much appreciated it. If it would help, middle of next week would be okay, as we won't be hearing back from Hydro One with there comments until then.

Willy

From: Myslicki, Lisa (ORC) [mailto:Lisa.Myslicki@ontariorealty.ca]
Sent: 2009/03/03 8:48 AM
To: Willy Ing
Subject: RE: Mississauga BRT ORC

I will need until Friday to figure this out.

Lisa Myslicki
Environmental Coordinator

Ontario Realty Corp.
☎ **Direct: 416 212 3768**
🖷 (416) 212-1131
✉ **Lisa.Myslicki@ontariorealty.ca**

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Monday, March 02, 2009 4:28 PM
To: Myslicki, Lisa (ORC)
Cc: Willy Ing; Grace, Patrick (ORC); Stephanie Davies; Geoff Wright; Scott W Anderson
Subject: Mississauga BRT ORC

Hi Lisa,

We (Mississauga, GO Transit, ORC, Hydro One, and MTO) convened a meeting this morning to discuss the mechanism for GO Transit and Mississauga to gain access to the ORC / Hydro One / MTO lands to support the BRT Project. Patrick Grace of the ORC had asked that we update you, and advise that GO Transit is leading the access negotiations.

To date we are working on outlining the land parcels under the ORC/Hydro One/MTO ownerships to support the BRT Project. GO Transit will organize and enter into agreement with ORC/Hydro One, and MTO for GO Transit and Mississauga to gain access to the required lands, but will need to be negotiated among the various provincial agencies through upcoming provincial polices and agreements. It is anticipated that all agreements should be in place by November/December 2009.

Patrick Grace suggested that I follow up with you to determine if there are any further ORC Environmental Assessment matters we need to address.

Willy

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
Transportation Project Office
City of Mississauga
Transportation and Works Department
201 City Centre Drive, Suite 800
Mississauga, Ontario
L5B 2T4
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Willy Ing

From: Willy Ing
Sent: 2009/03/17 9:04 AM
To: 'Myslicki, Lisa (ORC)'
Cc: Erasmus, Jordan (ORC); Boudreau, Kelly (ORC); Geoff Wright; Stephanie Davies; Scott W Anderson
Subject: RE: Mississauga BRT

Hi Lisa,

Sorry for the late response. We are looking into the ORC's concerns.

I have the all the MNR correspondence on a CD for you. Will send it out today.

Will get back to you soon.

Willy

From: Myslicki, Lisa (ORC) [mailto:Lisa.Myslicki@ontariorealty.ca]
Sent: 2009/03/11 9:27 AM
To: Willy Ing
Cc: Erasmus, Jordan (ORC); Boudreau, Kelly (ORC)
Subject: Mississauga BRT

Good morning Willy,

I have completed reviewing the Mississauga BRT. There are a few minor issues that will need to be covered off.

1) I will need to have a Phase I ESA, completed within CSA standards and reliance extended to the ORC for any lands that will be affected by the BRT. If any further environmental work is required, this will also be needed.

2) I will need to have copies of all correspondence with the Conservation Authority and the MNR

3) I will need to have a deferral sheet signed off by the proponent once the above items have been determined.

Also, do you have any ideas as to what type of agreement the City is approaching ORC for? Let me know if you think we will still require a meeting with ORC.

Regards,

Lisa Myslicki

Environmental Coordinator

Ontario Realty Corp.

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✉ **Lisa.Myslicki@ontariorealty.ca**

<<Lisa Myslicki (ORC).vcf>>

McCORMICK RANKIN
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A member of MMM GROUP

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Website: www.mrc.ca

MINUTES OF MEETING

PROJECT:	Mississauga BRT		
FILE NO.:	6964		
DATE:	January 12, 2009	**TIME:**	1 pm
PLACE:	Credit Valley Conservation offices, Mississauga		
PRESENT:	Liam Marray, CVC (Senior Planner / Ecologist) Rizwan Haq, CVC (Supervisor – Engineering Plan Review) Stephen Schijns, MRC		
PURPOSE:	CVC comments on draft BRT EA Addendum (distributed October 2008)		

PROCEEDINGS: **ACTION BY**:

1.1 Winston Churchill Boulevard

L. Murray noted that the Addendum and PDR should note that all wetlands are regulated (they weren't at the time of the 1992 EA), and that the CVC requires a compensation, mitigation, and/or replication of function plan for the loss of any regulated wetlands. MRC

L. Murray requested that MRC identify if any rare or endangered species are located in the area of the changed alignment. Ecoplans

R. Haq requested that the Addendum include enough information from the Preliminary Design Report to allow the reader to determine if storm water management can be achieved. MRC

S. Schijns will provide CVC with a copy of the draft PDR for review, to complement the EA Addendum material. MRC

1.2 Cooksville Creek

R. Haq requested that MRC perform the hydraulic analysis of the mid-culvert reduction on the basis of a continuous pipe with a restricted opening size. MRC should quantify the spillover across Rathburn Road and determine the spill pathway, noting if it is any different from the existing situation. He requested that the hydraulic analysis and conclusions be confirmed by a Professional Engineer rather than a Technician (CET). MRC MRC MRC

He requested MRC provide a digital model of the hydraulic analysis. S. Schijns advised that the MRC drainage engineer will contact Mr. Haq by phone (1-800-668-5557) to review and confirm his requirements and comments.	MRC MRC
S. Schijns described the culvert reconstruction process at Cooksville Creek, noting that there would be no exposure of the creek to the construction work (water would be diverted into the cell that is not being reconstructed). L. Marray advised that, on that basis and on the review of the project, CVC's preliminary position was that there was no HADD involved. This position would be reviewed in the course of the detail design.	Ecoplans CVC

1.3 Design

S. Schijns went through the project status and timing. L. Marray suggested that the detail design team(s) hold a CVC briefing within the first month of their assignment(s). This would ensure that CVC's new staff are up to date on the project.	Detail Design

The foregoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned within 48 hours of receiving these minutes at 905-823-8500.

Minutes prepared by,

McCormick Rankin Corporation

Stephen Schijns, P. Eng.

cc: Attendees
M. Bricks, K. Bright – Ecoplans
D. Turvey, A. Shea, K. Rodger, A. Kauppinen - MRC
G. Wright, S. Anderson, W. Ing – City of Mississauga (BRT)
S. Davies, M. Adebayo – GO Transit

Conservation Authorities and MNR

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Tel: (905) 823-4988
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E-mail: kbright@ecoplans.com
Website: www.ecoplans.com

MEMO TO FILE

RE:	Mississauga Bus Rapid Transit Project	
OUR FILE:	07-3272	
PREPARED BY:	Katie Bright	
CC:	Geoff Wright, City of Mississauga Willy Ing, City of Mississauga Mike Bricks, Ecoplans Anne MacMillan, Ecoplans	Clark Gunter, Ecoplans Dale Turvey, MRC Steve Schijns, MRC Andrew Shea, MRC
DATE:	October 5, 2007	
SUBJECT:	Telephone Conversation - Mark Heaton, Area Biologist, Ministry of Natural Resources (MNR) Aurora District	

I spoke with Mr. Mark Heaton to request confirmation regarding MNR's interest in the project and in particular MNR's interest in attending the October 24, 2007 agency meeting.

Mr. Heaton inquired as to what the main environmental features are within the study area. I provided a brief description of the project and explained that although there is some vegetation and terrestrial habitat the focus for the natural environment is primarily the watercrossings. Mr. Heaton requested a list of the watercourses potentially impacted by the project and I explained that the following watercourses are within the study area:
- Cooksville Creek;
- Etobicoke Creek;
- Little Etobicoke Creek;
- Renforth Creek; and
- Elmcrest Creek.

I noted that representatives from the Toronto and Region Conservation Authority and Credit Valley Conservation are involved with the project and that part of their involvement will be providing input regarding potential fish and fish habitat impacts. I also noted that DFO is involved from a CEAA perspective.

Mr. Heaton explained that since the natural environment interests are primarily focused on water crossings MNR is satisfied that involvement from TRCA, CVC and DFO will be sufficient to address any natural environment concerns. Mr. Heaton also noted that with MNR's reduced role in relation to the *Fisheries Act* and *Lakes and Rivers Improvement Act*, MNR is becoming less involved with works related to fish, fish habitat and watercourses.

I confirm that we will make note that MNR does not wish to be involved in the project and that they do not wish to receive any correspondence regarding the project.

From: Laura James [LJames@trca.on.ca]
Sent: Friday, October 05, 2007 1:54 PM
To: LeBrun, Kim
Subject: Re: Mississauga BRT

Kim,
There is not a vast amount of fisheries information available within the area you you have requested. It was once good fisheries habitat but now is degraded. The only sensitive aquatic/terrestrial species (watersnake) occurs near the lower end of the Little Etobicoke Creek, it is all warm water habitat currently.

Sincerely,
Laura James
Planner II - Environmental Assessment Review
Planning and Development
Toronto and Region Conservation Authority
5 Shoreham Drive, Downsview, ON M3N 1S4
Tel: 416.661.6600 x 5723 Fax: 416.661.6898
ljames@trca.on.ca

From: Clayton, Jon [JClayton@creditvalleycons.com]
Sent: Friday, October 05, 2007 11:56 AM
To: LeBrun, Kim Cc: Marray, Liam; James, Phil
Subject: RE: Mississauga BRT Project

Kim:

There is not much information available for Cooksville Creek. We have a Fish Collection Record from July 6, 1995 in our database. The station was located at Rathburn Road and no fish were caught during electrofishing. The FCR doesn't say who did the sampling. The comments on the FCR are "Degraded urban stream. 3m concrete drop at Rathburn Rd. Heavy algae growth. Watercourse is enclosed downstream of Rathburn Rd.". Additional fish records are available further downstream but fish may be absent from the QEW upstream. As far as the records of redside dace from NHIC go, I didn't find any in our database and suspect they may be from the Credit. Regardless, they are all historic records and redside are not currently found in Cooksville Creek. CVC is currently in the process of developing a Cooksville Creek Subwatershed Study. Information from this study may be available once a draft has been completed. Phil James is co-ordinating this project and he may be able to provide more information on when the draft will be ready.
Please let me know if you have any further questions.

Jon Clayton, (B.Sc. Agr.) Aquatic Biologist
Credit Valley Conservation
1255 Old Derry Road Mississauga, Ontario L5N 6R4
Phone: (905) 670-1615 x241
Fax: (905) 670-2210
Web: www.creditvalleycons.com

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Fax: (905) 823-2669
E-mail: kbright@ecoplans.com
Website: www.ecoplans.com

NOTES OF MEETING

PROJECT:	Mississauga Bus Rapid Transit (BRT) Facility		
FILE NO.:	07-3272		
DATE:	October 24, 2007	**TIME:**	9:30 a.m.
PLACE:	McCormick Rankin Corporation, Mississauga		
PRESENT:	Liam Marray	Credit Valley Conservation	
	Allan Newell	Credit Valley Conservation	
	Beth Williston	Toronto and Region Conservation Authority	
	Sharon Lingertat	Toronto and Region Conservation Authority	
	Willy Ing	City of Mississauga	
	Scott Anderson	City of Mississauga	
	Muyiwa Adebayo	GO Transit	
	Steve Schijns	McCormick Rankin Corporation	
	Darrell Wunder	McCormick Rankin Corporation	
	Anne MacMillan	Ecoplans Limited	
	Mike Bricks	Ecoplans Limited	
	Katie Bright	Ecoplans Limited	
PURPOSE:	Initial meeting to introduce the project, review potential impacts and discuss mitigation strategies.		

The following notes provide an overview of the meeting.

ITEM	PROCEEDINGS:	ACTION BY:
1.0	**Introductions**	
1.1	Roundtable introductions occurred. It was noted that Dave Gibson (Department of Fisheries and Oceans [DFO]) was invited to the meeting but due to scheduling conflicts he was unable to attend. DFO will be kept informed of the progress as it is anticipated that they will be required to provide input to Transport Canada as part of the CEAA Screening. It was noted that the Conservation Authorities will be responsible for making HADD determinations and discussing mitigation/compensation.	
2.0	**Project Overview and Status**	
2.1	M. Bricks provided an overview of the project including the completion of the original 1992 Environmental Assessment (EA) and the 2004 EA Addendum. The current project represents Phase I (approximately two-thirds by dollar value) of the capital works and includes BRT West (Winston Churchill Boulevard to Erin Mills Parkway) and BRT East (Centre View Drive to Renforth Station). The portion of the Mississauga BRT facility between BRT East and BRT West (i.e. along Highway 403) is currently operational.	

ITEM PROCEEDINGS: **ACTION BY:**

It was noted that GO Transit is responsible for the design and construction of the BRT West and the City of Mississauga is responsible for the design and construction of the BRT East; however, the City of Mississauga is coordinating the preliminary design of both sections.

M. Bricks explained that the previous EA work provided a conceptual design for BRT East and BRT West. A map showing the project limits and conceptual design is attached to these notes. The current Phase I project will bring the design for BRT East and BRT West to a preliminary design level of detail. In addition, the Project Team is pursuing a decision under the Canadian Environmental Assessment Act (CEAA). Transport Canada and Infrastructure Canada are triggered under CEAA as they are providing funding for Phase I of this project. Transport Canada is coordinating the CEAA Screening process. Other potential CEAA triggers include the Department of Fisheries and Oceans (potential Fisheries Act Authorization) and the National Energy Board (potential approval requirements for works near interprovincial pipelines).

S. Schijns provided a description of works included in the previous EA documents that will not be completed as part of the funded BRT East and BRT West works. Construction of Phase I of the project is to commence in 2009 with completion scheduled for 2012. As a result, CEAA approval and completion of preliminary design must be completed as soon as possible in 2008. Due to funding, the project schedule is not flexible.

3.0 Natural Environment Features, Potential Impacts and Mitigation Strategies

3.1 Natural environment features were reviewed with reference to the information tables distributed prior to the meeting as well as aerial photo mapping of the study area.

3.2 A. MacMillan provided a quick overview of the terrestrial features within the study area. In general, the study area is highly disturbed and effects will be limited to edge impacts to relatively minor vegetation units. It is anticipated that the terrestrial effects of the project will be fairly limited and that mitigation can be developed to address and minimize the effects.

3.3 <u>Cooksville Creek (CVC jurisdiction)</u>

A. MacMillan provided an overview of the creek features and noted that the Cooksville Creek does not directly support fish use, however it could be considered to support indirect fish habitat.

S. Schijns explained that a realignment of the Cooksville Creek will ultimately be required due to a bus layover area and other future works in the area (both the Mississauga BRT and any works resulting from the new Hurontario Transitway study). He noted that the Project Team was still sorting out what will be constructed as part of this project. M. Bricks noted that impact assessment will be based on what is proposed to be constructed as

ITEM	PROCEEDINGS:	ACTION BY:
	part of this project. If a realignment is not proposed at this time, that effect will be considered in the cumulative effects assessment. It is anticipated that the conceptual realignment of Cooksville Creek will be developed as part of the current study; however, the approach and timing for approval will need to be confirmed.	City/MRC/ Ecoplans
	The potential for the harmful alteration, disruption or destruction of fisheries habitat (HADD) was discussed. L. Marray suggested that it is likely that the realignment of Cooksville Creek would be a HADD and explained that, as with any other watercrossing, Fisheries Act Authorization could not be obtained until the realignment is designed. A. MacMillan noted that recent DFO direction regarding channel realignment is that realignment is not automatically considered HADD. Given the low sensitivity of the habitat and residual scale of negative effect, particularly if the realigned channel is the same as the original channel length, the realignment might not require authorization.	
	D. Wunder noted that it is possible that the watercourse may need to be enclosed in a culvert given the elevation of the BRT relative to the channel. W. Ing inquired if the enclosure would be considered a HADD. L. Marray explained that enclosure would be a HADD; however, A. MacMillan indicated that DFO has provided direction that enclosures may not always result in a HADD, depending again on the sensitivity of the habitat and scale of the effects.	
	It was acknowledged that it is difficult to make a preliminary HADD determination without design details. It was also noted that when considering the impacts of works in the area of watercrossings stormwater management (e.g. capacity, treatment) will also need to be addressed. It was agreed that MRC would develop addition design details to be reviewed at the next meeting. Once reviewed, formal HADD determinations could be made.	MRC
	A. MacMillan inquired about compensation opportunities along Cooksville Creek if it is determined that compensation is required. L. Marray explained that compensation would likely be focused on Cooksville Creek north of Dundas Street, where there is a barrier to fish movement. It was agreed a conceptual compensation strategy would be developed during preliminary design if it is determined that compensation is required. L. Marray explained that CVC is currently undertaking a subwatershed study for Cooksville Creek. It is anticipated that findings from the subwatershed study could assist with the development of the compensation strategy. L. Marray also explained that modelling is available for the Cooksville Creek and that the modelling will be provided to D. Wunder. A. MacMillan noted that compensation that far off-site on private property was not desirable; however, L. Marray noted the city owned lots of property along the creek.	CVC

ITEM	PROCEEDINGS:	ACTION BY:
3.4	Eastern Tributary of Cooksville Creek (CVC jurisdiction) A. MacMillan explained that only a short section of the eastern tributary of Cooksville Creek upstream of the highway is open channel; the balance of the channel further upstream, as well as through and downstream of the right-of-way is piped. S. Schijns explained that the open section of the channel will not be directly impacted during construction since the right-of-way will be extended to the south (downstream) where the channel is already enclosed. As a result, it is anticipated that standard mitigation measures (e.g. erosion and sediment control, temporary flow passage) will employed to mitigate any potential indirect impacts to the watercourse.	
3.5	Little Etobicoke Creek (TRCA jurisdiction) A. MacMillan provided an overview of the creek features and noted that the Little Etobicoke Creek provides warmwater habitat. It is anticipated that the creek can be fully spanned with a new bridge. S. Schijns explained that the new structure will most likely be at the same elevation as the existing Eastgate Parkway structure.	
	B. Williston explained that the TRCA has identified the area along the north side of Eastgate Parkway as wetland. The wetland has not been evaluated. S. Lingertat inquired if Ecoplans has received current data from TRCA. A. MacMillan explained that requests have been made but all data (including regulatory limits mapping) has not been received. S. Lingertat will ensure that Ecoplans receives all current data and mapping for the watercrossings within the study area.	TRCA
	B. Williston noted that TRCA in partnership with a local stewardship group does have plans for remedial work within the vicinity of Little Etobicoke Creek and the identified wetland. The status and progress of the remedial plans will be review by TRCA and details provided to Ecoplans.	TRCA
	B. Williston confirmed that it is likely that if the new structure fully spans the creek (including the edge of valley) the proposed works should not result in HADD; however, TRCA will need to review the proposed structure design prior to making a preliminary HADD determination. It was agreed that MRC would develop addition design details to be reviewed at the next meeting. Once reviewed, formal HADD determinations could be made. A. MacMillan noted that provided the structure spans the bankfull channel, DFO's Operational Statement for Clear-span Bridges should apply.	MRC
	S. Lingertat inquired if fluvial geomorphology reporting is available for the watercrossing. D. Wunder explained that a fluvial geomorphologist will complete an assessment as part of the current study. TRCA would like to review any reporting completed as part of the assessment. When the reporting is available, D. Wunder will provide a copy of the fluvial geomorphologist's input to S. Lingertat.	MRC

ITEM	PROCEEDINGS:	ACTION BY:
3.6	Etobicoke Creek (TRCA jurisdiction) A. MacMillan provided an overview of the creek features and noted that Etobicoke Creek provides warmwater fish habitat. S. Schijns explained that the busway will be in close proximity to the existing Eglington Avenue structure and that it is anticipated that the new structure crossing the Etobicoke Creek will be at a similar elevation as the existing structure. S. Lingertat noted that TRCA's mapping indicates that the regional floodline overtops Eglington Avenue at the existing structure. TRCA noted concerns regarding the floodline in the vicinity of the new structure. B. Williston confirmed that it is likely that if the new structure fully spans the creek (including the edge of valley) the proposed works should not result in a HADD; however, TRCA will need to review the proposed structure design prior to making a preliminary HADD determination. It was agreed that MRC would develop addition design details to be reviewed at the next meeting. Once reviewed, formal HADD determinations could be made.	MRC
3.7	Elmcrest Creek (TRCA jurisdiction) A. MacMillan provided an overview of the creek features and noted that Elmcrest Creek appears to only support indirect fish habitat, and it is quite disturbed. The proposed works at Elmcrest Creek are anticipated to require realignment of the 'creek', since it parallels the north side of the highway where works are proposed. It is also possible that the creek may have to be enclosed as part of the works rather than realigned. B. Williston explained that although TRCA regulates Elmcrest Creek, a field visit is required to confirm its character and status of the watercourse since it may just be a swale or highway ditch. B. Williston noted that determinations made based on field visit findings regarding the watercourse supersede any existing data; however, because the area is Regulated a permit will still be required under Ontario Regulation 166/06.	
3.8	Renforth Creek (TRCA jurisdiction) A. MacMillan provided an overview of the creek features and noted that Renforth Creek also appears to be a fairly minor and disturbed feature. B. Williston indicated that Renforth Creek is not mapped as being regulated within the study area; however, a field visit will be required to confirm the status.	
3.9	It was recognized that prior to the next meeting conceptual watercourse crossing designs will be required along with additional details regarding the realignment of Cooksville Creek (e.g. timing for approval).	City/MRC
	Ecoplans will update the information tables based on input from this meeting and additional details and mapping from the Conservation Authorities. The updated tables and conceptual watercrossing designs will be distributed in advance of the next agency meeting.	City/MRC/ Ecoplans

ITEM	PROCEEDINGS:	ACTION BY:
4.0	**Stormwater Management**	
4.1	D. Wunder explained that the study approach to stormwater management will be to attain an enhanced protection level. It is anticipated that bioswales (ditches) will be employed and opportunities to tie-into existing stormwater management ponds will be reviewed. D. Wunder noted that use of stormceptors will be considered where bioswales/outletting to existing stormwater management ponds will not be possible. A. Newell explained that CVC discourages the use of stormceptors. In addition, CVC requested that when stormwater management plans are developed consideration should be given to incorporate opportunities to treat areas that are currently untreated.	
5.0	**Next Steps**	
5.1	D. Wunder noted that the site visit to review stormwater management aspects should occur in the next few weeks. It was agreed that this would be a good opportunity for TRCA to complete a field visit along with members of the Project Team. S. Lingertat will provide D. Wunder a list of dates when TRCA staff can attend a field visit. D. Wunder will schedule the field visit as soon as possible. CVC requested to be informed of the field visit date and explained that CVC staff will attend if available.	TRCA MRC
5.2	It was agreed that any additional study area information to be provided by CVC and TRCA should be directed to K. Bright for distribution to the project team.	
5.3	It was suggested that opportunities to develop 'showcase' natural environment rehabilitation/enhancement projects within the study area should be reviewed as a spin-off opportunity to having key players at the same table. It was agreed that Eugene Furgiuele (City of Mississauga) should attend future agency meetings as he has invaluable knowledge and experience with the various rehabilitation/enhancement projects that the City of Mississauga has been a partner to.	
5.4	As previously noted, the updated information tables and watercrossing design details will be distributed for review in advance of the next agency meeting (date to be determined). S. Anderson explained that the Mississauga BRT is a priority project for the City and requested that all parties work towards completing this project as efficiently as possible. In particular, it would be appreciated if all attendees would review the updated information tables and watercrossing design details in advance of the next meeting.	City/MRC/ Ecoplans

The forgoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned immediately upon receiving these minutes (905-823-4988).

Minutes Prepared by:

Ecoplans Limited

Katie Bright

cc: Attendees
Dave Gibson, Department of Fisheries and Oceans
Sarah O'Keefe, Transport Canada
Geoff Wright, City of Mississauga
Dale Turvey, McCormick Rankin Corporation
Kim LeBrun, Ecoplans Limited

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TORONTO AND REGION Conservation
for The Living City

November 30, 2007

CFN: 39971
X REF CFN: 23800

BY MAIL AND EMAIL (mbricks@ecoplans.com)

Mr. Mike Bricks
Ecoplans Limited
2655 North Sheridan Way, Suite 280
Mississauga, ON L5K 2P8

Dear Mr. Bricks:

Re: Response to Vegetation and Wildlife Summary Table and Fish and Fish Habitat Summary Table
Mississauga Bus Rapid Transit (Eastgate Parkway at Highway 403 to Eglinton Avenue at Renforth Drive)
Etobicoke Creek; City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the Vegetation and Wildlife Summary Table along with the Fish and Fish Habitat Summary Table for the above-noted project on October 19, 2007. A site visit was also conducted on November 19, 2007 with staff of TRCA (Brad Stephens, Scott Smith, Sharon Lingertat), Ecoplans (Katie Bright) and McCormick Rankin (Darrell Wunder), to examine the Regulated Areas and watercourse features within the study area.

Details of submission requirements are provided below. Additional comments pertaining to the tables and site visit are provided in Appendix A. The Requirements for Submissions under Ontario Regulation 166/06 are provided in Appendix B along with a copy of the draft Watercourse Crossing Chart, attached for your reference as the study progresses. Staff has also undertaken a review of our data in relation to this project, and will be providing this information to you in digital form under separate cover.

Submission Requirements

1. There are 5 Regulated Areas located within the project limits. In accordance with Ontario Regulation 166/06, a permit is required from TRCA for each of these areas, as follows:

   a) Permit 1 (Regulated Areas 1 and 2) – Eglinton Avenue at Explorer Drive and Eglinton Avenue at Centennial Park Boulevard
   b) Permit 2 (Regulated Area 3) – Eglinton Avenue (west of Rakely Court), Etobicoke Creek
   c) Permit 3 (Regulated Area 4) – Eastgate Parkway (Tomken Road to Dixie Road)
   d) Permit 4 (Regulated Area 5) – Eastgate Parkway (east of Cawthra Road)

2. There are 3 crossings in the project area that may impact fish or fish habitat. In accordance with the TRCA Level 3 Agreement with Fisheries and Oceans Canada (DFO), approval pursuant to Section 35 (2) of the *Fisheries Act* is required. For works which are considered a mitigable HADD, concerns with respect to Section 35 (2) of the *Fisheries Act* will be addressed through TRCA review of the permit application, on behalf of DFO. For works which are considered a HADD, *Fisheries Act* Authorization is required from Fisheries and Oceans Canada. TRCA staff undertakes the initial review of all *Fisheries Act* Applications.

3. Please note that there may be additional approval requirements for this project. Common environmental approvals other than those listed above include *Navigable Waterways Act*, *Lakes and Rivers Improvement Act*, *Public Lands Act*, *Drainage Act*, *Environmental Protection Act* and the *Ontario Water Resources Act*, as well zoning bylaws made under the *Municipal Act* and the *Planning Act*.

4. For each permit application, the following will need to be submitted to TRCA:
   a) four (4) INDIVIDUALLY folded copies of the plans
   b) four (4) copies of supporting reports or documentation
   c) signed permit application form(s)
   d) review fee(s) ($2,000, for each permit application)

Please ensure that all required information is included with your submission(s). Should you have any questions please contact me at extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Acting Planner II, Environmental Assessments
Planning and Development

SL/

Encl. Appendix A: Preliminary Review Comments
Appendix B: Requirements for Submissions under Ontario Regulation 166/06
Draft Watercourse Crossing Chart
TRCA Post Construction Restoration Guidelines
TRCA Native Flora List
TRCA Guideline for Watercourse Crossings

BY EMAIL

cc: Willy Ing, City of Mississauga (willy.ing@mississauga.ca)
Scott Anderson, City of Mississauga (scott.anderson@mississauga.ca)
Darrell Wunder, McCormick Rankin (dwunder@mrc.ca)
Katie Bright, Ecoplans (kbright@ecoplans.com)
Carolyn Woodland, TRCA, Director, Planning and Development
Quentin Hanchard, TRCA, Manager, Development Planning and Regulations
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

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APPENDIX A

1. Digger crayfish (*Fallicambarus fodiens*) are present in the hydro corridor immediately upstream of Eastgate Parkway on Little Etobicoke Creek. Please ensure that the proposed alignment considers the fish habitat and wetland assessment so that there will be minimal impacts to the crayfish habitat.

2. Please explore all opportunities to restore fish passage at the existing Little Etobicoke Creek culverts under Eastgate Parkway, including the removal of the existing jersey barriers and weir.

3. Please review the attached TRCA Guideline for Watercourse Crossings to ensure that all information requirements (i.e. fluvial geomorphic assessment, hydraulic assessment, etc.) and design considerations are addressed. Given that the EA and Addendum provide little detail with respect to design considerations for the proposed crossings, this information will need to be included with the detailed design submission.

4. At the Little Etobicoke Creek crossing it is noted that the transitway crossing will be an extension to the existing crossing at this location. As per the above noted crossing guidelines, please ensure that the appropriate studies were conducted as part of the detailed design for the existing structure and that copies are included as part of the detailed design submission for review. If the existing structure was not sized appropriately, please consider a replacement structure that adequately addresses the appropriate range of design considerations.

5. It is noted that there is evidence of existing active erosion at the Little Etobicoke Creek Crossing. Please ensure that measures are included in the design to address this issue.

6. TRCA has records of Etobicoke Twinleaf (*Jeffersonia diphylla*) near the crossings of Etobicoke Creek at Eglinton Avenue. Please ensure the alignment of the structure at Etobicoke Creek avoids the area where Twinleaf is present.

7. Please ensure that a net ecological gain is provided for all disturbed areas. Staff has targeted Eastgate Parkway for a Habitat Implementation Plan (HIP) where a natural corridor running east-west may be established between Etobicoke Creek and the Credit Valley watershed. Please explore these opportunities at the detailed design stage.

8. Reference is made in the Fish and Fish Habitat Summary Table to the CVC/MNR Sediment Control Guidelines. Please also use the guideline recently produced for the Greater Golden Horseshoe Area Conservation Authorities (Erosion and Sediment Control Guideline for Urban Construction (2006)). This document can be downloaded at www.sustainabletechnologies.ca.

9. The tables indicate that a comprehensive stormwater management (SWM) plan will be prepared as part of the detailed design. The following TRCA SWM criteria applies to this project.

   - **Water Quality Control**: Level 1 Enhanced
   - **Water Quantity Control**: 2 to 100 year control required for Little Etobicoke Creek Watershed, quantity control not required for other areas
   - **Erosion Control**: 25 mm detention for 48 hours (or for maximum duration feasible)

   Please also note that there is an existing SWM pond on the Bell Mobility site, located just west of the proposed Etobicoke Creek crossing. There may be potential to retrofit this facility to accommodate local drainage from the transitway project.

10. a) The Vegetation and Wildlife Summary Table, EA Commitments to Future Work, states that there will be compensation for wetland loss per CVCA practice. As this area is located within TRCA's jurisdiction please revise to read, "...per TRCA practice."

    b) TRCA staff recommends reviewing the alignment such that impacts to the existing natural environment are minimized to the extent possible.

11. For direction during detailed design please reference the attached TRCA Post Construction Restoration Guidelines and the TRCA Native Flora List.

APPENDIX B
REQUIREMENTS FOR SUBMISSIONS UNDER ONTARIO REGULATION 166/06

The proponent shall submit the Ontario Regulation 166/06 permit application(s) to the TRCA Project Manager. The application shall include:

Plans and Drawings
ALL plans should be signed and stamped by a professional and should have the following information:

Construction Details
- a key map that shows the drawing numbers, chainage and watercourse crossings
- a numbering system for drawings (if possible) (i.e., Drawing 1R=Removals 1LP=Landscape Plans, 1NC=New Construction etc.) for the same chainage rather than a consecutive series of drawing numbers from 1-100. Keep the drawing numbers consistent throughout the project. If revisions are required, utilize a system like 1LPa, or 1LPb for example rather than changing the numbers
- identify chainage
- identify crossings by chainage (as opposed to numbers)
- identify site access on all lands and provide a typical cross-section

Regulatory Lines and Boundaries
- identify the extent of the construction limits (east, west, north, south)
- identify the municipal property boundary
- identify the property boundaries of lands outside the ownership of the municipality where works will be conducted and will require Land Owner Authorization
- identify TRCA lands on the plans, as required
- identify Regulation Limits and Regional Storm Floodlines

Standard Notes
- All disturbed areas will be stabilized and restored with native/non-invasive species upon completion of the work
- Should an unexpected storm arise, the contractor will remove all unfixed items from the Regional Storm Floodplain that would have the potential to cause a spill/ pollution (i.e. fuel tanks, porta-potties, machinery) or an obstruction to flow (i.e. equipment).
- If applicable, have extra pumps on site in case of failure of the main pump or a need for extra capacity.
- Sediment and erosion control measures will be implemented prior to, and maintained during the construction phases to prevent entry of sediment into the water.
- All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the water. Vehicular refueling and maintenance will be conducted 30 m from the water.
- The contractor shall monitor the weather several days in advance of starting the project to ensure favourable weather conditions. Should a storm event occur, the contractor shall follow the contingency plan as noted on the engineering drawing.

Fisheries Act Review

For each project area identified as a Harmful, Alteration, Disruption or Destruction (HADD) of a watercourse, the proponent shall submit the following to information as part of the Ontario Regulation 166/06 permit application:

- two completed DFO Applications (see DFO website at www.dfo-mpo.gc.ca/)
- two Letters of Intent that are signed by the owner, that follow the LOI Guidelines also available of the DFO website

* Please note that at the outset of review, staff cannot always confirm if the project will be a HADD. This determination may be made through the staff review of resubmissions. As such, requirements for the above-noted DFO Applications may be confirmed as the project review proceeds.

Conservation
TORONTO AND REGION

POST-CONSTRUCTION RESTORATION GUIDELINES

JULY 2004

Restoration is required when disturbance in a natural area is unavoidable and requires clearing of vegetation. Every effort should be made to avoid these impacts, however the following guidelines should be followed in instances where this is not possible. It is critical to the success of the restoration planting that the range of site conditions be assessed as some level of site preparation will likely be required prior to planting. Site preparation is paramount as soil compaction, grading, altered hydrology, herbivory, and inadequate topsoil depths can seriously inhibit planting success of even the hardiest species and can limit the process of regeneration. There are also a suite of urban stresses that can hinder the growth of plantings including salt spray, pollution, pests, and altered micro-climate. These issues need to be dealt with on a site-by-site basis, but should be considered when developing restoration plans.

1. The proponent is responsible for ensuring that all plantings are native species and are suitable given the soil, moisture, and light conditions of the site, as well as any specific stresses. Cultivars of native species are generally not acceptable. While invasive species are not permitted, non-invasive exotic species may be used in some limited areas. Plantings should also be compatible and complementary to the existing vegetation communities.

2. Early successional species should be used alone or in concert with shade tolerant (i.e. late-seral species) to allow natural succession to ensue. Shade tolerant species can be used if conditions are favourable and in areas where a source of late-seral seed does not exist in order to promote succession.

3. In general, woody plantings should follow the standard densities of 1 metre on centre for shrubs and 5 metres on centre for trees. However, higher densities may be required depending on the situation (e.g. live staking, use of stock 100 cm or smaller, edge management, sensitive areas, or other site-specific situations).

4. Indicate that site stabilization will occur during or immediately following construction to avoid unacceptable levels of erosion. Depending on their suitability, various techniques may be employed including hydroseeding, or installing straw mulch or jute mats, etc. Although sod is acceptable as an interim measure, it will not be permitted as a permanent groundcover in natural areas and associated buffers.

5. Seeding mixtures should consist of quick-growing, non-invasive species. Manufacturers offer an assortment of mixtures that are suited to various conditions, including a slope stabilization mix, meadow mix, and wetland mix. In particularly sensitive areas, a seed mix consisting entirely of native species should be used to avoid the invasion of aggressive vegetation. Please refer to the *TRCA Seed Mix Guidelines* for further details. In areas where invasive species are a particular problem, eradication of these species may become a component of the restoration initiative.

6. Ensure that riparian planting coverage for a stream extends from the watercourse edge to a

minimum of 10 metres on either side. For a valley, coverage should include plantings within the entire feature plus an additional 10 metres. Generally, we only require restoration in areas being disturbed.

7. Riparian plantings should be installed after the spring freshet to avoid being uprooted during high flows if planted the previous autumn. Mulch application may not be appropriate in riparian zones as this material can be easily washed away during high water periods. Alternative methods of dealing with competitive vegetation should be considered, however herbicide application is not desirable.

8. The objective is to establish at least 50% woody coverage through restoration in areas where the desired vegetation community is forest.

9. When selecting vegetation for plantings, try to achieve a degree of structural and species diversity.

10. If the area is very grassy, mulch and rodent guards may be needed to protect young tree stems. Larger planting stock may be required in these areas to due to competing herbaceous vegetation. Maintenance plans should include watering during summer dry spells for the first 2-3 years after planting.

11. Other than in sites with competing herbaceous vegetation, we generally have no size requirements for vegetation to be planted. Typically, we prefer greater numbers of smaller-sized vegetation over fewer numbers of larger-sized vegetation. Planting large vegetation may cause more disturbance to the site.

12. Plans should indicate timing of the restoration works, as well as phasing if applicable.

13. Indicate how existing vegetation to be retained will be protected. Please refer to the *TRCA Edge Management Guidelines* for further detail.

14. Drawings should include a plan view showing planting locations, species and numbers, a detail showing the installation, and a note listing the species, size, and condition (i.e. bareroot, balled and burlapped, potted). The latter will ultimately dictate the season when works can be done. Bareroot stock should only be installed while dormant in spring or after leaf fall in autumn. Planting of balled and burlapped and container-grown stock can be installed at any time during the growing season if adequate water is supplied.

NB: This document is dated **July 2004** and is consistent with current policies adopted by the TRCA at this time. These guidelines are not meant to be exhaustive but present the typical requirements of the TRCA and are subject to change.

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Abies balsamea	balsam fir	L3	S5 (2000-03-31)	G5 (1983-11-03)
Acalypha virginica var. rhomboidea	three-seeded mercury	L5	S5 (2000-03-31)	G5 (1988-05-02)
Acer rubrum	red maple	L4	S5 (2000-03-31)	G5 (1984-02-09)
Acer saccharinum	silver maple	L4	S5 (2000-03-31)	G5 (1984-02-09)
Acer saccharum ssp. nigrum	black maple	L4	S4? (2000-03-31)	G5T5 (1984-02-09)
Acer saccharum ssp. saccharum	sugar maple	L5	S5 (2000-03-31)	G5T5 (1999-09-16)
Acer spicatum	mountain maple	L4	S5 (2000-03-31)	G5 (1984-02-09)
Achillea millefolium ssp. lanulosum	woolly yarrow	L5	S5	G5T?
Acorus americanus (A. calamus misapplied)	sweet flag	L3	S4 (2000-03-31	G5 (1984-01-19)
Actaea pachypoda	white baneberry	L4	S5 (2000-03-31)	G5 (1984-02-09)
Actaea rubra	red baneberry	L5	S5 (2000-03-31)	G5 (1984-02-09)
Adiantum pedatum	northern maidenhair fern	L3	S5 (2000-03-31)	G5 (1983-11-03)
Adlumia fungosa	climbing fumitory	LX	S4 (2000-03-31)	G4 (1984-03-02)
Agalinis paupercula (Gerardia purpurea v. parviflora)	small-flowered gerardia	L1	S4S5 (2000-03-31)	G5 (1984-02-09)
Agalinis purpurea	purple gerardia	LX	S1 (2000-03-31)	G5 (1984-02-09)
Agalinis tenuifolia	slender gerardia	L2	S4S5 (2000-03-31)	G5 (1984-02-09)
Agastache nepetoides	catnip or yellow giant hyssop	LX	S4 (2000-03-31)	G5 (1988-05-02)
Agrimonia gryposepala	agrimony	L5	S5 (2000-03-31)	G5 (1984-02-09)
Agrimonia pubescens	hairy or soft agrimony	L3	S4 (2000-03-31)	G5 (1988-05-02)
Agrostis perennans	upland or autumn bent grass	L3	S5 (2000-03-31)	G5 (1988-02-24)
Agrostis scabra	ticklegrass	L3	S5 (2000-03-31)	G5 (1987-10-01)
Alisma gramineum	grass-like water-plantain	L3	S3S4 (2000-03-31)	G5 (1985-04-05)
Alisma plantago-aquatica (A. triviale)	water-plantain	L4	S5?	G5
Allium tricoccum	wild leek or ramps	L3	S5 (2000-03-31)	G5 (1984-02-09)
Alnus incana ssp. rugosa (A. rugosa)	speckled or tag alder	L3	S5 (2000-03-31)	G5 (1983-11-03)
Alopecurus aequalis	short-awned foxtail	L3	S4S5 (2000-03-31)	G5 (1984-02-09)
Ambrosia artemisiifolia	common ragweed	L5	S5 (2000-03-31)	G5 (1989-06-02)
Ambrosia trifida	giant ragweed	L5	S5 (2000-03-31)	G5 (1984-02-09)
Amelanchier amabilis (A. sanguinea var. grandiflora)	large-flowered serviceberry	L3	S2S3 (200-03-31)	G?Q
Amelanchier arborea (A. canadensis misapplied)	downy serviceberry or Juneberry	L4	S5 (2000-03-31)	G5 (1983-11-20)
Amelanchier laevis	smooth serviceberry	L4	S5 (2000-03-31)	G4G5Q (1988-05-02)
Amelanchier sanguinea var. sanguinea	round-leaved serviceberry	L4	S5?	G5T5 (1999-05-21)
Amelanchier spicata	low or dwarf serviceberry	L3	S5?	G?
Amelanchier stolonifera (A. spicata var. stolonifera	running serviceberry	L2	S4? (2000-03-31)	G5 (1984-02-09)
Ammophila breviligulata	marram or beach grass	L3	S3 (2000-03-31)	G5 (1983-11-03)
Amphicarpaea bracteata	hog-peanut	L5	S5 (2000-03-31)	G5 (1984-02-09)
Anaphalis margaritacea	pearly everlasting	L3	S5 (2000-03-31)	G5 (1984-02-09)
Andromeda polifolia ssp. glaucophylla	bog rosemary	L1	S5 (2000-03-31)	G5T5 (1994-04-28)
Andropogon gerardii	big bluestem	L3	S4 (2000-03-31)	G5 (1984-02-09)
Androsace septentrionalis	pygmy-flower or northern androsace	L3	S4? (2000-03-31)	G5 (1988-02-24)
Anemone acutiloba (Hepatica acutiloba)	sharp-lobed hepatica	L3	S5 (2000-03-31)	G5 (1991-05-09)
Anemone americana (Hepatica americana)	round-lobed hepatica	L2	S5 (2000-03-31)	G5 (
Anemone canadensis	Canada anemone	L5	S5 (2000-03-31)	G5 (1984-02-09)
Anemone cylindrica	long-fruited thimbleweed	L3	S4 (2000-03-31)	G5 (1984-02-09)
Anemone multifida	red anemone	L2	S5 (2000-03-31)	G5 (1984-02-09)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Aster oolentangiensis (A. azureus)	sky-blue or azure aster	L3	S4 (2000-03-31)	G5 (1992-04-08)
Aster pilosus var. pilosus	hairy aster	L3	S5 (2000-03-31)	G5T? (1991-04-04)
Aster pilosus var. pringle.	Pringle's or spray aster	L2	S4 (2000-03-31)	G5T5 (2000-03-24)
Aster puniceus var. puniceus	swamp or purple-stemmed aster	L5	S5 (2000-03-31	G5T? (1992-04-10)
Aster schreberi	Schreber's aster	LX	S1 (2000-03-31)	G4 (1984-02-09)
Aster umbellatus var. umbellatus	flat-topped aster	L4	S5 (2000-03-31)	G5T? (1993-03-16)
Aster urophyllus (A. sagittifolius)	arrow-leaved aster	L3	S4 (2000-03-31)	G4 (1994-08-17)
Astragalus canadensis	Canada milk-vetch	L2	S4 (2000-03-31)	G5 (1984-08-09)
Athyrium filix-femina var. angustum	northeastern lady fern	L5	S5 (2000-03-31)	G5 T5 (1991-03-18)
Aureolaria flava var. flava	yellow false foxglove	LX	S3 (2000-03-31)	G5 (1984-02-09)
Aureolaria flava var. macrantha	large-flowered yellow false foxglove	LX	S3 (2000-03-31)	G5TQ?
Aureolaria pedicularia	fern-leaved false floxglove	LX	S3 (2000-03-31)	G5 (1984-02-09)
Beckmannia syzigachne	slough grass	L3	S4 (2000-03-31)	G5 (1984-02-14)
Betula allegheniensis (B. lutea)	yellow or curly birch	L4	S5 (2000-03-31)	G5 (1984-02-14)
Betula papyrifera	paper or white birch	L4	S5 (2000-03-31)	G5 (1983-09-19)
Betula pumila (B. glandulifera)	dwarf or swamp birch	L1	S5 (2000-03-31)	G5 (1984-02-14)
Bidens cernuus	nodding bur-marigold	L5	S5 (2000-03-31)	G5 (1984-02-14)
Bidens discoideus	small beggar's-ticks	L3	S4 (2000-03-31)	G5 (1984-02-14)
Bidens frondosus	common or devil's beggarticks	L5	S5 (2000-03-31)	G5 (1984-02-14)
Bidens tripartitus (inc. B. connatus, B. comosus	three-parted beggar's ticks	L5	S5 (2000-03-31)	G5 (1994-08-17)
Bidens vulgatus	tall beggar's-ticks	L3	S5 (2000-03-31)	G5 (1987-09-29)
Boehmeria cylindrica	false nettle	L4	S5 (2000-03-31)	G5 (1984-02-14)
Botrychium dissectum	cut-leaved grape fern or moonwort	L2	S5 (2000-03-31)	G5 (1984-02-16)
Botrychium lanceolatum ssp. angustisegmentum	triangle grape fern	LX	S3 (2000-03-31)	G5 (1984-01-19)
Botrychium matricariifolium	daisy-leaved grape fern	L1	S4S5 (2000-03-31)	G5 (1991-01-31)
Botrychium multifidum	leathery grape fern	L1	S5 (2000-03-31)	G5 (1984-01-19)
Botrychium oneidense	blunt-lobed grape fern	LX	S3 (2000-03-31)	G4Q (1996-07-29)
Botrychium simplex	least grape fern or moonwort	LX	S4? (2000-03-31)	G5 (1984-07-16)
Botrychium virginianum	rattlesnake fern	L2	S5 (2000-03-31)	G5 (1984-01-19)
Brachyeletrum erectum	bearded shorthusk	L2	S4? (2000-03-31)	G5T? (1993-03-16)
Brasenia schreberi	water-shield	L1	S5 (2000-03-31)	G5 (1984-02-16)
Bromus ciliatus (B. canadensis)	fringed brome grass	L3	S5 (2000-03-31)	G5 (1984-02-16)
Bromus kalmii	Kalm's brome	LX	S4 (2000-03-31)	G5 (1986-02-19)
Bromus latiglumis	eared or tall brome	L4	S4 (2000-03-31)	G5 (1988-02-25)
Bromus pubescens	Canada brome	L2	S4 (2000-03-31)	G5 (1999-05-25)
Cakile edentula	sea-rocket	L2	S4 (2000-03-31)	G5 (1983-11-20)
Calamagrostis canadensis	Canada blue joint	L4	S5 (2000-03-31)	G5 (1984-02-16)
Calamagrostis stricta ssp. inexpansa (C. inexpansa	northern reed grass	L2	S5 (2000-03-31)	G5T5 (1994-05-24)
Calla palustris	water arum	L2	S5 (2000-03-31)	G5 (1984-02-16)
Callitriche palustris (C. verna)	water star-wort	L3		
Calopogon tuberosus (C. pulchellus)	grass pink	L1	S4S5 (2000-03-31)	G5 (1990-09-18)
Caltha palustris	marsh marigold	L4	S5 (2000-03-31)	G5 (1984-02-16)
Calypso bulbosa	calypso	LX	S4S5 (2000-03-31)	G5 (1990-06-22)
Calystegia sepium (incl. ssp. americanum, angulat	hedge bindweed	L4	S5 (2000-03-31)	G5 (1997-03-10)
Calystegia spithamaea ssp. spithamaea	low bindwind	L2	S4S5 (2000-03-31)	G4G5TQ?

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Carex gracillima	graceful sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex granularis	meadow sedge	L5	S5 (2000-03-31)	G5 (1984-02-29)
Carex grayi	Gray's sedge	L2	S4 (2000-03-31)	G4 (1988-02-11)
Carex hirtifolia	pubescent or hairy-leaved sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex hitchcockiana	Hitchcock's sedge	L3	S5 (2000-03-31)	G5 (1985-04-05)
Carex hystericina (C. hystricina,	porcupine sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex interior	inland or prairie star sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex intumescens	bladder sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex lacustris	lake-bank sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex laevivaginata	smooth-sheathed sedge	L3	S4 (2000-03-31)	G5 (1984-04-05)
Carex lasiocarpa (C. filiformis)	slender woolly sedge	L2	S5 (2000-03-31)	G5 (1984-02-29)
Carex laxiculmis var. laxiculmis	spreading or weak wood sedge	L3	S4 (2000-03-31)	G5T? (1993-03-16)
Carex laxiflora	loose-flowered sedge	L4	S5 (2000-03-31)	G5 (1985-04-05)
Carex leptalea ssp. leptalea	bristle-stalked sedge	L3	S5 (2000-03-31)	G5TQ?
Carex leptonervia (C. laxiflora var. leptonervia	few- or fine-nerved wood sedge	L3	S5 (2000-03-31)	G5 (1988-02-11)
Carex limosa	mud sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex lupulina	hop sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex lurida	sallow sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex magellanica ssp. irrigua (C. paupercula	stunted or bog sedge	L2	S5 (2000-03-31)	G5T? (1989-12-14)
Carex molesta	troublesome sedge	L3	S4? (2000-03-31)	G4 (1988-02-11)
Carex muhlenbergii var. muhlenbergi	Muhlenberg's sedge	L3	S4S5 (2000-03-31)	G5T5 (1996-11-17)
Carex normalis	tall straw sedge	L3	S4 (2000-03-31)	G5 (1984-02-29)
Carex pallescens	pale sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex pauciflora	few-flowered sedge	LX	S5 (2000-03-31)	G5 (1984-02-29)
Carex peckii (C. nigromarginata var. elliptica	Peck's sedge	L4	S5 (2000-03-31)	G4G5 (1984-10-02)
Carex pedunculata	early-flowering sedge	L4	S5 (2000-03-31)	G5 (1984-10-02)
Carex pellita (C. lanuginosa; C. filiformis var. lanugi	woolly sedge	L4	S5 (2000-03-31)	G5 (1984-04-05)
Carex pensylvanica	Pennsylvania sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex plantaginea	plantain-leaved sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex platyphylla	broad-leaved sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex prairea	prairie or fen panicled sedge	L3	S5 (2000-03-31)	G5? (1984-02-29)
Carex prasina	drooping sedge	L2	S4 (2000-03-31)	G4 (1990-09-18)
Carex projecta	necklace or loose-headed oval sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex pseudo-cyperus	pseudocyperus sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex radiata (formerly C. rosea,	stellate or straight-styled sedge	L5	S5 (2000-03-31)	G4 (1988-02-11)
Carex retrorsa	retrorse sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex rosea (formerly convoluta)	curly-styled sedge	L5	S5 (2000-03-31)	G5 (1984-02-29)
Carex scabrata	rough sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex schweinitzii	Schweinitz' sedge	L2	S3 (2000-03-31)	G3 (1986-10-15)
Carex scoparia	pointed broom sedge	L3	S5 (2000-03-31)	G5 (1984-02-29)
Carex siccata (C. foenea)	sand-bank, hillside, or hay sedge	L3	S5 (2000-03-31)	G5T5 (1998-05-05)
Carex sparganioides	bur-reed sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)
Carex sprengelii	long-beaked sedge	L4	S5 (2000-03-31)	G5? (1984-10-02)
Carex stipata	awl-fruited sedge	L5	S5 (2000-03-31)	G5 (1984-02-29)
Carex stricta	tussock sedge	L4	S5 (2000-03-31)	G5 (1984-02-29)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Clematis occidentalis var. occidentalis (C. verticilla	purple clematis	LX	S4S5 (2000-03-31)	G5TQ?
Clematis virginiana	virgin's bower	L5	S5 (2000-03-31)	G5 (1984-02-29)
Clinopodium vulgare (Satureja vulgaris,	dogmint or wild basil	L5	S5 (2000-03-31)	G5 (1999-11-29)
Clintonia borealis	yellow clintonia or bluebead lily	L3	S5 (2000-03-31)	G5 (1984-02-29)
Coeloglossum viride var. virescens (Habenaria virid	bracted green orchid	LX	S4 (2000-03-31)	G5T5 (1988-02-11)
Collinsonia canadensis	horsebalm or richweed	L2	S4 (2000-03-31)	G5 (1984-02-29)
Comandra umbellata	comandra or bastard toadflax	L2	S5 (2000-03-31)	G5 (1984-02-29)
Comptonia peregrina	sweet-fern	L1	S5 (2000-03-31)	G5 (1983-10-11)
Conopholis americana	squaw-root	L1	S4? (2000-03-31)	G5 (1984-02-29)
Conyza canadensis (Erigeron canadensis,	horse-weed	L5	S5 (2000-03-31)	G5 (1984-12-07)
Coptis trifolia (C. groenlandica,	goldthread	L2	S5 (2000-03-31)	G5 (1984-02-29)
Corallorhiza maculata	spotted coral-root	L1	S5 (2000-03-31)	G5 (1984-02-29)
Corallorhiza striata	striped coral-root	LX	S4 (2000-03-31)	G5 (1984-02-29)
Corallorhiza trifida	early coral-root	L1	S5 (2000-03-31)	G5 (1984-02-29)
Cornus alternifolia	alternate-leaved dogwood	L5	S5 (2000-03-31)	G5 (1983-09-08)
Cornus amomum ssp. obliqua	silky dogwood	L4	S5 (2000-03-31)	G5TQ?
Cornus canadensis	bunchberry	L2	S5 (2000-03-31)	G5 (1983-09-06)
Cornus foemina ssp. racemosa (C. racemosa,	grey dogwood	L4	S5 (2000-03-31)	G5TQ?
Cornus rugosa	round-leaved dogwood	L3	S5 (2000-03-31)	G5 (1984-02-29)
Cornus stolonifera	red osier dogwood	L5	S5 (2000-03-31)	G5 (1988-01-15)
Corydalis aurea ssp. aurea	golden corydalis	L3	S5 (2000-03-31)	G5TQ?
Corydalis sempervirens	pink or pale corydalis	LX	S5 (2000-03-31)	G4G5 (1983-10-11)
Corylus cornuta (C. rostrata)	beaked hazel	L4	S5 (2000-03-31)	G5 (1984-02-29)
Crataegus apiomorpha	pear-shaped hawthorn	LX	S1S2 (2000-03-31)	G3G4Q (1997-01-29)
Crataegus calpodendror.	urn-fruited hawthorn	LX	S4S5 (2000-03-31)	G5 (1984-02-29)
Crataegus chrysocarpa var. aboriginum	round-leaved or fire-berry hawthorn	L3	S4? (2000-03-31)	G5T? (1996-05-24)
Crataegus compta	adorned hawthorn	LX	S2? (2000-03-31)	G5?Q (1996-02-29)
Crataegus conspecta	conspecta hawthorn	LX	S1 (2000-03-31)	G3G4Q (1990-05-22)
Crataegus corusca	gleaming hawthorn	L3	S2S3 (2000-03-31)	G3G5 (1994-11-08)
Crataegus dodgei (inc. vars. dodgei & flavida	Dodge's hawthorn	LX	S4 (2000-03-31)	G4 (1196-02-29)
Crataegus flabellata	fan-leaved or Bosc's hawthorn	L3	S4? (2000-03-31)	G4 (1995-12-06)
Crataegus holmesiana	thin-leaved or Holmes' hawthorn	L4	S4S5 (2000-03-31)	G5 (1984-02-29)
Crataegus intricata	Lang's or thicket hawthorn	LX	S?	G5
Crataegus macracantha (C. succulenta var. macrac	long-spined hawthorn	L4	S5 (2000-03-31)	G? (1996-07-02)
Crataegus macrosperma	variable hawthorn	L3	S5 (2000-03-31)	G5 (1984-02-29)
Crataegus pedicellata	scarlet or pedicelled hawthorn	L5	S4 (2000-03-31)	G5 (1984-02-29)
Crataegus pringlei	Pringle's hawthorn	L3	S5 (2000-03-31)	G5 (1984-02-29)
Crataegus pruinosa	waxy hawthorn	L3	S4? (2000-03-31)	G5 (1984-02-29)
Crataegus punctata	dotted hawthorn	L5	S5 (2000-03-31)	G5 (1984-02-29)
Crataegus schuettei (C. scabrida; C. basilica	rough or Schuette's hawthorn	L3	S4 (2000-03-31)	G5? (1996-11-17)
Crataegus submollis	Emerson's hawthorn	L3	S4S5 (2000-03-31)	G5 (1984-02-29)
Crataegus succulenta	long-spined or succulent hawthorn	L3	S4S5 (2000-03-31)	G5 (1984-02-29)
Cryptotaenia canadensis	honewort	L5	S5 (2000-03-31)	G5 (1984-02-29)
Cuscuta campestris	prairie dodder	L3	S2 (2000-03-31)	G5 (1984-02-29)
Cuscuta gronovii	swamp dodder	L4	S5 (2000-03-31)	G5 (1984-02-29)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Eleocharis acicularis	needle or least spike-rush	L3	S5 (2000-03-31)	G5 (1984-04-24)
Eleocharis elliptica (E. tenuis var. borealis	elliptic spike-rush	L3	S5 (2000-03-31)	G5 (1984-04-24)
Eleocharis erythropoda (E. calva; E. palustris v. cal	creeping or red-stemmed spike-rush	L5	S5 (2000-03-31)	G5 (1988-02-11)
Eleocharis intermedia	matted or intermediate spike-rush	L3	S4 (2000-03-31)	G5 (1984-04-24)
Eleocharis obtusa	blunt spike-rush	L4	S5 (2000-03-31)	G5 (1984-04-24)
Eleocharis olivacea	olive-fruited spike-rush	LX	S4 (2000-03-31)	G5 (1984-04-24)
Eleocharis pauciflora	few-flowered spike-rush	L2	S5 (2000-03-31)	G5 (1994-07-19)
Eleocharis smallii (E. palustris,	Small's or creeping spike-rush	L3	S5 (2000-03-31)	G5? (1984-04-24)
Elodea canadensis (Anacharis canadensis,	common elodea or water-weed	L3	S5 (2000-03-31)	G5 (1984-04-24)
Elodea nuttallii	Nuttall's water-weed	L3	S4 (2000-03-31)	G5 (1984-04-24)
Elymus canadensis	Canada wild rye	L3	S4S5 (2000-03-31)	G5 (1984-04-24)
Elymus hystrix (Hystrix patula)	bottle-brush grass	L4	S5 (2000-03-31)	G5 (1992-12-23)
Elymus riparius	riverbank wild rye	L4	S4? (2000-03-31)	G5 (1984-04-24)
Elymus trachycaulus (Agropyron trachycaulum,	slender wheat grass	L2	S5? (2000-03-31)	G5 (1988-02-25)
Elymus villosus	hairy wild rye	L2	S4 (2000-03-31)	G5 (1984-04-24)
Elymus virginicus var. virginicus	Virginia wild rye	L5	S5 (2000-03-31)	G5T? (1990-09-10)
Elymus wiegandii	Wiegand's wild rye	L3	S4 (2000-03-31)	G? (1989-12-13)
Epifagus virginiana	beech-drops	L4	S5 (2000-03-31)	G5 (1984-04-24)
Epigaea repens	trailing arbutus	L1	S5 (2000-03-31)	G5 (1983-09-08)
Epilobium angustifolium	fire-weed	L3	S5 (2000-03-31)	G5 (1984-04-24)
Epilobium ciliatum ssp. ciliatum	sticky willow-herb	L5	S5 (2000-03-31)	G5T? (1984-04-24)
Epilobium coloratum	purple-leaved willow-herb	L4	S5 (2000-03-31)	G5 (1984-04-24)
Epilobium leptophyllum	narrow-leaved willow-herb	L3	S5 (2000-03-31)	G5 (1984-04-24)
Epilobium strictum	downy willow-herb	L2	S5 (2000-03-31)	G5? (1984-04-24)
Equisetum arvense	field or common horsetail	L5	S5 (2000-03-31)	G5 (1984-04-24)
Equisetum fluviatile	water horsetail	L3	S5 (2000-03-31)	G5 (1984-04-24)
Equisetum hyemale ssp. affine	scouring rush	L5	S5 (2000-03-31)	G5T5 (1991-03-18)
Equisetum palustre	marsh horsetail	L1	S5 (2000-03-31)	G5 (1985-04-05)
Equisetum pratense	meadow or thicket horsetail	L3	S5 (2000-03-31)	G5 (1990-06-22)
Equisetum scirpoides	dwarf scouring rush	L3	S5 (2000-03-31)	G5 (1990-06-04)
Equisetum sylvaticum	woodland horsetail	L3	S5 (2000-03-31)	G5 (1984-04-24)
Equisetum variegatum ssp. variegatum	variegated scouring-rush	L4	S5 (2000-03-31)	G5 (1984-04-24)
Equisetum x nelsonii (E. laevigatum x variegatum,	Nelson's horsetail	L3	S2? (2000-03-31)	HYB (1984-10-30)
Eragrostis frankii (E. erythrogona,	sandbar or Frank's love grass	L3	S4 (2000-03-31)	G5 (1984-04-24)
Eragrostis hypnoides	smooth creeping or tall love grass	L3	S4 (2000-03-31)	G5 (1984-04-24)
Erechtites hieracifolia	burnweed	L3	S5 (2000-03-31)	G5 (1992-04-08)
Erigenia bulbosa	harbinger-of-spring	LX	S3 (2000-03-31)	G5 (1985-04-05)
Erigeron annuus	annual or daisy fleabane	L5	S5 (2000-03-31)	G5 (1984-04-24)
Erigeron philadelphicus ssp. philadelphicus	Philadelphia fleabane	L5	S5 (2000-03-31)	G5T? (1993-03-16)
Erigeron pulchellus	Robin's plantain	L1	S5 (2000-03-31)	G5 (1984-04-24)
Erigeron strigosus (E. annuus ssp. strigosus	rough fleabane	L5	S5 (2000-03-31)	G5 (1984-04-24)
Eriophorum gracile	slender cotton-grass	LX	S5 (2000-03-31)	G5 (1984-04-24)
Eriophorum tenellum	rough cotton-grass	L1	S5 (2000-03-31)	G5 (1984-04-24)
Eriophorum vaginatum ssp. spissum	dense cotton-grass	L1	S5 (2000-03-31)	G5T5 (1984-04-16)
Eriophorum virginicum	tawny cotton-grass	L1	S5 (2000-03-31)	G5 (1984-04-24)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Glyceria canadensis	rattlesnake grass	L2	S4S5 (2000-03-31)	G5 (1984-05-16)
Glyceria grandis	tall manna grass	L4	S4S5 (2000-03-31)	G5 (1984-05-16)
Glyceria septentrionalis	eastern manna grass	L3	S4 (2000-03-31)	G5 (1988-04-30)
Glyceria striata (incl. vars. striata & stricta	fowl manna grass	L5	S4S5 (2000-03-31)	G5
Gnaphalium macounii	viscid cudweed	L2	S5 (2000-03-31)	G5 (1994-03-19)
Gnaphalium obtusifolium	fragrant cudweed	L2	S5 (2000-03-31)	G5 (1984-05-16)
Goodyera pubescens	downy rattlesnake-plantain	L1	S4 (2000-03-31)	G5 (1984-04-09)
Goodyera repens var. ophioides	dwarf rattlesnake-plantain	LX	S5 (2000-03-31)	G5TQ?
Gratiola neglecta	clammy hedge-hyssop	LX	S4 (2000-03-31)	G5 (1984-05-16)
Gymnocarpium dryopteris	oak fern	L3	S5 (2000-03-31)	G5 (1986-05-23)
Hackelia deflexa (H. americana,	nodding stickseed	L4	S5 (2000-03-31)	G5 (1984-05-16)
Hackelia virginiana	Virginia stickseed	L5	S5 (2000-03-31)	G5 (1984-05-16)
Hamamelis virginiana	witch-hazel	L3	S5 (2000-03-31)	G5 (1983-10-11)
Hedeoma hispidum	rough pennyroyal	L2	S4 (2000-03-31)	G5 (1985-04-05)
Hedeoma pulegioides	American pennyroyal	L3	S4 (2000-03-31)	G5 (1984-05-16)
Hedyotis caerulea (Houstonia caerulea,	bluets	LX	SH (2000-03-31)	G5 (1990-03-12)
Hedyotis longifolia (Houstonia longifolia)	long-leaved bluets or Venus' pride	L2	S4? (2000-03-31)	G4G5 (1993-02-15)
Helianthemum bicknellii	Bicknell's frostweed	L1	S4 (2000-03-31)	G5 (1984-05-16)
Helianthemum canadense	frostweed	L1	S4 (2000-03-31)	G5 (1984-05-16)
Helianthus decapetalus	thin-leaved sunflower	L3	S5 (2000-03-31)	G5 (1988-02-09)
Helianthus divaricatus	woodland sunflower	L3	S5 (2000-03-31)	G5 (1984-12-10)
Helianthus giganteus	tall sunflower	LX	S5 (2000-03-31)	G5 (1988-04-30)
Helianthus strumosus	pale-leaved sunflower	L4	S5 (2000-03-31)	G5 (1988-02-09)
Helianthus tuberosus	Jerusalem artichoke	L5	SE5 (2000-03-31)	G5 (1984-05-16)
Heliopsis helianthoides	ox-eye	L2	S5 (2000-03-31)	G5 (1988-05-16)
Heracleum lanatum (H. maximum)	cow-parsnip	L4	S5 (2000-03-31)	G5 (1992-10-28)
Heteranthera dubia	water star-grass	L2	S5 (2000-03-31)	G5 (1984-05-16)
Hieracium kalmii (H. canadense)	Canada hawkweed	L2	SU (2000-03-31)	G5 (1993-02-14)
Hieracium scabrum	rough hawkweed	L2	S4 (2000-03-31)	G5 (1984-03-15)
Hieracium venosum var. nudicaule	rattlesnake-weed	LX	S2 (2000-03-31)	G5T4
Hierochloe odorata	sweet grass	LX	S4 (2000-03-31)	G5 (1984-04-26)
Hippuris vulgaris	mare's tail	LX	S5 (2000-03-31)	G5 (1984-05-16)
Huperzia lucidula (Lycopodium lucidulum)	shining club-moss	L2	S5 (2000-03-31)	G5 (1990-03-12)
Hydrocotyle americana	marsh pennywort	L3	S5 (2000-03-31)	G5 (1984-03-15)
Hydrophyllum canadense	Canada waterleaf	L4	S4 (2000-03-31)	G5 (1985-05-11)
Hydrophyllum virginianum	Virginia waterleaf	L5	S5 (2000-03-31)	G5 (1984-03-15)
Hypericum ascyron	great St.Johnswort	L3	S4 (2000-03-31)	G4 (1990-06-22)
Hypericum majus	larger Canada St. Johnswort	LX	S5 (2000-03-31)	G5 (1984-05-16)
Hypericum prolificum	shrubby St. Johnswort	LX	S2 (2000-03-31)	G5 (1984-06-06)
Hypericum punctatum	spotted St.Johnswort	L3	S5 (2000-03-31)	G5 (1984-06-06)
Hypoxis hirsuta	yellow star-grass	LX	S3 (2000-03-31)	G5 (1984-01-19)
Ilex verticillata	winterberry	L3	S5 (2000-03-31)	G5 (1984-10-30)
Impatiens capensis (I. biflora,	orange touch-me-not (spotted jewelweed)	L5	S5 (2000-03-31)	G5 (1988-05-02)
Impatiens pallida	yellow touch-me-not (pale jewelweed)	L4	S5 (2000-03-31)	G5 (1984-04-09)
Iris versicolor	blue flag	L3	S5 (2000-03-31)	G5 (1984-06-06)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Liparis loeselii	fen or Loesel's twayblade	L3	S4S5 (2000-03-31)	G5 (1984-04-16)
Listera cordata	heart-leaved twayblade	L2	S5? (2000-03-31)	G5 (1984-06-07)
Lithospermum latifolium	American gromwell	LX	S3 (2000-03-31)	G4 (1996-07-22)
Lobelia cardinalis	cardinal flower	L1	S5 (2000-03-31)	G5 (1984-06-07)
Lobelia inflata	Indian tobacco	L3	S5 (2000-03-31)	G5 (1984-06-07)
Lobelia kalmii	Kalm's or brook lobelia	L1	S5 (2000-03-31)	G5 (1984-06-07)
Lobelia siphilitica	great blue lobelia	L3	S5 (2000-03-31)	G5 (1984-06-07)
Lonicera canadensis	fly honeysuckle	L3	S5 (2000-03-31)	G5 (1984-04-16)
Lonicera dioica	wild or glaucous honeysuckle	L3	S5 (2000-03-31)	G5 (1984-06-07)
Lonicera hirsuta	hairy honeysuckle	L3	S5 (2000-03-31)	G4G5 (1988-02-09)
Lonicera oblongifolia	swamp fly honeysuckle	LX	S5 (2000-03-31)	G4 (1984-06-07)
Ludwigia palustris	water purslane	L3	S5 (2000-03-31)	G5 (1984-06-07)
Lupinus perennis ssp. perennis	wild lupine	L2	S3 (2000-03-31)	G5T?
Luzula acuminata	hairy wood rush	L3	S5 (2000-03-31)	G5 (1986-04-08)
Luzula multiflora ssp. multiflora (L. campestris var.	wood rush	L3	S5 (2000-03-31)	G5T5 (1996-03-27)
Lycopodium annotinum	stiff club-moss	L1	S5 (2000-03-31)	G5 (1985-08-30)
Lycopodium clavatum	running club-moss	L2	S5 (2000-03-31)	G5 (1984-06-07)
Lycopodium dendroidium (L. obscurum v. dendroi	round-branched ground-pine	L2	S5 (2000-03-31)	G5 (1986-11-18)
Lycopodium hickeyi (L. obscurum var. isophyllum,	Hickey's ground-pine	L1	S4 (2000-03-31)	G5 (1993-05-31)
Lycopodium obscurum	ground-pine	L1	S4 (2000-03-31)	G5 (1984-04-16)
Lycopus americanus	American or cut-leaved water-horehound	L4	S5 (2000-03-31)	G5 (1986-04-08)
Lycopus uniflorus	northern water-horehound or bugleweed	L4	S5 (2000-03-31)	G5 (1984-06-07)
Lysimachia ciliata	fringed loosestrife	L5	S5 (2000-03-31)	G5 (1984-06-07)
Lysimachia quadrifolia	whorled loosestrife	L3	S4 (2000-03-31)	G5 (1985-04-10)
Lysimachia terrestris	swamp candles	L2	S5 (2000-03-31)	G5 (1984-06-07)
Lysimachia thyrsiflora	tufted loosestrife	L3	S5 (2000-03-31)	G5 (1984-06-07)
Maianthemum canadense	Canada mayflower	L4	S5 (2000-03-31)	G5 (1984-06-07)
Maianthemum racemosum ssp. racemosum (Smila	false Solomon's seal	L5	S5 (2000-03-31)	G5TQ?
Maianthemum stellatum (Smilacina stellata,	starry false Solomon's seal	L5	S5 (2000-03-31)	G5 (1984-03-16)
Maianthemum trifolium (Smilacina trifolia)	three-leaved false Solomon's seal	L2	S5 (2000-03-31)	G5 (1984-09-06)
Malaxis monophyllos ssp. brachypoda	white adder's mouth	L1	S4 (2000-03-31)	G5TQ? (1994-05-04)
Malus coronaria	wild crab-apple	LX	S4 (2000-03-31)	G5 (1986-04-08)
Matteuccia struthiopteris var. pensylvanica	ostrich fern	L5	S5	G5TQ? (1984-06-08)
Medeola virginiana	Indian cucumber-root	L2	S5 (2000-03-31)	G5 (1984-06-08)
Megalodonta beckii (Bidens beckii,	water-marigold	L1	S5 (2000-03-31)	G4G5 (1984-06-08)
Melampyrum lineare	cow-wheat	L1	S4S5 (2000-03-31)	G5 (1995-06-26)
Menispermum canadense	moonseed	L3	S4 (2000-03-31)	G5 (1983-10-11)
Mentha arvensis ssp. borealis	wild mint	L5	S5 (2000-03-31)	G5TQ?
Menyanthes trifoliata	bog buckbean	L1	S5 (2000-03-31)	G5 (1983-09-07)
Milium effusum	wood millet	L2	S4S5 (2000-03-31)	G5 (1984-04-16)
Mimulus glabratus var. jamesi	smooth monkey-flower	LX	SH (2000-03-31)	G5TQ? (1984-12-10)
Mimulus moschatus	musk-flower	LX	S2? (2000-03-31)	G4G5 (1984-06-08)
Mimulus ringens	square-stemmed monkey-flower	L3	S5 (2000-03-31)	G5 (1984-06-08)
Mitchella repens	partridgeberry	L3	S5 (2000-03-31)	G5 (1983-10-11)
Mitella diphylla	mitrewort	L4	S5 (2000-03-31)	G5 (1984-06-08)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Panicum columbianum var. siccanum	Columbia panic grass	L3	S4 (2000-03-31)	G5T5 (1997-02-10)
Panicum flexile	wiry panic grass	L3	S4 (2000-03-31)	G5 (1997-10-06)
Panicum latifolium	broad-leaved panic grass	L1	S4 (2000-03-31)	G5 (1984-04-24)
Panicum linearifolium	narrow-leaved panic grass	L2	S4S5 (2000-03-31)	G5 (1984-04-24)
Panicum oligosanthes (Dichanthelium oligosanthes	few-flowered panic grass	L2		
Panicum villosissimum (P. praecocius)	hairy or woolly panic grass	LX	S3 (2000-03-31)	G5 (1988-08-04)
Panicum virgatum	switch grass	L3	S4 (2000-03-31)	G5 (1984-06-18)
Panicum xanthophysum	yellow or slender panic grass	L2	S4 (2000-03-31)	G5 (1984-04-24)
Parietaria pensylvanica	Pennsylvania pellitory or false nettle	L3	S4 (2000-03-31)	G5 (1984-06-18)
Parnassia parviflora	small-flowered grass of Parnassus	L1	S4? (2000-03-31)	G4 (1991-01-24)
Parthenocissus inserta (P. vitacea)	thicket creeper	L5	S5 (2000-03-31)	G5 (2000-06-06)
Parthenocissus quinquefolia	Virginia creeper	L5	S4? (2000-03-31)	G5 (1984-03-30)
Pedicularis canadensis	wood-betony or lousewort	L1	S5 (2000-03-31)	G5 (1984-06-18)
Pedicularis lanceolata	swamp lousewort	LX	S4 (2000-03-31)	G5 (1984-08-13)
Peltandra virginica	tuckahoe or green arrow-arum	L3	S2 (2000-03-31)	G5 (1984-06-18)
Penstemon digitalis	foxglove beard-tongue	L4	S4S5 (2000-03-31)	G5 (1984-06-18)
Penstemon hirsutus	hairy beard-tongue	L3	S4 (2000-03-31)	G4 (1991-04-17)
Penthorum sedoides	ditch stonecrop	L4	S5 (2000-03-31)	G4 (1984-06-18)
Petasites frigidus (P. palmatus)	palmate-leaved sweet coltsfoot	L1	S5 (2000-03-31)	G5 (1984-06-18)
Phegopteris connectilis	northern or long beech fern	L3	S5 (2000-03-31)	G5 (1984-09-06)
Phegopteris hexagonoptera	southern or broad beech fern	LX	S3 (2000-03-31)	G5 (1990-03-12)
Phlox divaricata	wild blue phlox	L2	S4 (2000-03-31)	G5 (1984-06-18)
Phryma leptostachya	lopseed	L5	S4S5 (2000-03-31)	G5 (1984-06-18)
Physalis heterophylla	clammy ground-cherry	L4	S4 (2000-03-31)	G5 (1984-06-18)
Physalis subglabrata (P. longifolia var. subglabrata	smooth ground-cherry	LX	S4?	G?
Physalis virginiana (P. longifolia var. longifolia	smooth or Virginia ground-cherry	L3	S4 (2000-03-31)	G5 (1985-04-10)
Physocarpus opulifolius	ninebark	L3	S5 (2000-03-31)	G5 (1983-10-11)
Physostegia virginiana ssp. virginiana	false dragonhead or obedient plant	L3	S4 (2000-03-31)	G5TQ?
Picea glauca	white spruce	L3	S5 (2000-03-31)	G5 (1984-10-15)
Picea mariana	black spruce	L2	S5 (2000-03-31)	G5 (1984-06-18)
Pilea fontana	spring clearweed	L3	S4 (2000-03-31)	G5 (1986-02-19)
Pilea pumila	dwarf clearweed	L5	S5 (2000-03-31)	G5 (1988-05-02)
Pinus resinosa	red pine	L1	S5 (2000-03-31)	G5 (1983-09-19)
Pinus strobus	white pine	L4	S5 (2000-03-31)	G5 (1984-06-25)
Plantago rugelii	red-stemmed or Rugel's plantain	L5	S5 (2000-03-31)	G5 (1984-06-25)
Platanthera blephariglottis var. blephariglottis (Hab	white-fringed orchis	LX	S3S4 (2000-03-31)	G4G5T? (1987-07-23)
Platanthera clavellata (Habenaria clavellata	club-spur orchid	LX	S4S5 (2000-03-31)	G5 (1995-10-30)
Platanthera flava var. herbiola (Habenaria flava...	tubercled orchid	LX	S3 (2000-03-31)	G4T4Q (1994-03-13)
Platanthera hookeri (Habenaria hookeri)	Hooker's orchid	LX	S4S5 (2000-03-31)	G5 (1984-06-25)
Platanthera hyperborea (Habenaria hyperborea	northern or tall green orchis	L2	S5 (2000-03-31)	G5 (1984-06-25)
Platanthera lacera (Habenaria lacera	ragged fringed orchis	L1	S4S5 (2000-03-31)	G5 (1984-06-25)
Platanthera obtusata (Habenaria obtusata	small northern bog orchis	L1	S5 (2000-03-31)	G5 (1994-02-08)
Platanthera psycodes (Habenaria psycodes	small purple-fringed orchis	L1	S5 (2000-03-31)	G5 (1984-03-16)
Platanus occidentalis	sycamore	L1	S4 (2000-03-31)	G5 (1984-01-25)
Poa alsodes	grove meadow grass or woodland poa	L3	S4 (2000-03-31)	G4G5 (1997-02-25)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Potamogeton zosteriformis	eel-grass or flat-stemmed pondweed	L2	S5 (2000-03-31)	G5 (1984-06-25)
Potentilla anserina ssp. anserina	silverweed	L4	S5 (2000-03-31)	G5TQ?
Potentilla arguta var. argute	tall or prairie cinquefoil	L4	S4	G5
Potentilla palustris	marsh cinquefoil	L2	S5 (2000-03-31)	G5 (1984-06-25)
Potentilla paradoxa	bushy cinquefoil	L3	S3 (2000-03-31)	G5 (1985-04-10)
Potentilla simplex	common or old-field cinquefoil	L3	S5 (2000-03-31)	G5 (1984-06-25)
Prenanthes alba	white wood lettuce	L3	S5 (2000-03-31)	G5 (1984-06-25)
Prenanthes altissima	tall wood lettuce	L5	S5 (2000-03-31)	G5? (1984-03-29)
Proserpinaca palustris	mermaid-weed	LX	S4 (2000-03-31)	G5 (1984-06-25)
Prunus americana	wild plum	L3	S4 (2000-03-31)	G5 (1984-08-28)
Prunus nigra	Canada plum	L3	S4 (2000-03-31)	G4G5 (1988-01-15)
Prunus pensylvanica	pin cherry	L4	S5 (2000-03-31)	G5 (1984-04-16)
Prunus pumila var. susquehanae	sand cherry	LX	S4? (2000-03-31)	G5T4 (1993-05-31)
Prunus serotina	black cherry	L5	S5 (2000-03-31)	G5 (1984-08-28)
Prunus virginiana ssp. virginiana	choke cherry	L5	S5 (2000-03-31)	G5TQ?
Pteridium aquilinum var. latiusculum	eastern bracken	L4	S5 (2000-03-31)	G5 (1984-03-29)
Pterospora andromedea	pine-drops	LX	S2 (2000-03-31)	G5 (1984-08-29)
Pycnanthemum tenuifolium	narrow-leaved mountain-mint	L3	S3 (2000-03-31)	G5 (1984-08-29)
Pycnanthemum virginianum	Virginia mountain-mint	L3	S4 (2000-03-31)	G5 (1984-08-29)
Pyrola asarifolia	pink pyrola	L2	S5 (2000-03-31)	G5 (1984-04-16)
Pyrola chlorantha	green-flowered pyrola	L1	S4S5 (2000-03-31)	G5 (1984-08-29)
Pyrola elliptica	shinleaf	L3	S5 (2000-03-31)	G5 (1984-04-16)
Quercus alba	white oak	L2	S5 (2000-03-31)	G5 (1984-08-29)
Quercus macrocarpa	bur oak	L4	S5 (2000-03-31)	G5 (1983-09-06)
Quercus rubra	red oak	L4	S5 (2000-03-31)	G5 (1984-08-29)
Quercus velutina	black oak	L2	S4 (2000-03-31)	G5 (1984-08-29)
Ranunculus abortivus	small-flowered or kidneyleaf buttercup	L5	S5 (2000-03-31)	G5 (1984-08-29)
Ranunculus aquatilis var. longirostris (R. longirostri	white water crowfoot	L2	S4S5 (2000-03-31)	G5 (1984-03-16)
Ranunculus fascicularis	early buttercup	LX	S4 (2000-03-31)	G5 (1984-08-29)
Ranunculus flabellaris	yellow water crowfoot	L2	S4? (2000-03-31)	G5 (1984-03-16)
Ranunculus hispidus var. caricetorum (R. septentri	swamp buttercup	L4	S5 (2000-03-31)	G5T5 (1995-07-25)
Ranunculus hispidus var. hispidus (inc. var. marilar	hispid buttercup	LX	S5 (2000-03-31)	G5T5 (1991-05-09)
Ranunculus pensylvanicus	bristly buttercup	L3	S5 (2000-03-31)	G5 (1988-09-09)
Ranunculus recurvatus var. recurvatus	hooked buttercup	L5	S5 (2000-03-31)	G5TQ?
Ranunculus rhomboideus	prairie buttercup	LX	S3 (2000-03-31)	G4 (1992-02-07)
Ranunculus sceleratus	cursed crowfoot	L5	S5 (2000-03-31)	G5 (1984-08-29)
Rhamnus alnifolia	alder-leaved buckthorn	L3	S5 (2000-03-31)	G5 (1984-04-16)
Rhus radicans (R. radicans ssp. radicans; ssp. neg	poison ivy (vine form)	L4	S5 (2000-03-31)	G5 (1995-11-11)
Rhus rydbergii (R. radicans ssp. rydbergii	poison ivy (shrub form)	L5	S5 (2000-03-31)	G5 (1984-09-06)
Rhus typhina	staghorn sumach	L5	S5 (2000-03-31)	G5 (1984-02-28)
Rhus vernix	poison sumach	LX	S4 (2000-03-31)	G5 (1984-09-06)
Rhynchospora alba	white beak-rush	L1	S5 (2000-03-31)	G5 (1984-08-29)
Ribes americanum	wild black currant	L5	S5 (2000-03-31)	G5 (1984-02-24)
Ribes cynosbati	prickly gooseberry	L5	S5 (2000-03-31)	G5 (1983-10-11)
Ribes glandulosum	skunk currant	L3	S5 (2000-03-31)	G5 (1984-08-29)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Sarracenia purpurea	pitcher-plant	L1	S5 (2000-03-31)	G5 (1984-09-06)
Sassafras albidum	sassafras	L4	S4 (2000-03-31)	G5 (1983-11-03)
Saxifraga virginiensis	early saxifrage	LX	S5 (2000-03-31)	G5 (1983-10-11)
Scheuchzeria palustris	bog arrow-grass	L1	S4S5 (2000-03-31)	G5 (1984-09-06)
Schizachne purpurascens ssp. purpurascens	purple or false melic grass	L3	S5 (2000-03-31)	G5T? (1988-02-04)
Schizachyrium scoparium (Andropogon scoparius)	little bluestem	L2	S4 (2000-03-31)	G5 (1984-04-09)
Scirpus acutus	hard-stemmed bulrush	L3	S5 (2000-03-31)	G5 (1984-09-06)
Scirpus atrovirens	black-fruited or dark green bulrush	L5	S5 (2000-03-31)	G5? (1984-03-29)
Scirpus cyperinus	woolly bulrush or wool-grass	L3	S5 (2000-03-31)	G5 (1984-09-06)
Scirpus fluviatilis	river bulrush	L3	S4S5 (2000-03-31)	G5 (1984-09-06)
Scirpus microcarpus (S. rubrotinctus)	barber-pole sedge or bulrush	L4	S5 (2000-03-31)	G5 (1987-10-01)
Scirpus pendulus	drooping, nodding, or red bulrush	L3	S5 (2000-03-31)	G5 (1984-09-06)
Scirpus pungens (S. americanus)	three-square or chairmaker's rush	L4	S5 (2000-03-31)	G5 (1988-04-30)
Scirpus smithii	Smith's club-rush	LX	S2? (2000-03-31)	G5? (1984-09-06)
Scirpus validus	soft-stemmed bulrush	L4	S5 (2000-03-31)	G? (1989-00-00)
Scirpus verecundus	shy bulrush or wood clubrush	L2	S1 (2000-03-31)	G4G5 (1998-06-19)
Scleria triglomerata	tall nut-rush	LX	S1 (2000-03-31)	G5 (1988-08-10)
Scleria verticillata	low nut-rush	L1	S3 (2000-03-31)	G5 (1993-05-31)
Scrophularia lanceolata	lance-leaved or hare figwort	L3	S4 (2000-03-31)	G5 (1984-09-06)
Scrophularia marilandica	carpenter's-square figwort	L3	S4 (2000-03-31)	G5 (1984-09-06)
Scutellaria galericulata (S. epilobiifolia)	common skullcap	L5	S5 (2000-03-31)	G5 (1984-09-06)
Scutellaria lateriflora	mad-dog skullcap	L5	S5 (2000-03-31)	G5 (1984-09-06)
Scutellaria parvula var. parvula	small skullcap	LX	S4 (2000-03-31)	G4T? (1992-01-21)
Selaginella eclipes	meadow spike-moss	L1	S4 (2000-03-31)	G4 (1986-11-18)
Senecio aureus	golden ragwort	L2	S5 (2000-03-31)	G5 (1984-09-06)
Shepherdia canadensis	buffalo-berry or soap-berry	L2	S5 (2000-03-31)	G5 (1984-09-06)
Sicyos angulatus	bur cucumber	L4	S5 (2000-03-31)	G5 (1988-02-10)
Silene antirrhina	sleepy catchfly	L3	S5 (2000-03-31)	G5 (1984-09-06)
Silphium perfoliatum	cup-plant	L4	S2 (2000-03-31)	G5 (1988-12-15)
Sisyrinchium montanum	blue-eyed grass	L3	S5 (2000-03-31)	G5 (1984-09-06)
Sium suave	water-parsnip	L4	S5 (2000-03-31)	G5 (1984-09-06)
Smilax herbacea	carrion-flower	L5	S4 (2000-03-31)	G5 (1984-03-29)
Smilax hispida (S. tamnoides var. hispida)	bristly greenbrier	L4	S4 (2000-03-31)	G5 (1986-04-08)
Solanum ptychanthum (S. nigrum var. americanum)	black nightshade	L5	S5 (2000-03-31)	G5 (1994-11-07)
Solidago altissima	tall goldenrod	L5	S5 (2000-03-31)	G5T5 (1994-03-04)
Solidago arguta var. arguta	sharp-leaved goldenrod	L3	S3 (2000-03-31)	G5T4
Solidago bicolor	silver-rod or white goldenrod	L2	S4? (2000-03-31)	G5 (1984-09-06)
Solidago caesia	blue-stemmed goldenrod	L5	S5 (2000-03-31)	G5 (1984-09-06)
Solidago canadensis var. canadensis	Canada goldenrod	L5	S5 (2000-03-31)	G5T? (1993-03-16)
Solidago flexicaulis	zig-zag goldenrod	L5	S5 (2000-03-31)	G5 (1984-09-06)
Solidago gigantea	late goldenrod	L5	S5 (2000-03-31)	G5 (1984-09-06)
Solidago hispida	hairy goldenrod	L2	S5 (2000-03-31)	G5 (1984-09-06)
Solidago juncea	early goldenrod	L4	S5 (2000-03-31)	G5 (1984-09-06)
Solidago nemoralis ssp. nemoralis	grey goldenrod	L5	S5 (2000-03-31)	G5T? (1989-08-01)
Solidago ohioensis	Ohio goldenrod	LX	S4 (2000-03-31)	G4 (1984-09-06)

TRCA NATIVE FLORA & RANKS (11 April 2003)[1]				
SCIENTIFIC NAME	COMMON NAME	TRCA RANK (2003)[2]	PROVINCIAL RANK (S1-S5)[3]	GLOBAL RANK (G1-G5)[3]
Trientalis borealis ssp. borealis	star-flower	L3	S5 (2000-03-31)	G5TQ? (1984-09-06)
Triglochin maritimum	seaside arrow-grass	L1	S5 (2000-03-31)	G5 (1984-09-06)
Triglochin palustre	marsh arrow-grass	L1	S5 (2000-03-31)	G5 (1984-09-06)
Trillium cernuum	nodding trillium	L1	S5 (2000-03-31)	G5 (1984-04-16)
Trillium erectum	red trillium or stinking Johnny	L3	S5 (2000-03-31)	G5 (1984-09-06)
Trillium grandiflorum	white trillium	L3	S5 (2000-03-31)	G5 (1984-09-06)
Trillium undulatum	painted trillium	L1	S5? (2000-03-31)	G5 (1984-09-06)
Triosteum aurantiacum	wild coffee	L2	S5 (2000-03-31)	G5 (1984-09-06)
Tsuga canadensis	eastern hemlock	L4	S5 (2000-03-31)	G5 (1994-07-20)
Typha latifolia	broad-leaved cattail	L4	S5 (2000-03-31)	G5 (1984-09-06)
Ulmus americana	white elm	L5	S5 (2000-03-31)	G5? (1983-09-12)
Ulmus rubra	slippery or red elm	L2	S5 (2000-03-31)	G5 (1983-11-03)
Ulmus thomasii	rock elm	L3	S4? (2000-03-31)	G5 (1986-04-08)
Urtica dioica ssp. gracilis (U. procera)	American stinging nettle	L5	S5 (2000-03-31)	G5T? (1993-03-16)
Utricularia intermedia	flat-leaved bladderwort	L1	S5 (2000-03-31)	G5 (1984-04-16)
Utricularia minor	small bladderwort	L1	S5 (2000-03-31)	G5 (1986-02-19)
Utricularia vulgaris	common bladderwort	L1	S5 (2000-03-31)	G5 (1984-09-06)
Uvularia grandiflora	large-flowered bellwort	L3	S5 (2000-03-31)	G5 (1984-09-06)
Vaccinium angustifolium	lowbush blueberry	L2	S5 (2000-03-31)	G5 (1984-09-06)
Vaccinium corymbosum	highbush blueberry	L1	S4 (2000-03-31)	G5 (1989-08-29)
Vaccinium macrocarpon	large cranberry	L1	S4S5 (2000-03-31)	G4 (1987-08-05)
Vaccinium myrtilloides	velvet-leaf blueberry	L2	S5 (2000-03-31)	G5 (1983-11-20)
Vaccinium oxycoccos	small cranberry	L1	S5 (2000-03-31)	G5 (1984-09-06)
Vaccinium pallidum	hillside or early sweet blueberry	L1	S4 (2000-03-31)	G5 (1984-09-06)
Valeriana sitchensis ssp. uliginosa (S. uliginosa	swamp valerian	L1	S2 (2000-03-31)	G4G5T4
Vallisneria americana	tape-grass or water celery	L1	S5 (2000-03-31)	G5 (1984-09-06)
Verbena hastata	blue vervain	L5	S5 (2000-03-31)	G5 (1984-09-06)
Verbena simplex	slender vervain	L2	S4	G5
Verbena stricta	hoary vervain	L2	S4 (2000-03-31)	G5 (1988-09-09)
Verbena urticifolia	white vervain	L5	S5 (2000-03-31)	G5 (1984-09-06)
Veronica americana	American speedwell or brooklime	L3	S5 (2000-03-31)	G5 (1984-09-06)
Veronica catenata (V. anagallis-aquatica ssp. ...	water speedwell (native)	L3	G5	S4
Veronica scutellata	marsh speedwell	L3	S5 (2000-03-31)	G5 (1984-03-16)
Viburnum acerifolium	maple-leaved viburnum	L3	S5 (2000-03-31)	G5 (1983-09-30)
Viburnum cassinoides	withe-rod or wild raisin	L2	S5 (2000-03-31)	G5 (1984-04-16)
Viburnum lantanoides (V. alnifolium,	hobblebush	L1	S5 (2000-03-31)	G5 (1983-11-20)
Viburnum lentago	nannyberry	L5	S5 (2000-03-31)	G5 (1984-02-14)
Viburnum rafinesquianum	downy arrow-wood	L3	S5 (2000-03-31)	G5 (1984-10-03)
Viburnum trilobum (V. opulus var. trilobum,	highbush cranberry	L2	S5 (2000-03-31)	G5 (1993-08-27)
Vicia americana	American vetch	L3	S5 (2000-03-31)	G5 (1987-10-01)
Viola adunca	hooked-spur or heath dog violet	L1	S4S5 (2000-03-31)	G5 (1984-10-03)
Viola affinis	Le Conte's violet	L3	S4? (2000-03-31)	G5 (1984-10-03)
Viola blanda (V. incognita,	sweet white violet	L3	S4S5 (2000-03-31)	G4G5 (1992-12-29)
Viola canadensis	Canada violet	L3	S5 (2000-03-31)	G5 (1984-10-03)
Viola conspersa	dog violet	L5	S5 (2000-03-31)	G5 (1984-10-03)

TORONTO AND REGION Conservation
for The Living City

Watercourse Crossing Design and Submission Requirements

(Including new and replacement structures and extensions)
September 2007

Prior to proceeding with construction of a watercourse crossing, a permit must be obtained from TRCA as these works constitute alteration to a watercourse and/or development in a regulated area. Where crossings are proposed as a component of land development or infrastructure projects, proponents should address TRCA objectives and policies with respect to crossings throughout the development process.

OBJECTIVES

1. Minimize the total number of crossings in valley and stream corridors.
2. Situate crossings, where required, at appropriate locations.
3. Improve existing watercourse crossings where possible.
4. Ensure no significant increase in upstream and downstream flooding.
5. Protect or enhance the physical and ecological function of the watercourse and valley corridor.
6. Protect all natural features to the extent possible and provide restoration where protection is not possible.
7. Implement adequate erosion and sediment control during and after construction.

SUBMISSION REQUIREMENTS

The following outlines the tasks that must be undertaken and the information that must be provided by crossing proponents, at various stages of the development process, for crossings associated with land development projects. Specific requirements for crossings not associated with land development are provided in subsequent sections.

It is recommended that proponents meet with TRCA staff prior to submission at each stage to identify pertinent issues and study requirements. The level of detail required for the submission may be adjusted at this point to reflect the project scale and degree of complexity. Meetings also provide an opportunity for TRCA staff to provide the proponent with available data for the study area.

1. Studies/reports submitted in support of secondary plan approval (i.e. OP and OPAs) and studies/reports submitted prior to draft plan approval (i.e. MESPs, FSSs, Block Plans)

i. Carry out preliminary air photo/map analysis and field reconnaissance to determine appropriate road crossing locations. Locations should be selected to avoid geomorphic constraints such as meander bends, actively eroding or unstable reaches and confluences, as well as wooded areas, wetlands, Areas of Natural and Scientific Interest and Environmentally Significant Areas. The total number of crossing should be minimized.

ii. Conduct a site walk with TRCA and municipal staff to confirm proposed crossing locations.

iii. Summarize preliminary analysis and document the crossing locations in the resulting document/report. Information to be provided includes:
- Key plan with orthophoto base illustrating location of subject lands, watercourses, natural features and proposed crossings.
- Summary of site walk observations and discussions.

- If sufficient historical data is not available, a conservative 100-year erosion limit may be determined based on a multiple of the bankfull channel width. In watercourses where there is evidence of active channel erosion and/or hydraulic analysis indicates that the bankfull flow competence (velocity and shear stress) is greater than that of the bed and/or bed materials, the 100-year erosion limit will be 10 times the bankfull channel width, offset from both sides of the bankfull channel. In watercourses where there is no evidence of active channel erosion and hydraulic analysis indicates that the bankfull flow competence is less that of the bed and bank material, the 100-year erosion will be 2 times the bankfull channel width, applied to both sides of the bankfull channel.
- If the meander belt width or 100-year erosion limit used overlaps the valley wall toe of slope, a stable slope allowance must also be provided. The stable slope analysis is determined by calculating a 3:1 slope from the outside of the meander belt width or 100-year erosion limit, or through an approved slope stability study.

Note: *It is strongly recommended that geomorphic analyses be prepared by a professional engineer or professional geoscientist qualified to practice fluvial geomorphology. Comparative analysis of air photos and maps must be performed using GIS or CAD software. All air photos, maps and surveys must be registered to a common base map and corrected for distortion if necessary.*

Aquatic Requirements

- All water crossings must address the requirements for fish and fish habitat, including maintaining groundwater upwelling and discharge, preserving biological connections between stream flow and the channel bed, including fish passage, maintain natural sediment transport processes, and to minimize disturbance to the watercourse.
- Channel realignment, hardening, or other modifications should be avoided in the design of crossing structures. If channel modifications are proposed, suitable justification must be provided.
- Should alteration to the channel be anticipated, *Fisheries Act* approvals may be required. See Fisheries Act submission requirements for more detail.

Terrestrial Requirements

- Adequate passage must be provided, either under or over crossing structures and associated earthworks, for all wildlife potentially using the valley corridor. An ecological assessment is required to identify wildlife species in the corridor and to confirm that the crossing concept design will provide the required passage.

Other Requirements

- Crossing designs must account for recreational activities and trails within valley lands, as per municipal requirements. The span and rise of the structure opening should accommodate expected recreational uses.
- Crossings must maintain navigability of the watercourse as per Transport Canada requirements and may require *Navigable Waters Protection Act* approval in this regard.

- Erosion and sediment control plan, showing location of control measures, detail drawings for control measures, construction access, notes on construction procedure and phasing, and notes on maintenance of control measures. Details for in-water works and 'working in the dry' should also be included if applicable.
- Landscape and restoration plan indicating species and quantities for trees, shrubs and seed mixes, and location, size and condition of plant material (see also TRCA Standard Restoration Guidelines).
- Tree removal/preservation plan identifying vegetation type within the work area, location of tress to be removed and preserved, and protection measures for the remaining stand.
- Letter of Intent and DFO Application for Authorization, if applicable. See Fisheries Act submission requirements for more detail.

CROSSINGS PROPOSED UNDER ENVIRONMENTAL ASSESSMENT PROCESS

New crossings proposed under the Municipal Class Environmental Assessment or full Environmental Assessment processes are required to meet the requirements listed above. EA documents should address the submission requirements under headings 1 and 2, above, while requirements under heading 3 should be addressed at the permit application/detailed design stage.

REPLACEMENT CROSSING STRUCTURES

In most cases submissions for replacement structures are not expected to address the requirements under heading 1, above, as the location of the crossing has already been fixed. However, if realignment of the roadway is proposed, those requirements must be considered in determining the new alignment.

In general, it is expected that submissions for replacement structures will consist of permit applications with a design brief and detailed design drawings. Nonetheless, submissions for replacement structures must address all of the requirements listed under headings 2 and 3 above. The proponent may make reference to existing studies (e.g. hydraulics) rather than preparing new analyses, if it can be shown that the existing studies remain relevant.

CROSSING STRUCTURE EXTENSIONS

TRCA will endeavour to achieve all of its objectives for extensions of existing structures. However, it is recognized that the objectives would in many cases require replacement of structures which is often not possible. As a result, TRCA staff will communicate requirements for structure extensions to proponents on a site-specific basis.

Toronto and Region Conservation for The Living City

DRAFT WATERCOURSE CROSSING CHART - MISSISSAUGA BUS RAPID TRANSIT

DATE CHART LAST REVISED: Friday, November 30, 2007
DATE OF SITE VISIT: Monday, November 19, 2007
PROJECT NAME: Mississauga Bus Rapid Transit
PROPONENT: City of Mississauga
TRCA PROJECT MANAGER: Sharon Lingertat
MUNICIPAL PROJECT MANAGER: Willy Ing
CONSULTANT PROJECT MANAGER Mike Bricks
TRCA FILE # 39971

Site Visit Attendees: Darrell Wunder, MRC
Katie Bright, Ecoplans
Brad Stephens, TRCA
Scott Smith, TRCA
Sharon Lingertat, TRCA

GEOGRAPHIC AREA						
TRCA to complete	Watercourse Name or Station	Location 1	Location 2	Location 3	Location 4	Location 5
	Location *(between x and y streets)*	Eglinton Ave. at Explorer Dr.	Eglinton Ave. at Centennial Park Blvd.	Eglinton Ave. west of Rakely at Etobicoke Creek	Eastgate Pkwy. (Tomken Rd. to Dixie Rd.) - Little Etobicoke Creek	Eastgate Pkwy. east of Cawthra Rd.
ONTARIO REG. 166/06 - "DEVELOPMENT, INTERFERENCE WITH WETLANDS & ALTERATIONS TO SHORELINES & WATERCOURSES".						
TRCA to complete	Within a Regulated Area	Yes	Yes (south side of Eglinton only)	Yes	Yes	Yes - on the north side of Eastgate Pkwy. only
	Within a Wetland/Area of Interference ? *(Y/N)*	No	No	No	Yes	Yes
	Within a Watercourse? *(Y/N)*	Yes	No	Yes	Yes	No
	Within a Regional Storm Floodplain*? *(Y/N)* *(<50 ha upstream drainage/>50ha* upstream drainage)* *= Regional Storm Floodplain	No	No	Yes	Yes	No
FISHERIES REVIEW						
TRCA to complete	Fish Habitat *(Direct/Indirect/No)*	Indirect	Indirect	Direct	Direct	No
	Fish Passage Within Culvert/Structure?	No	No	Yes	Yes	No
	Timing Window? (*Cold = June 15 to September 15) (Warm= July 1 to March 31)*	tbd	tbd	Warmwater	Warmwater	n/a
EXISTING STRUCTURE DETAILS						
Proponent to complete	Existing Structure *(L x W x H and type)*					
	Open or Closed Footed?					
	Has photo record of sediment in structure been recorded? No? Yes? Date?					
	Assessment of Sediment in Existing Structure- Low? Medium? High?					
	Structural Integrity of Existing Culvert?					
	Hydraulic Capacity of existing structure is *(adequate/inadequate)* to convey Regional Storm?					
PROPOSED STRUCTURE DETAILS						
Proponent to complete	Proposed Structure *(L x W x H and type)*					
	Open or Closed Footed?					
	Extension only proposed? *(Y/N)*					
	Removal, Replacement only proposed?					
	Removal, Replacement and Lengthening Proposed? *(Y/N)*					
REQUIREMENTS						
TRCA to complete	Hydraulic Analysis Required? *(Y/N)*	tbd	tbd	tbd	tbd	tbd
	Is there an existing HEC RAS model at TRCA? Yes? No?	tbd	tbd	tbd	tbd	tbd
	Meander Belt Analysis Required? *(Y/N)*	tbd	tbd	tbd	tbd	no
	100-year Erosion Limit Required? *(Y/N)*	tbd	tbd	tbd	tbd	no
	Groundwater Upwellings *(will dictate open footed culvert)* *(Y/N)*	tbd	tbd	tbd	tbd	tbd
	Open Footed Required? *(Y/N)*	tbd	tbd	tbd	tbd	tbd
	Geotechnical Report Required (to determine if spread footings or piles are needed)? *(Y/N)*	yes	yes	yes	yes	yes
	Terrestrial Passage Required? *(Y/N)*	tbd	tbd	tbd	tbd	tbd
	Embedment and substrates for Aquatic Passage Required? *(Y/N)*	tbd	tbd	tbd	tbd	tbd
	Net Benefit of Proposed crossing?	tbd	tbd	tbd	tbd	tbd
PIPE CROSSING DETAILS						
Proponent to complete	Pipe Crossing Above or Below Culvert?					
	Geotechnical Report confirms *(Open Cut/Tunnel)* for pipe crossing?					
	Distance between invert of creek and obvert of pipe (m)?					
	Minor Trench Unwatering or Major Dewatering Anticipated?					
SUMMARY OF APPROVALS REQUIRED						
TRCA to complete	"Development, Interference with Wetlands and Alterations to Shorelines and Watercourses" permit required? *(Y/N)*	Yes	Yes - if works will take place on the south side of Eglinton Ave.	Yes	Yes	Yes
	Mit HADD? (Y/N/TBD)	tbd	tbd	tbd	tbd	tbd
	HADD (Y/N/TBD)	tbd	tbd	tbd	tbd	tbd
Proponent to complete	MNR contacted? (PROPONENT WILL FILL IN)Y? N?					
Proponent to complete	Transport Canada contacted for navigable waterway? *(Y/N)*					
ADDITIONAL NOTES						

THE TORONTO AND REGION CONSERVATION AUTHORITY
5 Shoreham Drive, Downsview, Ontario M3N1S4 (416) 661-6600 FAX 661-6898 http://www.trca.on.ca

ENCLOSURE

TO:	**NAME:** Mr. Mike Bricks Ecoplans Limited 2655 North Sheridan Way, Suite 280 Mississauga, ON L5K 2P8
FROM	**NAME:** Scott Smith
	PHONE: (416) 661-6600 Ext. 5758
	PROJECT: CFN 39971 - Mississauga Bus Rapid Transit
	DATE: December 11, 2007

Mr. Bricks,

Please find enclosed the Etobicoke Creek Map Sheets 7, 10, and 13 marked to show the Regional Flood Elevation cross sections. The cross sections are:

1. Eastgate between Dixie and Tomken Rd: Etobicoke Creek mapsheet #10, between cross sections 2.38 and 2.39, within Little Etobicoke Creek
2. Eglinton Ave east of Eastgate Parkway: Etobicoke Creek mapsheets #7 and 13, between cross sections 7.09 and 7.121, within Etobicoke Creek
3. Eglinton Avenue at Explorer Dr: Estimated flood plain 1012, Tributary 4, cross section 2244.567.
4. There is no mapping or hydraulic information available for the watercourse south of Eglinton, west of Centennial Park Blvd.

HEC-2 Cross Section	Regional Elevation (m)
2.38	135.70
2.39	135.87
7.09	140.30
7.10	142.24
7.11	141.66
7.12	142.55
7.121	143.86
2244.567	155.6626

Note:

1. Please be advised that the Hydraulic update is under final approval and that the above information is preliminary and the flood elevations may change. The Regional peak flow at the same location was calculated by TSH.
2. We do not have updated flood line mapping information.
3. We anticipate an increase in the Regional flood line.

An email will be sent separately with the following information:

- Regulation Limits
- Flora and Fauna
- ELC data
- Watercourses
- fish data

***The point data (sent via email) for TRCA Species of Conservation Concern (flora and fauna) and Vegetation Type is to be used only for evaluation and analysis. It is not to be displayed in any format for public viewing, including maps in reports or maps at public information centres.

The Terrestrial Natural Heritage System in the area around the airport is evaluated in the GTAA Living City Report. The findings of the report include:

- the health of the terrestrial system within the GTAA study area was evaluated as poor to very poor during in a landscape analysis; this is mainly due to the matrix influence of airport operations and transportation corridors.
- the majority of habitat patches received a poor to fair score for size and shape;
- there are serious deficiencies of natural cover in the southern portion of the study area (the area at which this EA is looking).
- connectivity is insufficient for the maintenance of terrestrial services and there is a need to improve east-west connections.

The areas adjacent to Eastgate Parkway are identified as restoration opportunities through Habitat Implementation Plans (HIP). The areas have various wetland communities; due to overhead hydro wires, the best restoration opportunities are through promoting wetland linkages in this area. Given that only 0.6% of the Etobicoke watershed features wetlands, it is important to maintain, enhance and expand these systems.

Enhancing the corridor along Eastgate Parkway would provide new wetland opportunities, an east-west connection between habitat patches, maintain the quantity of natural cover and result in an improvement in the quality of natural cover within the watershed.

Please also find enclosed a map showing HIP opportunities.

If you have any questions please give me a call.

Scott Smith

SR.

Scott Smith


ELECTRA RD
EGLINTON AVE W
NETHERHART RD
BRITANNIA RD E
LUKE RD
ERINGATE DR
THE EAST MALL
MARTIN GROVE RD
RENFORTH DR
Generic Reg
No info
DIXIE RD
RATHBURN RD
BURNHAMTHORPE RD E
MILLARD
EVA RD
MATHESON BLVD E
TOMKEN RD
BLOOR ST W
RATHBURN RD E
BURNHAMTHORPE RD E
BLOOR ST
DUNDAS ST E
DUNDAS ST W
THE WEST MALL
N QUEEN ST
EGLINTON AVE E
DIXIE RD
THE QUEENSWAY

REVISIONS

LEGEND

This map was compiled photogrammetrically from 1:10,000 aerial photography exposed in Apr. 1981.

The vertical datum is mean sea level as established by the Geodetic Survey of Canada.

North American Datum 1927, U.T.M. 6° projection Zone 17, Central Meridian 81° W.

Grid interval 100 metres.

FLOOD PLAIN AND FILL REGULATION LINE MAPPING

ONTARIO REGULATION No._____
SCHEDULE No._____

AIRMAP LTD.
AIRMAP LIMITED
4634 SOUTHCLARK PLACE, R.R.#6, BOX 916, OTTAWA
CANADA K1G 3N3

the metropolitan toronto and region conservation authority
5 Shoreham Drive, Downsview, Ontario
M3N 1S4

Scale 1:2000

CONTOUR INTERVAL 1 METRE · AUXILIARY CONTOUR INTERVAL .5 METRES

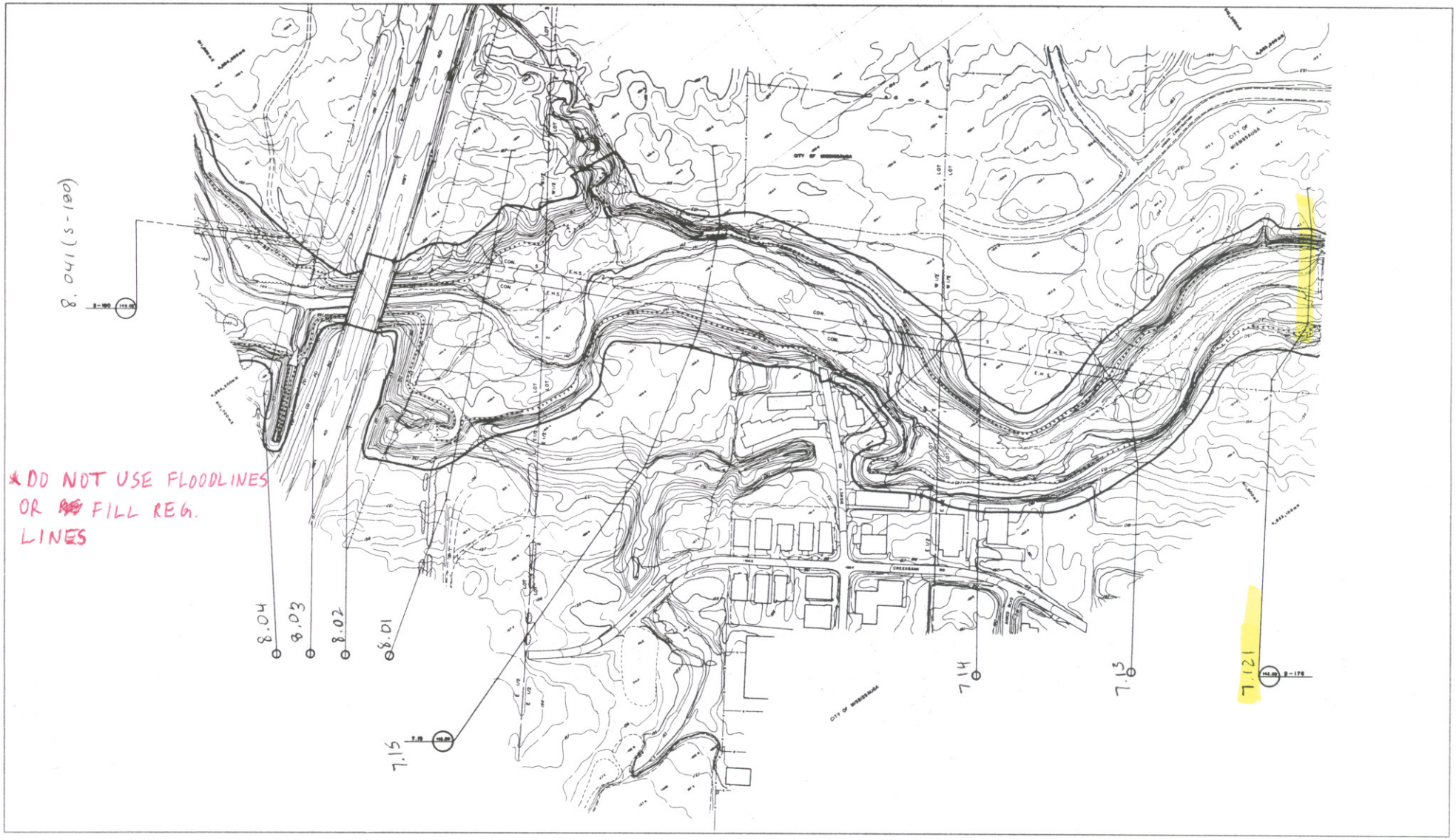
CERTIFICATE

I HEREBY CERTIFY THAT THIS REGULATION LINE MAP_____ IS A TRUE COPY OF MAP No._____ A SCHEDULE OF ONTARIO REGULATION

SIGNED _____
SECRETARY TREASURER, M T R C A

ETOBICOKE CREEK

SHEET No. 10
M.T.R.I-10



* DO NOT USE FLOODLINES OR ~~FILL~~ FILL REG. LINES

REVISIONS

NO.	DESCRIPTION	BY	DATE

LEGEND

This map was compiled photogrammetrically from 1:10,000 aerial photographs flown in Nov. 1976.

The vertical datum is mean sea level as established by the Geodetic Survey of Canada.

North American Datum 1927, U.T.M. 6° projection Zone 17, Central Meridian 81° W.

Grid interval 100 metres.

FLOOD PLAIN AND FILL REGULATION LINE MAPPING

ONTARIO REGULATION No.____
SCHEDULE No.____

J. D. BARNES LIMITED, Surveyors

the metropolitan toronto and region conservation authority
5 Shoreham Drive, Downsview, Ontario
M3N 1S4

Scale 1:2000

CONTOUR INTERVAL 1 METRE - AUXILIARY CONTOUR INTERVAL .5 METRES

CERTIFICATE

I, HEREBY CERTIFY THAT THIS REGULATION LINE MAP_____ IS A TRUE COPY OF MAP _____ A SCHEDULE OF ONTARIO REGULATION _____ SIGNED

SECRETARY TREASURER, M.T.R.C.A.

ETOBICOKE CREEK

SHEET No. 13
M.T.R.I-13

*DO NOT USE FLOODLINES
OR FILL REG. LINES

REVISIONS

NO.	DESCRIPTION	BY	DATE

LEGEND

This map was compiled photogrammetrically from 1/10,000 aerial photography flowned in Nov. 1975.

The vertical datum is mean sea level as established by the Geodetic Survey of Canada.

North American Datum 1927, U.T.M. 9° projection Zone 17, Central Meridian 84° W.

Grid interval 100 metres.

FLOOD PLAIN AND FILL REGULATION LINE MAPPING

ONTARIO REGULATION No.____
SCHEDULE No.____

J. D. BARNES LIMITED, Surveyors

the metropolitan toronto and region conservation authority
5 Shoreham Drive, Downsview, Ontario
M3N 1S4

Scale 1:2000

CONTOUR INTERVAL 1 METRE · AUXILIARY CONTOUR INTERVAL .5 METRES

CERTIFICATE

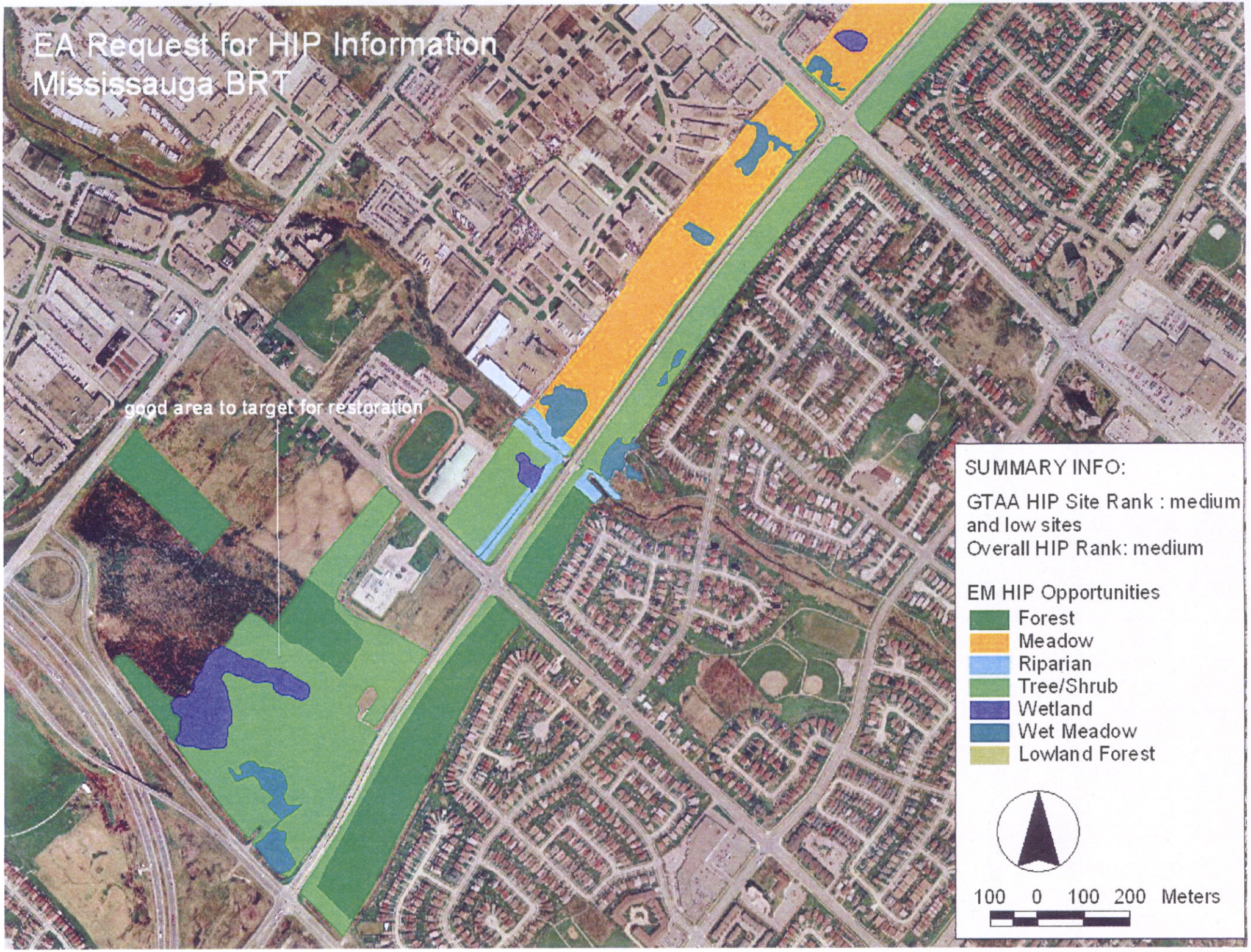
I HEREBY CERTIFY THAT THIS REGULATION LINE MAP _____ IS A TRUE COPY OF MAP No. _____ A SCHEDULE OF ONTARIO REGULATION _____

SIGNED _____

SECRETARY TREASURER, M.T.R.C.A.

ETOBICOKE CREEK

SHEET No. 7
M.T.R.I-7


EA Request for HIP Information
Mississauga BRT
good area to target for restoration
SUMMARY INFO:
GTAA HIP Site Rank : medium and low sites
Overall HIP Rank: medium
EM HIP Opportunities
Forest
Meadow
Riparian
Tree/Shrub
Wetland
Wet Meadow
Lowland Forest
100 0 100 200 Meters

From: Thompson-Black, Melinda (MNR) [Melinda.Thompson-Black@ontario.ca]
Sent: Friday, December 21, 2007 11:15 AM
To: Anderson, Holly
Subject: RE: Information Request

Attachments: **Ecoplans-Dec20.doc**
Hello

Attached please find information related to your data request.

Melinda Thompson-Black
A/ District Ecologist
Aurora District, Ministry of Natural Resources
50 Bloomington Rd
Aurora, ON L4G 3G8
(905) 713-7425
melinda.thompson-black@ontario.ca

From: Sharon Lingertat [mailto:SLingertat@trca.on.ca]
Sent: Thu 13/12/2007 10:21 AM
To: Anderson, Holly
Subject: Re: Mississauga BRT

Hi Holly,

The twinleaf location is at 612020 4833675. 21-50 plants were found in 2003.

Hope this helps. The other mapping information was sent to Mike, so you may want to followup with him if that's something else that you're looking for.

Thanks,
Sharon Lingertat
Acting Planner II, Environmental Assessments
Toronto and Region Conservation Authority
Tel: (416) 661-6600 ext.5717
Fax: (416) 661-6898
slingertat@trca.on.ca

ecoplans
Limited
Environmental Planners & Consulting Ecologists

February 13, 2008

Ms. Sharon Lingertat
Acting Planner II, Environmental Assessments
Toronto and Region Conservation Authority
Planning and Development
5 Shoreham Drive
Downsview, ON M3N 1S4

RE: Mississauga Bus Rapid Transit Project

Dear Ms. Lingertat:

This letter is in response to your letter dated November 30, 2007. Thank you for providing TRCA's input and for forwarding available study area data. The enclosed table outlines the Project Team's responses to the comments outlined in your letter.

As you know, we are currently planning for a meeting to review and discuss advancements in the preliminary design and proposed mitigation measures with TRCA staff.

Yours truly,
ECOPLANS LIMITED

Mike Bricks, MCIP, RPP
Consultant Environmental Planner

c: Geoff Wright, City of Mississauga
Willy Ing, City of Mississauga
Dale Turvey, MRC
Darrell Wunder, MRC
Anne MacMillan, Ecoplans

Encl.

2655 North Sheridan Way, Suite 280, Mississauga, Ontario L5K 2P8 • (905) 823-4988 • fax (905) 823-2669
www.ecoplans.com • e-mail: ecoplans@ecoplans.com

Summary of TRCA November 30, 2007 Letter (Contact: Sharon Lingertat) - Input and Action/Response		
Comments	**How Comment Is Being Addressed During Preliminary Design**	**Requirements for Detail Design and Construction Stages for this Project**
E-mail received on December 3, 2007 identifying submission requirements and providing comments on draft terrestrial and aquatic habitat tables, comments based on the November 17, 2007 site visit and a draft Watercourse Crossings chart. The following submission requirements were outlined:		
1. Under Ontario Regulation 166/06 a permit is required from TRCA for each of these areas: - Permit 1 (Regulated Areas 1 and 2) – Eglinton Avenue at Explorer Drive and Eglinton Avenue at Centennial Park Boulevard - Permit 2 (Regulated Area 3) – Eglinton Avenue (west of Rakely Court), Etobicoke Creek - Permit 3 (Regulated Area 4) – Eastgate Parkway (Tomken Road to Dixie Road) - Permit 4 (Regulated Area 5) – Eastgate Parkway (east of Cawthra Road)	1. Permit requirements acknowledged. Permits will not be sought until Detail Design (current project is Preliminary Design); however, ongoing consultation will occur to ensure TRCA's involvement with key design decisions during Preliminary Design.	1. Apply for permits and undertake any additional consultation required towards finalizing mitigation measures and addressing permit requirements
2. There are three watercourses crossings that may impact fish or fish habitat. TRCA undertakes the initial review of all *Fisheries Act* applications.	2. Acknowledged. Ecoplans will assess potential impacts of the project on these features and will consult further with TRCA, accordingly. To be clear, we understand the three watercourses to which TRCA is referring are: Etobicoke Creek, Little Etobicoke Creek and Elmcrest Creek (Eglinton Ave. and Explorer Drive). It should be noted that based on observations made during field investigations, Elmcrest Creek no longer exists as an open channel upstream/north of Eglinton Avenue. The Creek is currently intercepted at a location upstream of the proposed transitway alignment and diverted to a storm sewer system. Therefore, there is no crossing of Elmcrest Creek by the proposed transitway.	2. Ongoing consultation towards finalizing the design and mitigation measures and obtaining determination from TRCA as to whether works will result in likely HADD.
3. There may be additional approval requirements for this project – list of acts provided.	3. Acknowledged. Based on the impact analysis, appropriate agency consultation will be undertaken during Preliminary Design to identify the relevant approval and permit requirements.	3. Obtain approvals and undertake associated agency consultation, as required
4. Details regarding submission of permit applications to TRCA.	4. Receipt of information acknowledged. Permits will be sought during Detail Design; however, ongoing consultation will occur to ensure TRCA's involvement with key design decisions during Preliminary Design and to identify relevant permit requirements.	4. Apply for permits and undertake any additional consultation required towards finalizing mitigation measures and addressing permit requirements
Appendix A	**Appendix A**	**Appendix A**
1. Digger crayfish (*Fallicambarus fodiens*) are present in the hydro corridor immediately upstream of Eastgate Parkway on Little Etobicoke Creek. Please ensure that the proposed alignment considers the fish habitat and wetland assessment so that there will be minimal impacts to the crayfish habitat.	1. Based on the site visit with TRCA staff, it is our understanding that the Digger Crayfish are found along the north edge of the wetland/along the fence line. Given this location is some distance from the proposed alignment is not anticipated that these animals will be directly affected. Potential implications to the adjacent wetland habitat in relation to potential indirect effects will also be considered in the impact analysis, and relevant mitigation measures recommended. A southerly shift in busway alignment is being investigated at the creek crossing, to minimize impact on wetlands and fish habitat.	1. The process of finalizing the design will involve refinement of the impact assessment and mitigation measures to address potential implications to this species and its habitat.
2. Please explore all opportunities to restore fish passage at the existing Little Etobicoke Creek culverts under Eastgate Parkway, including the removal of the existing jersey barriers and weir.	2. Fish passage issues at the existing crossing will be assessed in the course of developing the Preliminary Design for the new crossing, and opportunities to retrofit the existing crossing will be identified regardless of whether it is appropriate to implement them as part of this project. The option of extending the existing culvert rather than building a new busway structure is being explored. If the existing 3-cell structure is extended, the Preliminary Design will be developed to ensure a low flow channel/cell is maintained to facilitate fish passage. It is anticipated that the jersey barriers would be replaced with a more environmentally suitable approach. Also, if the existing structure is extended, the extension will encompass the existing weir; therefore the Preliminary Design will assess opportunities to remove it and accommodate the grade change in a manner better suited to fish passage. However, the weir appears to be integral to the existing structure.	2. Any fish passage improvement developed during Preliminary Design will be refined as appropriate during Detail Design.

Summary of TRCA November 30, 2007 Letter (Contact: Sharon Lingertat) - Input and Action/Response		
Comments	**How Comment Is Being Addressed During Preliminary Design**	**Requirements for Detail Design and Construction Stages for this Project**
3. Please review the attached TRCA Guideline for Watercourse Crossing to ensure the all information requirements (i.e. fluvial geomorphic assessment, hydraulic assessment, etc.) and design considerations are addressed. Given that the EA and Addendum provide little detail with respect to design considerations for the proposed crossings, this information will need to be included with the detailed design submission.	3. We have completed a preliminary fluvial geomorphic assessment of the channel conditions at each existing culvert, however a more detailed analysis may be required for the detail design if the existing structures are under-sized, or being used by the new lanes in Detail Design. We will review the Guideline to determine what if any additional field assessment and specific analyses are required at the Detail Design stage.	3. Complete the necessary work per the TRCA Guidelines and the commitments made at the Preliminary Design stage.
4. At the Little Etobicoke Creek crossing it is noted that the transitway crossing will be an extension to the existing crossing at this location. As per the above noted crossing guidelines, please ensure that the appropriate studies were conducted as part of the detailed design for the existing structure and that copies are included as part of the detailed design submission for review. If the existing structure was not sized appropriately, please consider a replacement structure that adequately addresses the appropriate range of design considerations.	4. We will determine the appropriate culvert size for the existing crossing through the current study. If the existing crossing is determined to be undersized, the City of Mississauga will consider opportunities to address that issue. Any extension or new construction related to the busway will reflect the appropriate culvert size.	4. Design and construct any new BRT-related culvert at Little Etobicoke Creek to the appropriate size.
5. It is noted that there is evidence of existing active erosion at the Little Etobicoke Creek Crossing. Please ensure that measures are included in the design to address this issue.	5. Local and general scour at all proposed watercourse crossings will be evaluated during Preliminary Design. Opportunities for mitigating existing bank erosion in the vicinity of proposed structures, including the active erosion sites observed upstream of the existing Little Etobicoke Creek crossing, will be explored during Preliminary Design to the extent physically, technically and economically practicable. Design concepts for scour protection and any stream restoration works will be formulated and documented.	5. Design and construct bank protection according to the Preliminary Design recommendations and commitments.
6. TRCA has records of Etobicoke Twinleaf (*Jeffersonia diphylla*) near the crossings of Etobicoke Creek at Eglinton Avenue. Please ensure the alignment of the structure at Etobicoke Creek avoids the area where Twinleaf is present.	6. Staff indicated during the site walk that the location of the twinleaf was on the east valley slope upstream of the crossing (the valley slopes adjacent to the road/through the proposed alignment are eroded and little groundcover is present). Therefore it is not anticipated that this species or its habitat will be affected. We will investigate a shift of the busway alignment to as close as possible to Eastgate Parkway, which will have the effect of avoiding the twinleaf location.	6. Avoidance of this species and its habitat will be re-confirmed as needed.
7. Please ensure that a net ecological gain is provided for all disturbed areas. Staff has targeted Eastgate Parkway for a Habitat implementation Plan (HIP) where a natural corridor running east-west may be established between Etobicoke Creek and the Credit Valley watershed. Please explore these opportunities at the detailed design stage.	7. Reasonable and feasible restoration opportunities which would achieve a net ecological gain will be identified during Preliminary Design. Restoration details will then be developed during Detail Design. Specific opportunities as a component of the Eastgate Parkway HIP will be reviewed and discussed with TRCA.	7. The details of the opportunities identified during Preliminary Design will be refined during Detail Design and restoration plans developed as required.
8. Reference is made in the Fish and Fish Habitat Summary Table to the CVC/MMR Sediment Control Guidelines. Please also use the guidelines recently produced for the Greater Golden Horseshoe Area Conservation Authorities (Erosion and Sediment Control for Urban Construction [2006]). This document can be downloaded at www.sustainabletechnologies.ca.	8. Reference will be updated in the text. As part of the Preliminary Design for the BRT, erosion potential will be evaluated in areas along the BRT corridor, concerns with respect to sedimentation in features of the natural environment receiving drainage from the transitway will be identified, and recommendations will be made to guide the preparation of a Erosion and Sediment Control Plan as part of future Detail Design. Recommendations will include a shortlist of both vegetative and structural control measures that can feasibly be implemented during construction.	8. Reference will be made to the updated reference. Using guidelines set forth in the document entitled Erosion and Sediment Control for Urban Construction, an Erosion and Sediment Control Plan will be prepared and circulated to all regulatory agencies having jurisdiction at the time of Detail Design for the transitway.
9. The tables indicate that a comprehensive stormwater management (SWM) plan will be prepared as part of the detailed design. The following TRCA SWM criteria applies to this project. • Water Quality Control: Level 1 Enhanced • Water Quantity Control: 2 to 100 year control required for the Little Etobicoke Creek Watershed, quantity control not required for other areas. • Erosion Control. 25 mm detention for 48 hours (or for maximum duration feasible) Please also note that there is an existing SWM pond on the Bell Mobility	9. The Preliminary Design study will present a comprehensive surface water conveyance and management strategy formulated to provide guidance for the future Detail Design. Alternative storm water management measures will be screened to identify measures that can feasibly be implemented to mitigate potential surface water related impacts associated with the construction of the BRT system. To the extent technically, physically, and economically practicable, opportunities for utilizing existing storm water management measures, such as the Bell Mobility SWM pond, will be explored. Within the TRCA's jurisdictional area, the prescribed TRCA SWM criteria will be used in combination with recommendations of the Ministry of the Environment's *Stormwater Management Planning and Design Manual* to establish design requirements for drainage conveyance and management works. Design concepts for key storm water management measures will be documented.	9. Following from recommendations of the Preliminary Design report, detail design of all surface water conveyance and management measures will be completed. The final design circulated to the TRCA and other regulatory agencies having jurisdiction will provide detail sufficient for confirming that the final design is consistent with the approved Preliminary Design. Once all agency concerns have been adequately addressed, the storm water management strategy will be implemented in accordance with all applicable approval conditions.

Summary of TRCA November 30, 2007 Letter (Contact: Sharon Lingertat) - Input and Action/Response		
Comments	**How Comment Is Being Addressed During Preliminary Design**	**Requirements for Detail Design and Construction Stages for this Project**
site, located just west of the proposed Etobicoke Creek crossing. There may be potential to retrofit this facility to accommodated local drainage from the transitway project.		
10. a) The vegetation and Wildlife Summary Table, EA Commitments to Future Work, states that there will be compensation for wetlands loss per CVCA practice. As this area is located within TRCA's jurisdiction please revise to read, "…per TRCA practice". b) TRCA staff recommends reviewing the alignment such that impacts to the existing natural environment are minimized to the extent possible.	10. a) Text will be revised to TRCA from CVCA were applicable. b) A key component of the mitigation measures will be to review the alignment and proposed design approaches to minimize potential natural environmental impacts to the extent possible. As mentioned above (Item 1 in Appendix A), a southerly shift in BRT alignment is being investigated at the Little Etobicoke Creek crossing, to minimize impact on wetlands. However, there are many constraints on / limited opportunities on the alignment and limited ability to make significant revisions to it.	10. a) n/a b) Alignment will be set at the Preliminary Design stage
11. For direction during detailed design please reference the attached TRCA Post Construction Restoration Guidelines and the TRCA Native Flora List.	11. The Guideline will be reviewed during preparation of the Preliminary Design recommendations for planting and restoration	11. The Guideline will be reviewed during preparation of the final planting and restoration plan.

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NOTES OF MEETING - REVISED

PROJECT: Mississauga Bus Rapid Transit (BRT) Facility

FILE NO.: 07-3272

DATE: March 19, 2008 **TIME:** 1:30 p.m.

PLACE: McCormick Rankin Corporation, Mississauga

PRESENT:

Liam Marray	Credit Valley Conservation
Allan Newell	Credit Valley Conservation
Sharon Lingertat	Toronto and Region Conservation Authority
Scott Smith	Toronto and Region Conservation Authority
Brad Stephens	Toronto and Region Conservation Authority
Patricia Lewis	Toronto and Region Conservation Authority
Geoff Wright	City of Mississauga
Brian Smith	City of Mississauga
Eugene Furgiuele	City of Mississauga
Mike Sone	GO Transit
Muyiwa Adebayo	GO Transit
Steve Schijns	McCormick Rankin Corporation
Darrell Wunder	McCormick Rankin Corporation
Kate Macnaughton	McCormick Rankin Corporation
Anne MacMillan	Ecoplans Limited
Kim LeBrun	Ecoplans Limited
Erin Eldridge	Ecoplans Limited
Mike Bricks	Ecoplans Limited
Katie Bright	Ecoplans Limited

PURPOSE: To discuss the design, potential environmental effects and proposed mitigation measures.

The following notes provide an overview of the meeting.

ITEM	PROCEEDINGS:	ACTION BY:
1.0	**Introductions**	
1.1	Roundtable introductions occurred.	
2.0	**Project Overview and Status**	
2.1	M. Bricks provided an overview of the project including the completion of the original 1992 Environmental Assessment (EA) and the 2004 EA Addendum. The current project represents Phase I of the capital works and includes BRT West (Winston Churchill Boulevard to Erin Mills Parkway) and BRT East (Centre View Drive to Renforth Station). The portion of the Mississauga BRT facility between BRT East and BRT West (i.e. along Highway 403) is currently operational along the existing Highway 403 bus bypass lanes.	

ITEM	PROCEEDINGS:	ACTION BY:

It was noted that GO Transit is responsible for the design and construction of the BRT West and the City of Mississauga is responsible for the design and construction of the BRT East; however, the City of Mississauga is coordinating the Preliminary Design of both sections.

M. Bricks explained that the previous EA work provided a conceptual design for BRT East and BRT West. The current Phase I project will bring the design for BRT East and BRT West to a Preliminary Design level of detail. In addition, the Project Team is pursuing a decision under the Canadian Environmental Assessment Act (CEAA). Transport Canada and Infrastructure Canada are triggered under CEAA as they are providing funding for Phase I of this project. Transport Canada is coordinating the CEAA Screening process. If it is determined that any of the works will result in a the harmful alteration, disruption or destruction of fisheries habitat (HADD) the Department of Fisheries and Oceans (DFO) will become a Responsible Authority and as a result will need to sign-off on the CEAA Screening. It will be important to determine in the near future if DFO will be a Responsible Authority. As a result, based on the information presented at this meeting the Conservation Authorities will be requested to provide a timely response regarding whether or not the proposed works are anticipated to result in a HADD. Specific permits will be obtained during Detail Design.

G. Wright explained that construction of Phase I of the project is to commence in 2009 with completion scheduled for 2012. As a result, CEAA approval and completion of Preliminary Design must be completed as soon as possible in 2008. Due to funding, the project schedule is not flexible.

3.0 Review of Preview Meeting Notes

3.1 K. Bright reviewed the previous meeting notes. The following outlines outstanding action items:

- TRCA to provide updated hydraulic model. MRC has received modelling from 1987; however, the updated model is required as the 1987 model does not reflect current conditions (i.e. structures). P. Lewis indicated that the new model is being completed by TSH and that the model will reflect current conditions. TRCA is expecting a draft submission within a week and will provide MRC with information as soon as possible. — TRCA
- MRC to provide fluvial geomorphological input to TRCA for Little Etobicoke Creek. The information will be provided as part of a drainage/stormwater management reporting. — MRC
- D. Wunder to schedule a field visit with CVC. — MRC

4.0 Natural Environment Features, Potential Environmental Effects and Proposed Mitigation

4.1 Natural environment features were reviewed with reference to the information tables distributed prior to the meeting as well as fieldwork data plates and aerial photo mapping of the study area.

ITEM	PROCEEDINGS:	ACTION BY:
4.2	<u>BRT West (CVC jurisdiction)</u> A. MacMillan provided a brief overview of the terrestrial features within the BRT West study area. There are no watercourses within BRT West. In general, the study area is highly disturbed and effects will be limited to edge impacts to 'culturally' influenced features (cultural meadow and succsessional vegetation). However she did note that the area along the north side of Highway 403 is part of the east-west 'Linkage' system identified by the City/CAs, Based on the low representation of habitat on the landscape generally the area provides some local function. It is anticipated that the terrestrial effects of the project will be limited in general, based on the vegetation and habitat. Standard construction mitigation measures will be employed to address and minimize the effects. B. Stephens agreed that although the BRT West vegetation units provide some ecological function it is recognized that the features are highly disturbed.	
4.3	<u>Renforth Creek (TRCA jurisdiction)</u> A. MacMillan provided an overview of the creek features and noted that Renforth Creek appears to be a fairly minor and disturbed feature. Most of the upstream flow appears to be diverted. A small pocket of cattail mineral meadow marsh is located along the south side of Renforth Drive west of Eglinton Avenue, however there is no flow path evident through it. A ditched channel system extends through the manicured area, but it appears to end at the subdivision, so the whole system is effectively isolated. The current design has a parking lot in that location; however, the design is being reviewed for opportunities to move the parking lot. B. Stephens explained that the marsh may not be considered a 'wetland' under the Conservation Authorities Act. A. MacMillan and B. Stephens will review whether or not the marsh should be considered a wetland, based on TRCA's criteria used to define a wetland. If it is not a wetland a permit under TRCA's *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, Ontario Regulation* will not be required. However, B. Stephens noted that the marsh does provide some local function so compensation will be required if it is affected. Similarly, he noted that the 'riparian vegetation' north of the road also provided a local function and compensation should be considered if it is impacted. It was agreed that compensation for works in the Renforth Creek area may be best completed in another location where enhancement works may be more beneficial. B. Stephens inquired as to where Renforth Creek flows. D. Wunder indicated that it is not clear but that it seems to inlet at a stormsewer and travel under the nearby subdivision. [*Post-Meeting Note: City of Toronto staff have subsequently informed K. Macnaughton that they have no drawings/information showing a sewer connection from Renforth Creek to the*	Ecoplans/ TRCA

ITEM **PROCEEDINGS:** **ACTION BY:**

subdivision immediately south. It is possible that Renforth Creek is connected by storm sewer to the development on the south side of Eglinton Avenue (north of the hydro corridor), but this is a private development as such the City does not have any information for sewers at this site.]

B. Stephens indicated that works at this location would not require Authorization under the Fisheries Act and would be covered under a Letter of Advice.

K. Macnaughton explained that with the current design attempts were made to provide onsite control with storage in the parking lot. The intent is to use flat bottom swales (preferred) or oil grit separators and with drainage back into the system. B. Stephens noted that if it is determined that the 'creek' is not a watercourse it would be acceptable to enhance/modify the existing channel to provide water quality and quantity control.

4.4 Elmcrest Creek (TRCA jurisdiction)

A. MacMillan provided an overview of the creek features and noted that Elmcrest Creek appears to only support indirect fish habitat, and it is quite disturbed. The proposed works include the addition of a new pipe to collect drainage that will be cut off by the construction of the busway. The existing culvert under Eglinton Avenue no longer conveys flow from north of Eglinton Avenue to Elmcrest Creek. Flows from upstream (i.e. north) of Eglinton are now picked up by storm sewers and conveyed to Etobicoke Creek via the Eglinton Avenue storm sewer. As such, construction of the BRT will not impact flows to Elmcrest Creek.

S. Lingertat explained TRCA's regulated area north across Eglinton Avenue to a point that is just south of the proposed works. D. Wunder indicated that the busway work as currently proposed does not encroach on the regulated area.

B. Stephens indicated that works at this location would not require Authorization under the Fisheries Act and would be covered under a Letter of Advice.

4.5 Sediment and Erosion Control

S. Lingertat and B. Stephens noted that sediment and erosion control will be of particular interest to TRCA. TRCA has new guidelines regarding sediment and erosion control and is focusing on ensuring that during Detail Design the plans and contracts outline appropriate mitigation measures while acknowledging the need for flexibility to upgrade or revise mitigation should the mitigation fail to sufficiently control sedimentation and erosion. D. Wunder acknowledged TRCA's interests and explained that during Preliminary Design areas of concern will be identified, proposed mitigation measures developed and that mitigation measure will be refined as appropriate during Detail Design. A. MacMillan explained that standard construction mitigation measures (e.g. clearing restrictions, sediment and

ITEM	PROCEEDINGS:	ACTION BY:
	erosion control, best management practices) will be added as a list at the end of the summary tables and documented in the CEAA Screening Report.	Ecoplans

4.6 Etobicoke Creek (TRCA jurisdiction)

A. MacMillan provided an overview of the creek features and noted that the Etobicoke Creek Valley provides an important natural corridor. TRCA has noted a colony of the regionally rare Twinleaf, as well as a range of locally rare vegetation and bird species. The Twinleaf is located approximately 200m north of the structure. The City of Mississauga has noted Butternut trees in the general area. TRCA mapping does not indicate the presence of Butternut. Due to the timing of Ecoplans' field visit (late fall) the presence of Butternut could not be confirmed. A commitment will be made to undertake a field survey during Detail Design to confirm the presence/location of Butternut in the area of impact, as well as any other species of interest. However, since the area adjacent to Eglinton was disturbed to construct the Eglinton Avenue trunk storm sewer outlet, the edge area is unlikely to support any of the more sensitive species.

The design at Etobicoke Creek had a new structure over the creek in close proximity to the existing Eglinton Avenue structure (on piers). To reduce environmental effects the design has been revised to widening the existing Eglinton Avenue structure by approximately 5 meters. Since the existing pier is located on a concrete base along the concrete slope from the abutment, the extension would not actually cover any stream bed.

S. Schijns explained that the existing piers will be extended to accommodate the widening. M. Bricks explained that although the design is proceeding with the widening, approval is required from the City of Toronto as they own the structure. City of Toronto staff have indicated support for the widening but the formal approval is still pending.

B. Stephens indicated that given the existing information (piers located outside the watercourse) the works at Etobicoke Creek will not be considered a HADD and will be covered under a Letter of Advice.

D. Wunder noted that Etobicoke Creek is one of the structures that is not up-to-date in TRCA's 1987 model. P. Lewis explained that the new model would reflect the current structure.

D. Wunder explained that it is his understanding that the current structure does not have deck drains that actively discharge runoff directly to the creek. This will be confirmed. In the event that functional deck drains are found, opportunities for disconnecting the drains or directing runoff to the overbanks will be explored. K. Macnaughton explained that gravity can be employed for drainage but that opportunities for attenuation are very limited. Water quality will be addressed through the use of oil grit separators.

ITEM	PROCEEDINGS:	ACTION BY:
	TRCA staff confirmed that no water quantity control will be required for Etobicoke Creek. D. Wunder indicated that quantity control may still need to be considered to mitigate potential local flooding along and within the BRT corridor.	
4.7	Cultural Woodland – Northeast of Eastgate Parkway (TRCA jurisdiction) A. MacMillan explained that the small pocket of vegetation northeast of Eastgate Parkway in front of the TD Bank is dominated by a variety of comment and tolerant tree and shrub species. Although portions of the vegetation unit indicate that some of the vegetation may have been planted as part of past landscaping efforts, other vegetation has colonized the area. It was agreed that compensation for the loss of this woodland would be best completed in another location where enhancement works may be more beneficial.	
4.8	Little Etobicoke Creek (TRCA jurisdiction) A. MacMillan provided an overview of the creek features and noted that the Little Etobicoke Creek provides warmwater habitat for tolerant fish species. At the previous meeting, it was anticipated that the BRT alignment and creek crossing would be on a separate structure at a new location upstream of the existing crossing. However, the design has been revised to pull the alignment up tight to the existing road to avoid the wetland immediately east of the creek, and to provide opportunities to address the existing limitations and issues associated with the existing structure. The proposed design would extend the existing three-cell box culvert by approximately 13 meters to the north (upstream). This design also enables removal of the existing New Jersey barrier and the low weir that presently affects fish movement, and re-design of a properly functioning low flow channel. The end result would be an improvement from the existing conditions.	
	E. Furgiuele suggested that the D. Wunder should contact the City's Transportation and Works department to assist in determining why the New Jersey barrier has been place at Little Etobicoke Creek. E. Furgiuele will provide D. Wunder with an appropriate contact.	City
	E. Furgiuele inquired about consideration for creating a pedestrian walkway using the exiting culverts. S. Schijns indicated that it may be technically feasible; however, the decision would rest with the City of Mississauga and the pedestrian walkway may not be implemented as part of the BRT works. S. Schijns will note this opportunity at future meetings with Planning and/or Transportation and Works staff.	MRC
	D. Wunder enquired as to whether the TRCA had a standard specifying what design flow should be considered when siting pedestrian trails in the floodplain (i.e. what return period flood level should be used to set the elevation of the trail). The TRCA indicated that they did not have such standards at this time. E. Furgiuele indicated that the City of Mississauga has used culverts for pedestrian passage in numerous locations and as a result	

ITEM	PROCEEDINGS:	ACTION BY:
	likely has standards or policies about such use.	
	P. Lewis inquired as to what fluvial geomorphological works have been completed for Little Etobicoke Creek. D. Wunder explained that preliminary works have been undertaken but that more detailed works will be completed during Preliminary Design. Fluvial geomorphological information will be documented as part of the drainage/stormwater management reporting to be provided to for TRCA's review.	MRC
	B. Stephens inquired as to how fish will pass under low-flow conditions. K. LeBrun confirmed that with the existing conditions fish, the New Jersey barrier directs most of the flow through the low flow channel, so fish movement is possible through the low flow cell when there is sufficient flow. The low weir upstream of the structure does pose a barrier to fish movement under lower flow conditions. However, it will be removed as part of the design of the extended structure. A. MacMillan indicated that since the drop/grade change at the weir is relatively small, the channel can be designed using rocky riffles or similar elements to accommodate the grade change and improve fish movement opportunities. B. Stephens noted that those additional works would be appropriate but that it would be necessary to ensure that the additional design revisions (grading, rocky ramp) would function well otherwise the efforts would be better focused on a different location.	
	B. Stephens indicated that he would like to revisit this area again during a follow-up field visit. D. Wunder will schedule the follow-up field visit.	MRC
	B. Stephens indicated that based on the proposed design and assuming that it will function properly, the works at Little Etobicoke Creek would not be considered HADD and would be covered under a Letter of Advice.	
	S. Lingertat inquired as to whether or not the extension would result in increased flood levels. D. Wunder confirmed that based on the 1987 hydraulic model (with some assumptions to include the current structure) it appears that there are no concerns. This will be confirmed once the updated model is available. D. Wunder noted that some flood-proofing may be required for the BRT at this location.	MRC
	B. Stephens indicated that all reasonable alternatives should be considered (e.g. single span structure). Ecoplans explained that other alternatives were reviewed, but that based on the effort to avoid the wetland and to 'fix' the existing flow issues (remove the weir and New Jersey barriers, etc.), the proposed design was considered a better option overall. They confirmed that if a new structure was constructed upstream of the existing structure, the existing structure would not be modified. It was acknowledged that a single span structure would not improve the downstream conditions, and would affect a large portion of the wetland. The proposed design avoids the wetland, and enables removal of the existing New Jersey barrier and the low weir that presently affects fish movement, and enables re-design of a properly	

ITEM	PROCEEDINGS:	ACTION BY:
	functioning low flow channel. The end result would be an improvement from the existing conditions. As a result, the proposed extension is overall, a better solution. Ecoplans and MRC will ensure that the rationale for the selected design is included in the CEAA Screening Report.	Ecoplans/ MRC
	A. MacMillan noted that efforts will be made to minimize encroachment of into the cattail mineral marsh to the northeast side of the creek. That marsh is known to contain Chimney Crayfish; however, the Chimney Crayfish are within the north portion of the marsh and should not be impacted by the proposed works. B. Stephens explained that Chimney Crayfish are sensitive to waterlevel fluctuations. As a result, it is important that the waterlevel in the north section of the marsh remain unaltered. A. MacMillan indicated that MRC/Ecoplans would review available geotechnical information to assess how the surface water in the wetland is supported, and highlight this potential issue for further review during Detail Design.	Ecoplans/ MRC
	K. Macnaughton explained that to the west it may be possible to have a stormwater management facility at the northeast corner of Tomken Road and Eastgate Parkway. In general, stormwater management facilities will be implemented; however, where that is not possible oil grit separators will be employed.	
	K. Macnaughton inquired if it would be acceptable to outlet into Little Etobicoke Creek as the only other option would be the marsh and that would affect the Chimney Crayfish. B. Stephens agree that outletting to Little Etobicoke Creek, with advance quality treatment, would be acceptable in order to avoid impacting the Chimney Crayfish. S. Lingertat noted that it may be possible to ditch between the marsh towards the creek. D. Wunder noted that ditching is a possibility and that the local clay soils would help retain drainage within any ditches. B. Stephens indicated that discharging to the wetland east of Etobicoke Creek should be avoided.	
	In response to a question from K. Macnaughton, B. Stephens indicated that it would be acceptable to discharge treated stormwater into the reed canary grass mineral meadow marsh west of the creek. That would only occur if it is feasible to locate a stormwater management facility to the northeast.	
4.9	Habitat Improvement Program Area (TRCA jurisdiction) A. MacMillan provided an overview of the Habitat Improvement Program (HIP) Area to the north of Cawthra Road and west of Eastgate Parkway. The HIP area is predominately a cultural meadow with various pockets of meadow marsh. Based on input from E. Furgiuele the southwest corner of the HIP Area is thought to be a relatively undisturbed cattail mineral meadow marsh.	
	The current design has a parking lot located at the southwest corner of the HIP Area. MRC is exploring opportunities to relocate the parking lot to avoid removing the cattail mineral marsh. It was noted that consideration will be	

ITEM	PROCEEDINGS:	ACTION BY:
	given to the overall effects of relocating the parking lot as the relocation would result in increased edge effects by encroaching into the middle of the unit. B. Stephens suggested that this site should be visited during a follow-up field visit. During the field visit the marsh conditions will be assessed to provide input towards and design refinements. B. Stephens noted that the rationale for the parking lot location should be included in the CEAA Screening Report.	
4.10	Off-Site Compensation S. Lingertat indicated that the HIP Area would be an ideal location for compensating enhancement/restoration works. M. Bricks explained that the City would only be able to complete works on property owned by the City. The majority of the BRT right-of-way is owned by either the Ministry of Transportation or the Ministry of Public Infrastructure Renewal and managed by the Ontario Realty Corporation. As a result, there will be limited opportunities for compensation works within the BRT right-of-way. It was agreed that opportunities should be explore for off-site compensation on property owned by the City or Conservation Authorities. TRCA, CVC and E. Furgiuele will review possible off-site opportunities with consideration for ongoing or planned restoration/enhancement efforts at key locations.	TRCA/CVC/ City
4.11	Cultural Woodland – South of Cawthra Road (CVC jurisdiction) A. MacMillan explained that the cultural woodland located south of Cawthra Road and East of Eastgate Parkway is quite open and disturbed. The current design would result in edge encroachment; however, the design is being reviewed and the encroachment may be reduced. L. Marray indicated that measures will need to be taken to lessen the edge effects and that compensation will be required. A. MacMillan indicated that given its open character, it should not be sensitive to edge effects, since the unit itself is effectively an 'edge'.	
4.12	Deciduous Forest – North of Chalfield Lane (CVC jurisdiction) A. MacMillan explained that the deciduous forest located north of Chalfield Lane and east of Hurontario Street does provide some ecological function but is somewhat disturbed. The design would reduce this unit by approximately 30-40%. E. Furgiuele suggested that off-site compensation should be considered and L. Marray agreed. L. Marray inquired as to how the value of loss will be identified towards determining the required compensation. CVC does have some standards which require the assessment of the quality of the feature. E. Furgiuele indicated that the City of Mississauga has a framework that should be used towards determining value and compensation. E. Furgiuele will forward the framework to L. Marray and A. MacMillan. It was agreed that the framework should be reviewed and then the value determined as part of the upcoming field visit.	City

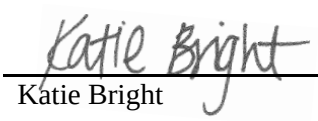
ITEM	PROCEEDINGS:	ACTION BY:
4.13	Eastern Tributary of Cooksville Creek (CVC jurisdiction) A. MacMillan explained that only a short section of the eastern tributary of Cooksville Creek upstream of the highway is open channel; the balance of the channel further upstream, as well as through and downstream of the right-of-way is piped. S. Schijns explained that the open section of the channel will not be directly impacted during construction since the right-of-way will be to the south (downstream) where the channel is already enclosed. As a result, it is anticipated that standard mitigation measures (e.g. erosion and sediment control, temporary flow passage) will employed to mitigate any potential indirect impacts to the watercourse.	
4.14	Cooksville Creek (CVC jurisdiction) A. MacMillan provided an overview of the creek features and noted that Cooksville Creek does not directly support fish use; however, it could be considered to support indirect fish habitat. The current proposal should enable retention of an open system in some form. S. Schijns provided an overview of the design requirements during Phase I and Phase II. Although the Preliminary Design is only addressing Phase I there is a need to review Phase II to ensure that the Phase I ('interim') design will work with future plans. D. Wunder presented some working plans and provided an overview of the current drainage challenges in the area and proposed plans for Phase I and Phase II. The working plans are attached to these meeting notes. S. Schijns explained that some design refinements have been reviewed to provide an improved design for the busway during Phase I. Those design refinements would require the realignment (retaining the current length) of Cooksville Creek and as a result thought would need to be given to how much work should be advanced to Phase I to avoid addition impacts and costs during Phase II. L. Marray and A. Newell explained that CVC is not opposed to the realignment either during Phase I or Phase II. As a result, MRC will review and optimize the design during Phase I and Phase II. The updated design will be provided to CVC in advance of a field visit.	MRC
	L. Marray indicated that the realignment of Cooksville Creek would be considered HADD, based o his current understanding of DFO's position on channel realignments. A. MacMillan noted that recent DFO direction regarding channel realignment is that realignment is not automatically considered HADD. Given the low sensitivity of the habitat and residual scale of negative effect, particularly if the realigned channel is the same as the original channel length, the realignment should not require authorization. A. MacMillan and L. Marray will discuss this with Dave Gibson (DFO).	CVC/ Ecoplans

ITEM	PROCEEDINGS:	ACTION BY:
5.0	**Next Steps**	
5.1	MRC will work on design refinements as discussed at this meeting. The design refinements will be communicated to TRCA/CVC and plans provided as appropriate.	MRC
5.2	TRCA will review the summary tables and provide comments within the next few weeks. The summary tables will then be updated and the information included in the CEAA Screening Report.	TRCA
5.3	D. Wunder will schedule a field visit with TRCA and a field visit with CVC.	MRC
5.4	K. Macnaughton will send TRCA and CVC drawings and a summary describing the proposed stormwater management measures.	MRC

The forgoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned immediately upon receiving these minutes (905-823-4988).

Minutes Prepared by:

Ecoplans Limited



Katie Bright

cc: Attendees
Dave Gibson, Department of Fisheries and Oceans
Rebecca Stranberg, Transport Canada
Kaarina Stiff, Transport Canada
Rachel Parkin, Transport Canada
Willy Ing, City of Mississauga
Scott Anderson, City of Mississauga
Dale Turvey, McCormick Rankin Corporation
David Waverman, Ecoplans Limited

TORONTO AND REGION Conservation
for The Living City

April 4, 2008 CFN 39971

BY MAIL AND EMAIL (mbricks@ecoplans.com)

Mr. Mike Bricks
Ecoplans Limited
2655 North Sheridan Way, Suite 280
Mississauga, ON L5K 2P8

Dear Mr. Bricks:

Re: Response to Notice of Public Information Centres
Mississauga Bus Rapid Transit (Eastgate Parkway at Highway 403 to Eglinton Avenue at Renforth Drive)
Etobicoke Creek; City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received notice of the upcoming Public Information Centres (PIC) scheduled for April 8, 2008 and April 9, 2008. Further to TRCA correspondence dated November 30, 2007, staff has expressed interest in this project. While staff is unable to attend the meetings, please forward one copy of any handouts or display materials from this meeting for our files.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Planner II, Environmental Assessments
Planning and Development

SL/

BY EMAIL
cc: Geoff Wright, City of Mississauga (geoff.wright@mississauga.ca)
Beth Williston, TRCA, Manager, Environmental Assessments
Quentin Hanchard, TRCA, Manager, Development Planning and Regulations
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

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TORONTO AND REGION Conservation
for The Living City

April 25, 2008

CFN 39971
x ref CFN 23800

BY MAIL AND EMAIL (mbricks@ecoplans.com)

Mr. Mike Bricks
Ecoplans Limited
2655 North Sheridan Way, Suite 280
Mississauga, ON L5K 2P8

Dear Mr. Bricks:

Re: Response to Meeting Notes and Handouts
Mississauga Bus Rapid Transit (Eastgate Parkway at Highway 403 to Eglinton Avenue at Renforth Drive)
Etobicoke Creek Watershed; City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff attended a meeting on March 19, 2008 at the McCormick Rankin Corporation offices to discuss the preliminary design. Staff has reviewed the Notes of Meeting received on March 28, 2008, along with the handouts noted below. Comments are provided in Appendix A.

- Fish and Fish Habitat Summary Table (March 18, 2008)
- Vegetation and Wildlife Summary Table (March 18, 2008)
- Mississauga BRT East – Plates 2 to 7

It is understood that the Phase 1 construction is expected to commence in 2009. Please ensure that the 60% detailed design is submitted to the undersigned, as soon as possible, to ensure that the review can be completed in a timely manner. At the detailed design stage, please provide the following:

- Six (6) INDIVIDUALLY folded copies of the plans
- Four (4) copies of supporting reports or documentation
- Signed permit application(s)
- Review fee(s) ($2,400 for each permit application)

Please ensure that all required information is included with your submission(s). Should you have any questions please contact me at extension 5717 or by email at slingertat@trca.on.ca.

Yours truly,
Sharon Lingertat
Sharon Lingertat
Planner II, Environmental Assessments
Planning and Development

SL/
Encl: Storm Outfall and Outfall Channel Design Criteria
Standard Detail: Wetland Outflow Channel

BY EMAIL
cc: Willy Ing, City of Mississauga (willy.ing@mississauga.ca)
Scott Anderson, City of Mississauga (scott.anderson@mississauga.ca)
Katie Bright, Ecoplans (kbright@ecoplans.com)
Carolyn Woodland, TRCA, Director, Planning and Development
Quentin Hanchard, TRCA, Manager, Development, Planning and Regulations
Chandra Sharma, TRCA, Etobicoke/Mimico Watershed Specialist

5 Shoreham Drive, Downsview, Ontario M3N 1S4 (416) 661-6600 FAX 661-6898 www.trca.on.ca

APPENDIX A

Wetlands North of Eastgate Parkway and East of Cawthra Road

1. The minutes do not refer to the Regulated Area located north of Eastgate Parkway and east of Cawthra Road. This area is considered wetland and will also require a permit under Ontario Regulation 166/06. Please ensure that this area is considered when preparing the detailed design plans.

Little Etobicoke Creek Crossing

2. The proposed works at the Little Etobicoke Creek crossing may involve flood plain re-grading in order to maintain existing flow conditions (i.e., low flow through the east cell). Please ensure that a detailed grading plan is provided, along with sections to show the extent of work in this area. Please note that the volume of fill to be placed in the floodplain should be minimized to the extent possible. In addition, please ensure that these changes are reflected in the hydraulic analysis for this crossing.

3. The handouts mention removing several existing in-stream barriers, and enhancing channel stability. Please ensure that natural channel design principles are followed, and that design drawings and supporting technical information is submitted for review.

4. It was noted at the last meeting that a Stormwater Management (SWM) pond is being considered, to provide the required level of control. Please ensure that design details and plans are submitted for review and that the SWM facilities are located outside of the Regional Flood Plain.

5. Section 4.8 of the meeting minutes indicates that the rationale for the selected design will be discussed/documented in the CEAA screening report. Please ensure that part of that documentation includes the supporting background studies/analyses (i.e., hydraulic modeling, fluvial geomorphic studies, etc.) undertaken as part of the decision-making process.

6. Section 4.8 of the meeting minutes refers to the cattail marsh on the northwest side of Little Etobicoke Creek, which contains Chimney Crayfish. To avoid confusion in the future, please revise to read northeast side.

Cultural Woodlot

7. Regarding the small pocket of vegetation discussed in Section 4.7 of the meeting minutes, please ensure that this community is defined in the preliminary design documents, to allow for a comprehensive understanding of the vegetation impacts and removals along the BRT alignment.

Etobicoke Creek

8. Please make every effort to redirect deck drainage to a suitable location, and avoid direct outlet to the watercourse. In addition, TRCA staff encourages any possible enhancements to existing infrastructure (i.e., existing outlet).

9. The Fish and Fish Habitat Summary Table notes that standard MTO Erosion and sediment control plans will be used at the creek crossings. Please refer to the TRCA "Erosion and Sediment Control Guideline for Urban Construction" (December 2006) for proper ESC measures and details. A digital copy of the guideline can be found at www.sustainabletechnologies.ca.

10. Section 4.6 of the meeting minutes notes that the works at Etobicoke Creek will not be considered a HADD. Please revise to state that given the existing information (piers located outside of the watercourse) that those works will not be considered a HADD, and will be covered by a Letter of Advice.

Southwest Corner of Eglinton Avenue and Centennial Park Boulevard

11. A Regulated Area is located on the southwest corner of Eglinton Avenue and Centennial Park Boulevard. If any works are proposed within this area, a permit under Ontario Regulation 166/06 will be required.

Elmcrest Creek

12. It is noted that a new sewer pipe will be constructed to collect existing drainage at the location of Elmcrest Creek. Please confirm whether this is major system flow, as it is suggested that minor system flows have been previously diverted. Design details (drainage area plan, flow calculations, etc.) pertaining to the proposed conveyance system will need to be submitted for review. In the event that a new outlet is required, please refer to the TRCA Storm Outfall Design Criteria which outlines TRCA requirements (attached).

13. The Fish and Fish Habitat Summary Table notes that standard MTO Erosion and sediment control plans will be used at the creek crossings. Please refer to the TRCA "Erosion and Sediment Control Guideline for Urban Construction" (December 2006) for proper ESC measures and details. A digital copy of the guideline can be found at www.sustainabletechnologies.ca.

Renforth Creek

14. The engineering requirements for this location will vary depending on whether or not the feature is deemed to be a watercourse. If it is a watercourse, then it is assumed to have an associated floodplain and therefore, appropriate fluvial geomorphic, hydraulic and flood plain analyses will also be required as per the other crossings.

    If the feature is not deemed to be a watercourse, the proposed works will need to be designed such that the existing overland flow routes are maintained, similar to the Elmcrest Creek location.

    In either case, please investigate if there are future plans to develop the vacant lands to the north of the proposed BRT. Any flow calculations will need to be based on the ultimate development scenario.

15. The Fish and Fish Habitat Summary Table notes that standard MTO Erosion and sediment control plans will be used at the creek crossings. Please refer to the TRCA "Erosion and Sediment Control Guideline for Urban Construction" (December 2006) for proper ESC measures and details. A digital copy of the guideline can be found at www.sustainabletechnologies.ca.

General

16. Section 3.1 of the meeting minutes refers to the updated hydraulic model. TRCA has recently updated the Etobicoke Creek Hydrology model and is in the process of updating the watershed hydraulic model. Staff will provide a copy of the updated model, as soon as it is available.

17. It is noted that some background information has been completed (i.e., fluvial geomorphic assessment, preliminary hydraulic analyses); however, the details of this information has not been provided. Please provide this information at the preliminary design stage so that a determination can be made as to potential impacts that may affect the detail design of the proposed structures.

Storm Outfall and Outfall Channel Design Criteria:

Engineering:

1. Avoid disturbance to the low flow channel of the watercourse if at all possible. Where erosion protection may be necessary, make use of granular filter layers beneath the larger stone as required and/or embed the stone - the use of filter cloth within the low flow channel of the watercourse is not acceptable and is not preferred within the outfall channel itself. Please note that potential DFO / fishery concerns can be minimized by avoiding in/near water works associated with the outfall.

2. Provide velocity calculations in support of all proposed treatment types (eg., stone, vegetation, etc.).

3. Where feasible, implement flow spreading measures downstream of the outfall once energy has been dissipated by chute blocks, etc. (i.e., in areas where there is a wide, flat floodplain between the outfall and the low flow channel).

4. Provide details of erosion and sediment control measures to be implemented during the construction period.

5. Locate the outfall channel such that it joins the watercourse at a flat angle; avoid the outside bends of meanders.

6. If at all possible, the outfall should be located outside the meander belt.

7. The outfall structure should not impact existing flood levels.

8. River run stone is generally preferred over riprap, particularly in areas with high quality habitat. Consult with Authority staff to determine when/where riprap may be acceptable.

Landscaping / Restoration:

1. A combination of trees, shrubs, and herbaceous vegetation is typically required for the restoration of disturbed areas. Ensure all plantings are native, non-invasive species, and are suitable given the soil, moisture, and light conditions of the site. Plantings should also be compatible and complementary to the existing vegetation communities.

2. In general, plantings should follow the standard densities of 1 metre on centre for shrubs and 5 metres on centre for trees. However, these guidelines may change depending on the situation (eg., increase densities for live staking).

3. Please indicate that site stabilization will occur during or immediately following construction to avoid erosion. Depending on their suitability, various techniques may be employed including hydroseeding, installing straw mulch or jute mats, etc.

4. Seeding mixtures should consist of quick-growing, non-invasive species. Manufacturers offer an assortment of mixtures that are suited to various conditions, including a slope

stabilization mix, meadow mix, and wetland mix. In particularly sensitive areas, a seed mix consisting entirely of native species should be used to avoid the invasion of aggressive vegetation. Where seeding is proposed for interim stabilization with woody material being introduced in a later phase, care should be taken in both the composition and rate of application. Ensure that the subsequent plantings are able to establish without excessive competition or or damage from small mammals.

5. If the area is very grassy, mulch and rodent guards may be needed to protect young tree stems.

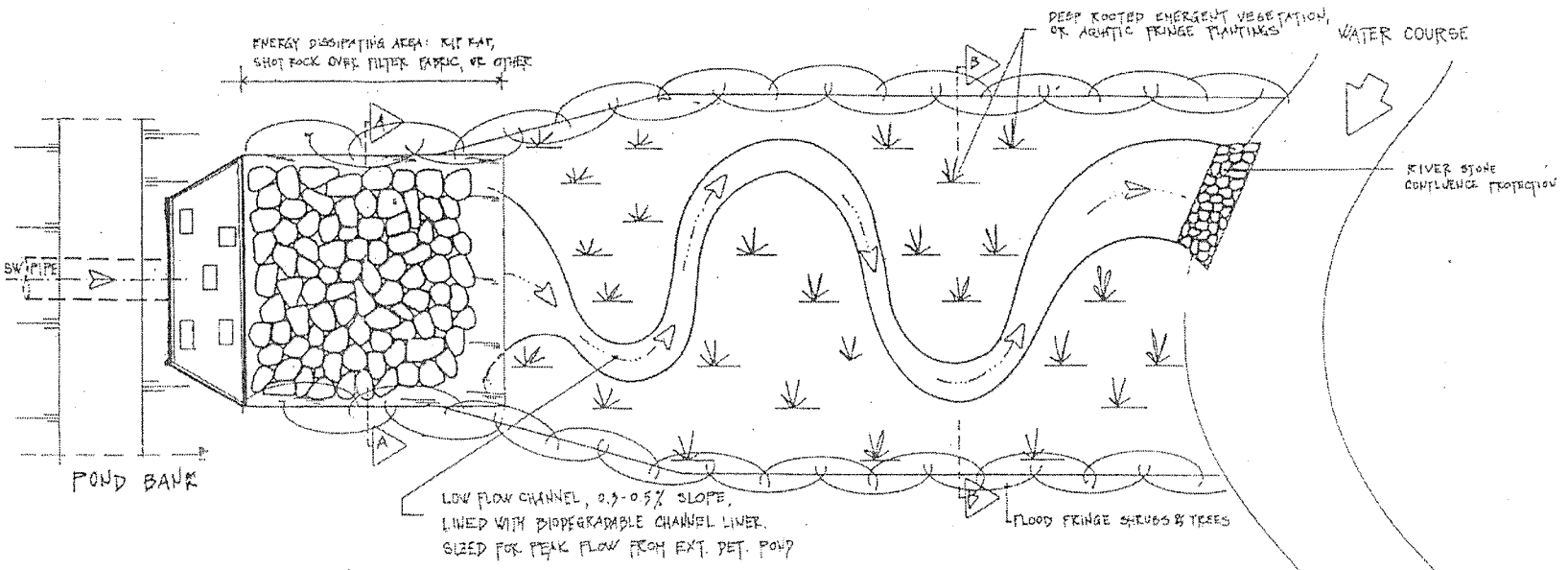
6. There are no size requirements for vegetation to be planted. However, greater numbers of smaller-sized vegetation are generally preferred over fewer numbers of larger-sized vegetation. Planting large vegetation may also cause more disturbance to the site.

7. Indicate how existing vegetation to be retained will be protected (i.e., location and detail of fencing).

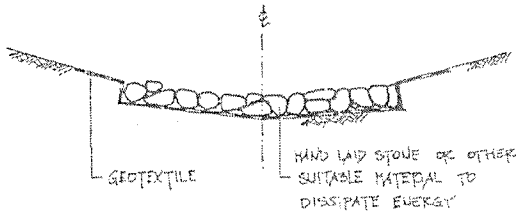
8. Plans should include a plan view showing planting locations, species and numbers, a detail showing the installation, and a note listing the species, size, and condition (i.e., bareroot, potted, etc.). The latter will ultimately dictate the season when works can be done.

STANDARD DETAIL : WETLAND OUTFLOW CHANNEL

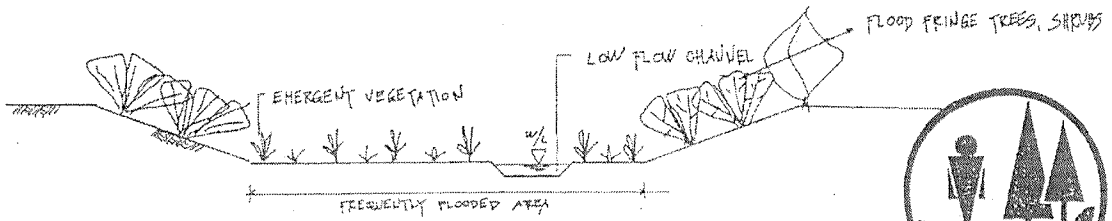
N.T.S.



SECTION 'A-A' N.T.S.



SECTION 'B-B' N.T.S.



L.S.R.C.A. VI/95
V. Sir

TORONTO AND REGION Conservation
for The Living City

May 9, 2008 CFN 40577

BY MAIL AND EMAIL (dave.beattie@earthtech.ca)

Mr. Dave Beattie
Earth Tech (Canada) Inc.
Corbloc Building, 80 King St., 2nd Fl.
St. Catharines, ON L2R 7G1

Dear Mr. Beattie:

Re: Response to Potential Routes (Figure 1)
Hanlan Feedermain (Lakeview Water Treatment Plant to Hanlan Pumping Station and Reservoir)
Municipal Class Environmental Assessment - Schedule C
Etobicoke Creek; City of Mississauga; Peel Region

Toronto and Region Conservation Authority (TRCA) staff met with the Region of Peel and Earth Tech (Canada) on April 1, 2008 to discuss the proposed alternative routes for a new secondary feedermain, as required to meet the Region's future water supply needs. Staff has reviewed Figure 1, Potential Routes, for the section of feedermain located within TRCA's jurisdiction and note the following.

Route	# of Regulated Areas	Location of Regulated Areas
1	2	• Tomken Road, south of Eglinton • Tomken Road at Britannia
2	3	• **Little Etobicoke Creek crossing north of Dundas** • Dixie at Eastgate Parkway • Britannia Road, east of Tomken Road • TRCA property located south of Lakeshore Road E.
2A	3	• **Little Etobicoke Creek crossing north of Dundas** • Dixie at Eastgate Parkway • Britannia Road, east of Tomken Road
3	2	• Tomken Road, south of Eglinton • Tomken Road at Britannia
3A	2	• **Little Etobicoke Creek crossing east of Tomken Road** and Regulated Area between Tomken Road and Dixie along the north side of Eastgate Pkwy. • Britannia Road, east of Tomken Road

Based on a desktop review of the natural features within the area, at this preliminary stage routes 1 and 3 appear to have the fewest impacts as a result of the potential watercourse crossing to the north, while routes 2, 2A and 3A appear to cross Little Etobicoke Creek at locations further downstream, where impacts may be more significant. As a result, routes 1 and 3 are the preferred alignment from our perspective. If it is determined at a later date that the preferred alternative requires a watercourse crossing, directional drilling is typically preferred to open-cut, if geotechnical and hydrogeological conditions support directional drilling. Detailed comments are provided in Appendix A.

Please also note that there are several other projects within the study area that may conflict with the proposed routes. Preliminary design for the Mississauga Bus Rapid Transit project is currently underway, with the proposed alignment along the north side of Eastgate Parkway. It is expected that the transitway will be constructed below grade. Staff is also involved in the Little Etobicoke Creek Erosion Study that is being prepared in response to erosion concerns between Eglinton Avenue and Highway 401.

We look forward to receiving further information as this project progresses. Should you have any questions, please contact me at extension 5717, or by email at slingertat@trca.on.ca.

Yours truly,

Sharon Lingertat

Sharon Lingertat
Planner II, Environmental Assessments
Planning and Development

SL/ss

BY EMAIL

cc:	Region of Peel:	Lynne Germaine, (lynne.germaine@peelregion.ca)
	Earth Tech:	Karl Grueneis, (karl.grueneis@earthtech.ca)
	CVC:	Liam Marray, (lmarray@creditvalleycons.com)
	Ecolplans:	Mike Bricks, (mbricks@ecoplans.com)
	TSH:	Wolfgang Wolter, (wwolter@tsh.ca)
	City of Mississauga:	Willy Ing, (willy.ing@mississauga.ca)
		Scott Anderson, (scott.anderson@mississauga.ca)
		Bob Levesque, (bob.levesque@mississauga.ca)
	TRCA:	Quentin Hanchard, Manager, Development, Planning and Regulation
		Chandra Sharma, Etobicoke/Mimico Watershed Specialist
		George Leja, Real Estate Coordinator
		Cathy Crinnion, Archaeologist

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Appendix A:

1. Please ensure that conditions for each alignment are assessed, including dewatering requirements and possible ecological impacts as a result of any dewatering activities. Please also ensure that a geotechnical and hydrogeological report is provided so that a comprehensive review of alignments can be completed.

2. All watercourses within this area are considered warmwater. As a result, the warmwater timing window of July 1 to March 31 will be applied to any development in or near the watercourse.

3. The TRCA Executive Committee requires a net ecological gain on all files. Please ensure that the EA provides a commitment to a net ecological gain which can be defined at the detailed design stage.

4. Staff's preference is to site the new infrastructure outside of the Regional Flood Plain, Meander Belt and other Regulated Areas. If routes within the Regional Flood Plain, Meander Belt or other Regulated Areas are required, appropriate background analyses will need to be provided (i.e. fluvial geomorphology/meander belt/100 year erosion limit) to ensure that appropriate consideration has been given to the potential movement of the creek (both laterally and vertically). These studies will need to be undertaken and considered as part of the selection process for the preferred alignment as part of the EA process.

5. Please note that the Etobicoke/Mimico Watershed Specialist has requested that the Etobicoke/Mimico Watershed Coalition be kept informed of this project. Once the EA has progressed to a stage where a preferred alignment has been chosen, a report will be prepared and presented to the Coalition for information purposes.

From: Brad Stephens [mailto:BStephens@trca.on.ca]
Sent: Tue 29/07/2008 9:23 AM
To: Sharon Lingertat; Anderson, Holly
Subject: Re: Fw: Digger Crayfish

Hi Holly,

Fallicambarus fodiens is an L-2. Let me know if you have any further questions.

Regards,
Brad

Brad Stephens, Hons.Bsc.
Planning Ecologist II
Rouge and Upper Humber Watersheds
Toronto and Region Conservation Authority
Ph: 416 661 6600 xt 5733
Fx: 416 661 6898
bstephens@trca.on.ca
www.trca.on.ca

From: Scott Smith [mailto:SSmith@TRCA.on.ca]
Sent: Thursday, July 17, 2008 3:37 PM
To: Gunter, Clark
Subject: RE: FW: Mississauga BRT data 503272

Clark,

I'm afraid you will have to make do with the data you have. Thanks for the heads up and we will fix our lines, but it can't be done until the fall.

thanks,

Scott Smith, B.E.S.
Planner 1, Environmental Assessments
Planning and Development
Toronto and Region Conservation Authority
5 Shoreham Drive, Downsview, Ontario M3N 1S4
Tel: 416-661-6600 ext. 5758
Fax: (416) 661-6898
E-mail: ssmith@trca.on.ca

From: Scott Smith [mailto:SSmith@TRCA.on.ca]
Sent: Friday, July 11, 2008 10:41 AM
To: Gunter, Clark
Subject: Re: FW: Mississauga BRT data 503272

Clark,
Geomatics has confirmed that the data is off in certain areas. It can be fixed, but the individual who can do this is in the field often in the summer and has limited time to fix the issue. When do you need this data by?

thanks,

Scott Smith, B.E.S.

ecoplans Limited

72 Victoria Street South, Suite 100,
Kitchener, Ontario N2G 4Y9
Telephone: (519) 741-8850 Fax: (519) 741-8884
Website: www.ecoplans.com

NOTES OF SITE VISIT - REVISED

PROJECT: Mississauga Bus Rapid Transit (BRT) Facility

FILE NO.: 07-3272

DATE: 18-Jun-08 **TIME:** 12:30 – 3:30 p.m.

PLACE: BRT Site Visit

PRESENT:

S. Lingertat	Toronto and Region Conservation Authority
B. Stephens	Toronto and Region Conservation Authority
S. Smith	Toronto and Region Conservation Authority
P. Lewis	Toronto and Region Conservation Authority
E. Furgiuele	City of Mississauga
D. Wunder	McCormick Rankin Corporation
I. Khan	McCormick Rankin Corporation
A. MacMillan	Ecoplans Limited
H. Anderson	Ecoplans Limited
C. Gunter	Ecoplans Limited

PURPOSE: Second site visit to review potential impacts and discuss mitigation strategies.

The following notes and action items provide an overview of the field visit

PLATE	NOTES:	ACTION BY:
Plate 7	Renforth Creek - Confirmed status o Not fish habitat given extent of enclosure 'downstream' o Perhaps cattail pocket along road can be used as SWM – polishing - Renforth parking lot – confirmed that parking lot on south side has been removed	
Plate 5	Etobicoke Ck - Outfall o some minor slumping of gabions that may need attention o otherwise agreed that deep pool at outfall provides good refuge pool - Crossing – review of design / impacts o There may be some temporary works for footings, but no permanent encroachment on the river bed. TRCA provided a preliminary determination that with the application of mitigation the works are not likely to result in a HADD. This determination is based on the assumption that the design and mitigation measures will not change significantly during Detail Design. o ~5m extension of existing bridge deck and footings, which are up on the concrete facing outside of channel. North-eastern most existing footing located	Ecoplans to confirm widening – based on current understanding, 5 m is max extension of existing deck and pier

PLATE	NOTES:	ACTION BY:
	within bankfull channel (outside of baseflow wetted width) upon concrete o Removal of several trees at the top of east valley slope adjacent to Eglinton will be required for construction (Basswood, Sugar Maple). – no significant species. o TRCA commented on need to repair failing upstream concrete slabs (undermining/cracking due to overland surface flow?) on both sides of the Creek. The concrete facing will also need to be disturbed to construct the pier extensions. o TRCA noted that the design should incorporate stormwater treatment. - Wildlife: o 2 Cliff swallow nests identified under bridge deck o Location of butternut ▪ TRCA confirmed they did not find it during last vegetation survey ▪ Field review found no evidence of Butternut in area of anticipated impacts - Possible restoration area west side of Etobicoke Creek south of Eglinton – Rakely Court o Private lands limits potential for restoration	
Plate 4	Eastgate Parkway: Dixie Road MAS2-1b - Not visited - Discussed ramp location is fixed based on avoidance of hydro towers and to locate ramp intersection with Eastgate to maximum separation from other intersections	Ecoplans will review site in detail to validate existing information.
Plate 3	Eastgate Parkway: Dixie Road Regulated Area[1] – Wetland (linear) - Not visited - Parking lot (not on plans as size and layout being considered) but will be on top of Regulated Area, however Regulated Area/wetland appears to be gone (an access "road" has been constructed through area)	Ecoplans to review site in detail to validate presence / location of wetland
Plate 3	Little Etobicoke Ck - TRCA provided a preliminary determination that with the application of mitigation the works are not likely to result in a HADD. This determination is based on the assumption that the design and mitigation measures will not change significantly during Detail Design.The proposed design concept should improve the present situation and functioning of low flow channel, and improve opportunities for fish movement Crossing – review of design / impacts o Existing 3-cell open footing box culvert will be extended ~13 m on north (upstream) side o New Jersey barrier and rip rap material along north-western side of existing culvert opening and	

[1] The TRCA Regulated Area extends from approximately Little Etobicoke Creek to Dixie Road. The extent of the Regulated Area will be determined during Detail Design.

PLATE	NOTES:	ACTION BY:
	concrete weir across channel at upstream end of existing structure will be removed as part of the extension works, using rocky riffles and other natural channel design techniques to achieve the gradient changes o Still some leakage and spreading of lower flow across more than one of the cells, which will be addressed through design measures (i.e., maintain low flow) o Fish passage should be improved through removal of barriers (weir and Jersey wall) and improved functioning of the low flow channel o SWM- proposed design of SWM facility on west side of creek constrained by Hydro towers as well as pipelines.	
Plate 3	Location of berms at Tomken Road - Not visited - Discussion of berms and impact to MAM2-b and MAM2-2 - TRCA indicated that they prefer that fill not be placed in the floodplain. - TRCA indicated that any proposed fill/berms within the flood plain will need to be assessed through appropriate hydraulic analyses (i.e. berms will need to be inputted into the hydraulic model). A hydraulic assessment is required to ensure that the fill/berms will not result in adverse impacts to existing flood elevations.	
Plate 2	Cawthra Road Station and HIP area - Description of site / impacts and mitigation o Including loss of regulated wetland and unregulated MAS2-1b o TRCA indicated that the various habitats that will be affected should be reviewed further in the field and characterized in relation to habitats present within the broader area. In relation to the small cattail pocket in southwest corner, a portion of which will be affected by station, Ecoplans noted that there were several similar pockets, as well as a large cattail dominant wetland area further to the north. The City noted that while they recalled mention of the southwest pocket in the NA study, they could not recall any specific rationale, or whether the rest of the areas had been noted. o Discussed issues around preferred compensation being within the NE4SMA, and specifically issue of ownership and ORC's openness to restoration/works on their land, as well as infrastructure constraints (e.g., pipelines, hydro towers). Noted that options should be integrated with water resources in relation to drainage design and options with respect to wetland creation and provision of a source of water.	Ecoplans to review habitats in HIP area in more detail Ecoplans to look at restoration potential and openness of ORC to restoration projects

The forgoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required with input from Ecoplans/MRC attendees. As simultaneous conversations were usually occurring at field stops, some information may be missing from the table. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned immediately upon receiving these minutes (519-741-8850).

Minutes Prepared by:

Ecoplans Limited

Clark Gunter
Ecoplans Limited

cc: Attendees
Geoff Wright, City of Mississauga
Willy Ing, City of Mississauga
Scott Anderson, City of Mississauga
Katie Bright, Ecoplans Limited
Mike Bricks, Ecoplans Limited
Steve Schijns, McCormick Rankin Corporation
Dale Turvey, McCormick Rankin Corporation

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ecoplans Limited

Environmental Planners & Consulting Ecologists

July 7, 2008

Ms. Sharon Lingertat
Acting Planner II, Environmental Assessments
Toronto and Region Conservation Authority
Planning and Development
5 Shoreham Drive
Downsview, ON M3N 1S4

RE: Mississauga Bus Rapid Transit Project

Dear Ms. Lingertat:

This letter is in response to your letter dated April 25, 2008. Thank you for providing TRCA's input. The enclosed table outlines the Project Team's responses to the comments outlined in your letter.

Yours truly,
ECOPLANS LIMITED

Mike Bricks, MCIP, RPP
Consultant Environmental Planner

c: Geoff Wright, City of Mississauga
Willy Ing, City of Mississauga
Scott Anderson, City of Mississauga
Dale Turvey, MRC
Steve Schijns, MRC
Darrell Wunder, MRC
Anne MacMillan, Ecoplans

Encl.

2655 North Sheridan Way, Suite 280, Mississauga, Ontario L5K 2P8 • (905) 823-4988 • fax (905) 823-2669
www.ecoplans.com • e-mail: ecoplans@ecoplans.com

Summary of TRCA April 25, 2008 Letter (Contact: Sharon Lingertat) - Input and Action/Response		
Comments	**How Comment Is Being Addressed During Preliminary Design**	**Requirements for Detail Design and Construction Stages for this Project**
Wetlands North of Eastgate Parkway and East of Cawthra Road 1. The minutes do not refer to the Regulated Area located north of Eastgate Parkway and east of Cawthra Road. This area is considered wetland and will require a permit under Ontario Regulation 166/06. Please ensure that this area is considered when preparing the detailed design plans.	1. The small wetland/meadow marsh pockets, and specifically the cattail mineral meadow marsh in the southwest corner, are discussed in Item 4.9 of the minutes. Although we acknowledge that the minutes do not refer to this Regulated Area, we do not recall a specific discussion at the meeting about the Regulated Area. We noted at the meeting that we would review relocation of the required station north of Eastgate and east of Cawthra from the corner further to the east, so as to avoid encroachment into the marsh pocket. Please be advised that the station was shifted slightly further to the east and the configuration modified in order to minimize encroachment into this wetland pocket. However, given the configuration of this pocket, it cannot be entirely avoided. Furthermore, based on our recent site walk (June 18, 2008), we note that this wetland does not appear to be unique in any way. It is dominated by cattail, however there are several other similar pockets, as well as one quite extensive area, of similar cattail-dominant meadow marsh habitat. The CEAA Screening Report will include a commitment to protect wetland pockets in the HIP area from water level changes and adjacent construction related disturbances.	1. Design and works in the vicinity of the HIP area according to the Preliminary Design recommendations and commitments.
Little Etobicoke Creek Crossing 2. The proposed works at the Little Etobicoke Creek crossing may involve flood plain re-grading in order to maintain existing flow conditions (i.e., low flow through the east cell). Please ensure that a detailed grading plan is provided, along with sections to show the extent of work in this area. Please note that the volume of fill to be placed in the floodplain should be minimized to the extent possible. In addition, please ensure that these changes are reflected in the hydraulic analysis for this crossing.	2. We agree that the proposed works will likely involve some floodplain grading to maintain and enhance flow conditions. This will be noted in the recommendations for the design concept at this crossing. Please note that detailed grading plans will not be developed as part of this preliminary design undertaking; these plans and the final details of other mitigation measures will be prepared during Detail Design using recommendations and guidelines set forth by the Preliminary Design study. Drawings will be circulated with the Preliminary Design study presenting proposed remedial works conceptually with sufficient information to guide the future Detail Design. Cross-sectional geometry in the hydraulic model for Little Etobicoke Creek will be revised based on the proposed works. We will include a commitment in the CEAA Screening Report to prepare and submit these detailed plans and assessments to TRCA.	2. Based on the recommendations of the Preliminary Design, Detail Design for the crossing will be completed. TRCA will be consulted during the development of the design details, and the detailed design and supporting technical information will be circulated to the TRCA for review.
3. The handouts mention removing several existing in-stream barriers, and enhancing channel stability. Please ensure that natural channel design principles are followed, and that design drawings and supporting technical information is submitted for review.	3. The Preliminary Design study will include commitments regarding the use of natural channel design principles to enhance fish movement, channel stability and function. Please note that the design drawings and supporting detailed technical information will not be developed until the subsequent Detail Design stage of the project. We will include a commitment in the CEAA Screening Report to consult with TRCA during development of the detailed design of the structure extension and channel enhancements.	3. Based on the recommendations of the Preliminary Design, Detail Design for channel works will be completed. TRCA will be consulted during the development of the design details, and the detailed design and supporting technical information will be circulated to the TRCA for review.
4. It was noted at the last meeting that a Stormwater Management (SWM) pond is being considered, to provide the required level of control. Please ensure that design details and plans are submitted for review and that the SWM facilities are located outside of the Regional Flood Plain.	4. The Preliminary Design study will present a comprehensive surface water conveyance and management strategy formulated to provide guidance for the future Detail Design. Alternative storm water management measures are being reviewed to identify measures that can feasibly be implemented to mitigate potential surface water related impacts associated with the construction of the BRT system. To the extent technically, physically, and economically practicable, opportunities for utilizing existing stormwater management measures will be explored. Within the TRCA's jurisdictional area, the prescribed TRCA SWM criteria will be used in combination with recommendations of the Ministry of the Environment's *Stormwater Management Planning and Design Manual* to establish design requirements for drainage conveyance and management works. Design concepts for key stormwater management measures will be submitted to TRCA. As a preliminary design study, locations and approximate pond block sizes will be identified on drawings, and a typical outlet detail will be provided as guidance for future Detail Design of the facilities. Preliminary stage-storage-discharge rating curves developed for each pond will be input to hydrologic models to assess pond performance and demonstrated that all quantity control objectives have been achieved. Detailed grading plans and outlet details for each pond will be prepared as part of the Detail Design using recommendations and guidelines provided as part of this preliminary design undertaking.	4. Following from recommendations of the Preliminary Design, Detail Design of all surface water conveyance and management measures will be completed. The final design will be circulated to the TRCA and other regulatory agencies having jurisdiction and will provide detail sufficient for confirming that the final design is consistent with the Preliminary Design. Once all agency concerns have been adequately addressed, the stormwater management strategy will be implemented in accordance with all applicable approval conditions.

Summary of TRCA April 25, 2008 Letter (Contact: Sharon Lingertat) - Input and Action/Response		
Comments	**How Comment Is Being Addressed During Preliminary Design**	**Requirements for Detail Design and Construction Stages for this Project**
5. Section 4.8 of the meeting minutes indicates that the rationale for the selected design will be discussed/documented in the CEAA screening report. Please ensure that part of that documentation includes the supporting background studies/analyses (i.e., hydraulic modeling, fluvial geomorphic studies, etc.) undertaken as part of the decision making process.	5. The CEAA Screening Report will include details regarding background studies/analyses (e.g. initial [high-level] fluvial geomorphologic review). As appropriate, the background study information will be included as and appendix to the report or will be provided under separate cover to TRCA and other interested agencies.	5. Design and construct bank protection according to the Preliminary Design recommendations and commitments.
6. Section 4.8 of the meeting minutes refers to the cattail marsh on the northwest side of Little Etobicoke Creek, which contains Chimney Crayfish. To avoid confusion in the future, please revise to read northeast side.	6. The meeting notes have been revised accordingly.	6. N/A
Cultural Woodlot 7. Regarding the small pocket of vegetation discussed in Section 4.7 of the meeting minutes, please ensure that this community is defined in the preliminary design documents, to allow for a comprehensive understanding of the vegetation impacts and removals along the BRT alignment.	7. The requested information will be provided in the CEAA Screening Report, however we note that this feature is not a natural vegetation community.	7. Design and construct works according to the Preliminary Design recommendations and commitments.
Etobicoke Creek 8. Please make every effort to redirect deck drainage to a suitable location, and avoid direct outlets to the watercourse. In addition, TRCA staff encourages any possible enhancements to existing infrastructure (i.e., existing outlet).	8. Based on observations made during field investigations, deck drains for the existing structure discharge directly over Etobicoke Creek. As part of the proposed works, opportunities for disconnecting existing deck drains and directing drainage intercepted by them to suitable locations will be explored to the extent technically, physically and economically practicable. The drainage system for the new lanes added to the structure as part of the BRT undertaking will be not incorporate deck drains that discharge directly over the creek.	8. Design and construct works according to the Preliminary Design recommendations and commitments.
9. The Fish and Fish Habitat Summary Table notes that standard MTO Erosion and sediment control plans will be used at creek crossings. Please refer to the TRCA "Erosion and Sediment Control Guidelines for Urban Construction" (December 2006) for proper ESC measures and details. A digital copy of the guidelines can be found at www.sustainabletechnologies.ca.	9. Reference will be updated in the tables and text. As part of the Preliminary Design for the BRT, potential for erosion and sedimentation as a result of the proposed BRT works will be identified, with specific reference to natural features, and recommendations will be made to guide the preparation of an erosion and sediment control strategy as part of future Detail Design. Recommendations will include a shortlist of both vegetative and structural control measures that can feasibly be implemented during construction.	9. Using guidelines set forth in the document entitled Erosion and Sediment Control for Urban Construction, an erosion and sediment control plan will be prepared and circulated to all regulatory agencies having jurisdiction at the time of Detail Design for the busway.
10. Section 4.6 of the meeting minutes notes that the works at Etobicoke Creek will not be considered a HADD. Please revise to state that given the existing information (piers located outside of the watercourse) that those works will not be considered a HADD, and will be covered by a Letter of Advice.	10. The meeting notes have been revised accordingly.	10. N/A
Southwest Corner of Eglinton Avenue and Centennial Park Boulevard 11. A Regulated Area is located on the southwest corner of Eglinton Avenue and Centennial Park Boulevard. If any works are proposed within this area, a permit under Ontario Regulation 166/06 will be required.	11. Acknowledged. No works are currently proposed for the southwest corner of Eglinton Avenue and Centennial Park Boulevard. The busway is located on the north side of Eglinton Avenue.	11. N/A
Elmcrest Creek 12. It is noted that a new sewer pipe will be constructed to collect existing drainage at the location of Elmcrest Creek. Please confirm whether this is a major system flow, as it is suggested that minor system flows have been previously diverted. Design details (drainage area plan, flow calculations, etc.) pertaining to the proposed conveyance system will need to be	12. The existing sewer system on Eglinton Avenue passes beneath the culverts that outlet to Elmcrest Creek. Ultimately the sewer discharges to Etobicoke Creek through a concrete outlet located south of Eglinton Avenue within the floodplain. East of Etobicoke Creek, the new sewer system proposed to serve the future BRT will parallel the existing Eglinton Avenue sewer system. The BRT sewer system will outlet to the Eglinton Avenue sewer system at multiple points. It will not outlet to	12. Design and construct works according to the Preliminary Design recommendations and commitments.

Summary of TRCA April 25, 2008 Letter (Contact: Sharon Lingertat) - Input and Action/Response		
Comments	**How Comment Is Being Addressed During Preliminary Design**	**Requirements for Detail Design and Construction Stages for this Project**
submitted for review. In the event that a new outlet is required, please refer to TRCA Storm Outfall Design Criteria which outlines TRCA requirements (attached).	Elmcrest Creek. As such, a new outfall to Elmcrest Creek will not be required Major flows from lands north of the BRT will be intercepted and conveyed to intersecting roadways that currently serve as major system outlets across Eglinton Avenue. Catchment maps and hydrologic modeling completed to quantify minor and major system flows will be provided in the Stormwater Management Plan to be circulated in support of the Preliminary Design Study.	
13. The Fish and Fish Habitat Summary Table notes that standard MTO Erosion and sediment control plans will be used at creek crossings. Please refer to the TRCA "Erosion and Sediment Control Guidelines for Urban Construction" (December 2006) for proper ESC measures and details. A digital copy of the guidelines can be found at www.sustainabletechnologies.ca.	13. Reference will be updated in the tables and text. As part of the Preliminary Design for the BRT, potential for erosion and sedimentation as a result of the proposed BRT works will be identified, with specific reference to natural features, and recommendations will be made to guide the preparation of an erosion and sediment control strategy as part of future Detail Design. Recommendations will include a shortlist of both vegetative and structural control measures that can feasibly be implemented during construction.	13. Using guidelines set forth in the document entitled Erosion and Sediment Control for Urban Construction, an erosion and sediment control strategy will be prepared and circulated to all regulatory agencies having jurisdiction at the time of Detail Design for the busway.
Renforth Creek 14. The engineering requirements for this location will vary depending on whether or not the feature is deemed to be a watercourse. If it is a watercourse, then it is assumed to have an associated floodplain and therefore, appropriate fluvial geomorphic, hydraulic and flood plain analyses will also be required as per the other crossings. If the feature is not deemed to be a watercourse, the proposed works will need to be designed such that the existing overland flow routes are maintained, similar to the Elmcrest Creek location. In either cased, please investigate if there are future plans to develop vacant lands to the north of the proposed BRT. Any flow calculations will need to be based on the ultimate development scenario.	14. Based on discussions at the June 18, 2008 field meeting, it is our understanding that the TRCA will not be classifying Renforth Creek as a watercourse. Regardless, the parking area has now been removed from the south side of Eglinton Avenue, so there will be no interference with the small cattail pocket or the ditch system downstream of it. The BRT infrastructure north of Eglinton Avenue will incorporate measures to maintain/provide minor and major system connections across Eglinton Avenue for external lands. Flow calculations will be based on the ultimate development scenario ascertained from discussions with the City.	14. Design and construct works according to the Preliminary Design recommendations and commitments.
15. The Fish and Fish Habitat Summary Table notes that standard MTO Erosion and sediment control plans will be used at creek crossings. Please refer to the TRCA "Erosion and Sediment Control Guidelines for Urban Construction" (December 2006) for proper ESC measures and details. A digital copy of the guidelines can be found at www.sustainabletechnologies.ca.	15. Reference will be updated in the tables and text. As part of the Preliminary Design for the BRT, potential for erosion and sedimentation as a result of the proposed BRT works will be identified, with specific reference to natural features, and recommendations will be made to guide the preparation of an erosion and sediment control strategy as part of future Detail Design. Recommendations will include a shortlist of both vegetative and structural control measures that can feasibly be implemented during construction.	15. Using guidelines set forth in the document entitled Erosion and Sediment Control for Urban Construction, an erosion and sediment control strategy will be prepared and circulated to all regulatory agencies having jurisdiction at the time of Detail Design for the busway.
General 16. Section 3.1 of the meeting minutes refers to the updated hydraulic model. TRCA has recently updated the Etobicoke Creek Hydrology model and is in the process of updating the watershed hydraulic model. Staff will provide a copy of the updated model, as soon as it is available.	16. Hydraulic models have been formulated for Etobicoke Creek and Little Etobicoke using the HEC-2 model and prorated flows previously provided by the TRCA. The HEC-2 model has been converted to HEC-RAS, and sections for existing structures that will be impacted by the BRT have been updated using contract drawings provided by the City and topographic information taken from Ontario Base Mapping and field surveys. The model will be updated as necessary once the updated hydraulic models have been received from the TRCA.	16. Design and construct works according to the Preliminary Design recommendations and commitments.
17. It is noted that some background information has been completed (i.e., fluvial geomorphic assessment, preliminary hydraulic analyses); however, the details of this information has not been provided. Please provide this information at the preliminary design stage so that a determination can be made as to potential impacts that may affect the detail design of the proposed structures.	17. Design revisions have resulted in the need to update available background information. The CEAA Screening Report will include details regarding background studies/analyses (e.g. initial [high-level] fluvial geomorphologic review). As appropriate, the background study information will be included as and appendix to the report or will be provided under separate cover to TRCA and other interested agencies.	17. Design and construct bank protection according to the Preliminary Design recommendations and commitments.

From: Scott Smith [mailto:SSmith@TRCA.on.ca]
Sent: Thursday, July 17, 2008 3:37 PM
To: Gunter, Clark
Subject: RE: FW: Mississauga BRT data 503272

Clark,

I'm afraid you will have to make do with the data you have. Thanks for the heads up and we will fix our lines, but it can't be done until the fall.

thanks,

Scott Smith, B.E.S.
Planner 1, Environmental Assessments
Planning and Development
Toronto and Region Conservation Authority
5 Shoreham Drive, Downsview, Ontario M3N 1S4
Tel: 416-661-6600 ext. 5758
Fax: (416) 661-6898
E-mail: ssmith@trca.on.ca

From: Scott Smith [mailto:SSmith@TRCA.on.ca]
Sent: Friday, July 11, 2008 10:41 AM
To: Gunter, Clark
Subject: Re: FW: Mississauga BRT data 503272

Clark,
Geomatics has confirmed that the data is off in certain areas. It can be fixed, but the individual who can do this is in the field often in the summer and has limited time to fix the issue. When do you need this data by?

thanks,

Scott Smith, B.E.S.

From: Brad Stephens [mailto:BStephens@trca.on.ca]
Sent: Tue 29/07/2008 9:23 AM
To: Sharon Lingertat; Anderson, Holly
Subject: Re: Fw: Digger Crayfish

Hi Holly,

Fallicambarus fodiens is an L-2. Let me know if you have any further questions.

Regards,
Brad

Brad Stephens, Hons.Bsc.
Planning Ecologist II
Rouge and Upper Humber Watersheds
Toronto and Region Conservation Authority
Ph: 416 661 6600 xt 5733
Fx: 416 661 6898
bstephens@trca.on.ca
www.trca.on.ca

Phone Call: July 29, 2008
Scott Smith TRCA
Holly Anderson (Ecoplans)

Scott confirmed that Redside Dace are extirpated from Etobicoke Creek .

TORONTO AND REGION Conservation
for The Living City

October 23, 2008 CFN 39971

BY MAIL AND EMAIL (mbricks@ecoplans.com)

Mr. Mike Bricks
Ecoplans Limited
2655 North Sheridan Way, Suite 280
Mississauga, ON L5K 2P8

Dear Mr. Bricks:

Re: Response to Notice of Public Information Centres
Mississauga Bus Rapid Transit (Eastgate Parkway at Highway 403 to Eglinton Avenue at Renforth Drive)
Etobicoke Creek; City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received notice of the upcoming Public Information Centres (PIC) scheduled for October 28, 2008 and October 29, 2008. Further to previous TRCA correspondence, staff has expressed interest in this project. While staff is unable to attend the meetings, please forward one copy of any handouts or display materials from these meetings for our files.

Please note that staff received the Draft EA Addendum on October 8, 2008 and it is currently under review.

Yours truly,
Sharon Lingertat

Sharon Lingertat
Planner II, Environmental Assessments
Planning and Development

SL/ss

BY EMAIL
cc: Mississauga: Geoff Wright (geoff.wright@mississauga.ca)
Willy Ing (willy.ing@mississauga.ca)
TRCA: Beth Williston, Manager, Environmental Assessments
Quentin Hanchard, Manager, Development, Planning and Regulation
Chandra Sharma, Etobicoke/Mimico Watershed Specialist

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ecoplans Limited

2655 North Sheridan Way, Suite 280
Mississauga, Ontario, L5K 2P8

Telephone: (905) 829-6262
Fax: (905) 823-2669
E-mail: mbricks@ecoplans.com

TRANSMITTAL

To: Ms. Sharon Lingertat
Planner II, Environmental Assessments
Toronto and Region Conservation Authority
Planning and Development
5 Shoreham Drive
Downsview, ON M3N 1S4

Date: November 14, 2008

Project #: 07-3272

Delivery: Courier

Re: Mississauga Bus Rapid Transit Project

As requested, please find enclosed a copy of the PIC#2 displays for the above noted project.

For your comment
For your information
For your action

for your use *
as requested *

Per: _____
Mike Bricks
Ecoplans Limited

c. Dale Turvey, MRC (transmittal only)
Geoff Wright, City of Mississauga (transmittal only)
Willy Ing, City of Mississauga (transmittal only)

McCORMICK RANKIN
CORPORATION
A member of MMM GROUP

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E-mail: mrc@mrc.ca
Website: www.mrc.ca

MINUTES OF MEETING

PROJECT:	Mississauga BRT		
FILE NO.:	6964		
DATE:	January 12, 2009	**TIME:**	1 pm
PLACE:	Credit Valley Conservation offices, Mississauga		
PRESENT:	Liam Marray, CVC (Senior Planner / Ecologist) Rizwan Haq, CVC (Supervisor – Engineering Plan Review) Stephen Schijns, MRC		
PURPOSE:	CVC comments on draft BRT EA Addendum (distributed October 2008)		

PROCEEDINGS: **ACTION BY**:

1.1 Winston Churchill Boulevard

L. Murray noted that the Addendum and PDR should note that all wetlands are regulated (they weren't at the time of the 1992 EA), and that the CVC requires a compensation, mitigation, and/or replication of function plan for the loss of any regulated wetlands. MRC

L. Murray requested that MRC identify if any rare or endangered species are located in the area of the changed alignment. Ecoplans

R. Haq requested that the Addendum include enough information from the Preliminary Design Report to allow the reader to determine if storm water management can be achieved. MRC

S. Schijns will provide CVC with a copy of the draft PDR for review, to complement the EA Addendum material. MRC

1.2 Cooksville Creek

R. Haq requested that MRC perform the hydraulic analysis of the mid-culvert reduction on the basis of a continuous pipe with a restricted opening size. MRC should quantify the spillover across Rathburn Road and determine the spill pathway, noting if it is any different from the existing situation. He requested that the hydraulic analysis and conclusions be confirmed by a Professional Engineer rather than a Technician (CET). MRC MRC MRC

He requested MRC provide a digital model of the hydraulic analysis. S. Schijns advised that the MRC drainage engineer will contact Mr. Haq by phone (1-800-668-5557) to review and confirm his requirements and comments.	MRC MRC
S. Schijns described the culvert reconstruction process at Cooksville Creek, noting that there would be no exposure of the creek to the construction work (water would be diverted into the cell that is not being reconstructed). L. Marray advised that, on that basis and on the review of the project, CVC's preliminary position was that there was no HADD involved. This position would be reviewed in the course of the detail design.	Ecoplans CVC

1.3 Design

S. Schijns went through the project status and timing. L. Marray suggested that the detail design team(s) hold a CVC briefing within the first month of their assignment(s). This would ensure that CVC's new staff are up to date on the project.	Detail Design

The foregoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned within 48 hours of receiving these minutes at 905-823-8500.

Minutes prepared by,

McCormick Rankin Corporation

Stephen Schijns, P. Eng.

cc: Attendees
M. Bricks, K. Bright – Ecoplans
D. Turvey, A. Shea, K. Rodger, A. Kauppinen - MRC
G. Wright, S. Anderson, W. Ing – City of Mississauga (BRT)
S. Davies, M. Adebayo – GO Transit

Other Agencies

From: Eva.Kliwer@Mississauga.Ca
Sent: Thu 8/23/2007 1:47 PM
To: Kim LeBrun
CC: Holly Anderson
Subject: RE: Re: Mississauga BRT Project

Kim,
Our Natural Areas Survey information does not include detailed fisheries or aquatic data. Some of the fact sheets for the sites, which you can view on the City's web page under "residents/environmental planning/ natural green spaces/natural areas survey", may make a general reference to an aquatic species if it contributes to the significance of the site. The Credit Valley Conservation and Toronto Region Conservation should have the information you require.

Holly,
As mentioned above, there are fact sheets on our web site which include detailed maps of the site and most of the information you requested. I can provide you with species list for each site but this won't likely be until about Thursday of next week.

If you have questions please contact me.
Regards,
Eva

Eva Kliwer
Planner
Policy Planning Division
City of Mississauga Planning and Building Department
Phone: 905-615-3200 ext.5753
Fax: 905-615-4494

e-mail: eva.kliwer@mississauga.ca

Transport Canada
Marine

Transports Canada
Maritime

100 South Front Street
Sarnia, Ontario
N7T 2M4

Your file Votre référence

Our file Notre référence
See below

May 29, 2008

Mississauga Bus Rapid Transit
C/o Transport Canada – Surface Infrastructure Programs
Tower C Place de Ville
330 Sparks Street
Ottawa, ON K1A 0N5

Attention: Rebecca Stranberg

Dear Madam:

RE: Various Locations, City of Mississauge, Regional Municipality of Peel, Province of Ontario

8200-08-6142	Cooksville Creek	West of Hurontario St. between Highway 403 & Rathburn Rd W
8200-08-6143	Trib of Cooksville Creek	East of Central Parkway East, North of Highway 403
8200-08-6144	Little Etobicoke Creek	East of Tomken Road, North of Eastgate Parkway
8200-08-6145	Etobicoke Creek	N Side of Eglinton Ave E, E of Eastgate Pkwy, W of Spectrum Way
8200-08-6146	Elmcrest Creek	North of Eglinton Avenue West, East of Explorer Drive
8200-08-6147	Renforth Creek	South of Matheson Boulevard East, West of Renforth Drive

Receipt is acknowledged of your correspondence dated March 31, 2008 in connection with the above noted works.

Please be advised that the waters of Etobicoke Creek at the above location are **navigable**. Consequently, an application for approval is required.

Transport Canada's review of the proposal will be made under the Navigable Waters Protection Act. Enclosed is an Application Guide which will assist you in making an application under the Navigable Waters Protection Act.

The Navigability Requests at all other sites are considered **not navigable**. Consequently, we have no interest in any works at these sites.

Should you have any questions, please contact the undersigned at (519) 333-6330.

Yours truly,

Kelly Thompson
A/NWP Officer
Navigable Waters Protection

KT/jd

Encl.

Transportation and Works Department

City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4

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June 18, 2008
File: PO.04.DES - 200

Mr. Glenn Gilbert
Manager, Environment Unit
Lands and Trusts Services
Department of Indian and Northern Affairs
25 St. Clair Avenue East, 8th Floor
Toronto ON M4T 1M2

Dear Mr. Gilbert:

The City of Mississauga, in partnership with GO Transit, would like to inform the Department of Indian and Northern Affairs of Phase One of the Mississauga Bus Rapid Transit (BRT) Project. This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

In 1992, the Provincial Ministry of the Environment approved the Mississauga BRT Project from Ridgeway Drive in the west to Renforth Drive in the east and a subsequent Environmental Assessment Addendum in 2004. The BRT Project is currently in the Preliminary Design stage, which also includes the undertaking of a Canadian Environmental Assessment Act Screening Report.

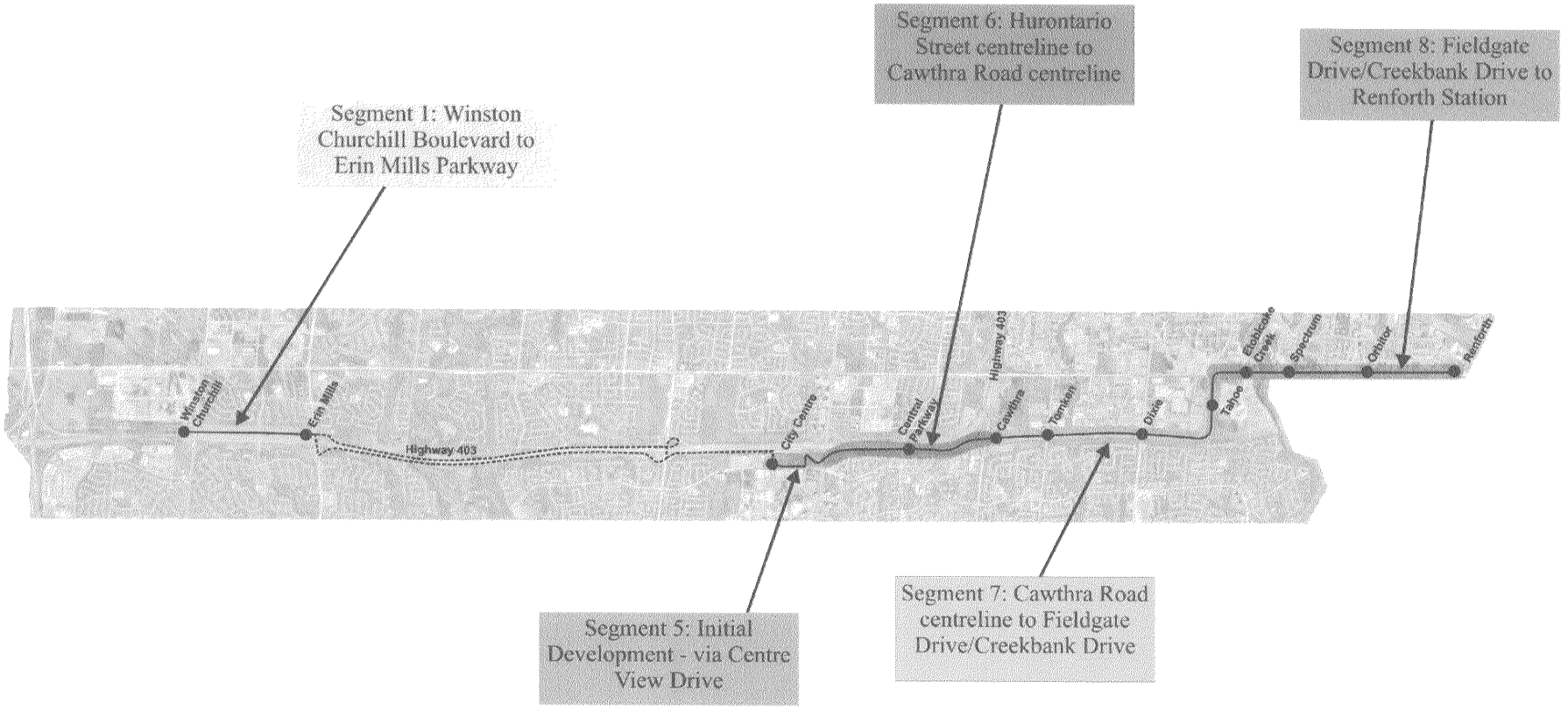
This notification is being provided in hopes that the Department of Indian and Northern Affairs - Lands and Trusts Services can assist us in determining if any First Nation groups may hold an interest in this project. Any input that you can provide would be greatly appreciated. To date only the Mississaugas of the New Credit First Nation have received notification. Please respond to undersigned at the address noted above or feel free to call the Mississauga BRT Project Office at 905-615-3200 extension 5745.

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works

Figure 1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Transportation and Works Department

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June 18, 2008
File: PO.04.DES - 200

Mr. Fred Hosking
Senior Claims Analyst
Specific Claims Branch, Ontario Research Team
Department of Indian and Northern Affairs
10 Wellington Street, Room 1310
Gatineau QU K1A 0H4

Dear Mr. Hosking:

The City of Mississauga, in partnership with GO Transit, would like to inform the Department of Indian and Northern Affairs of Phase One of the Mississauga Bus Rapid Transit (BRT) Project. This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

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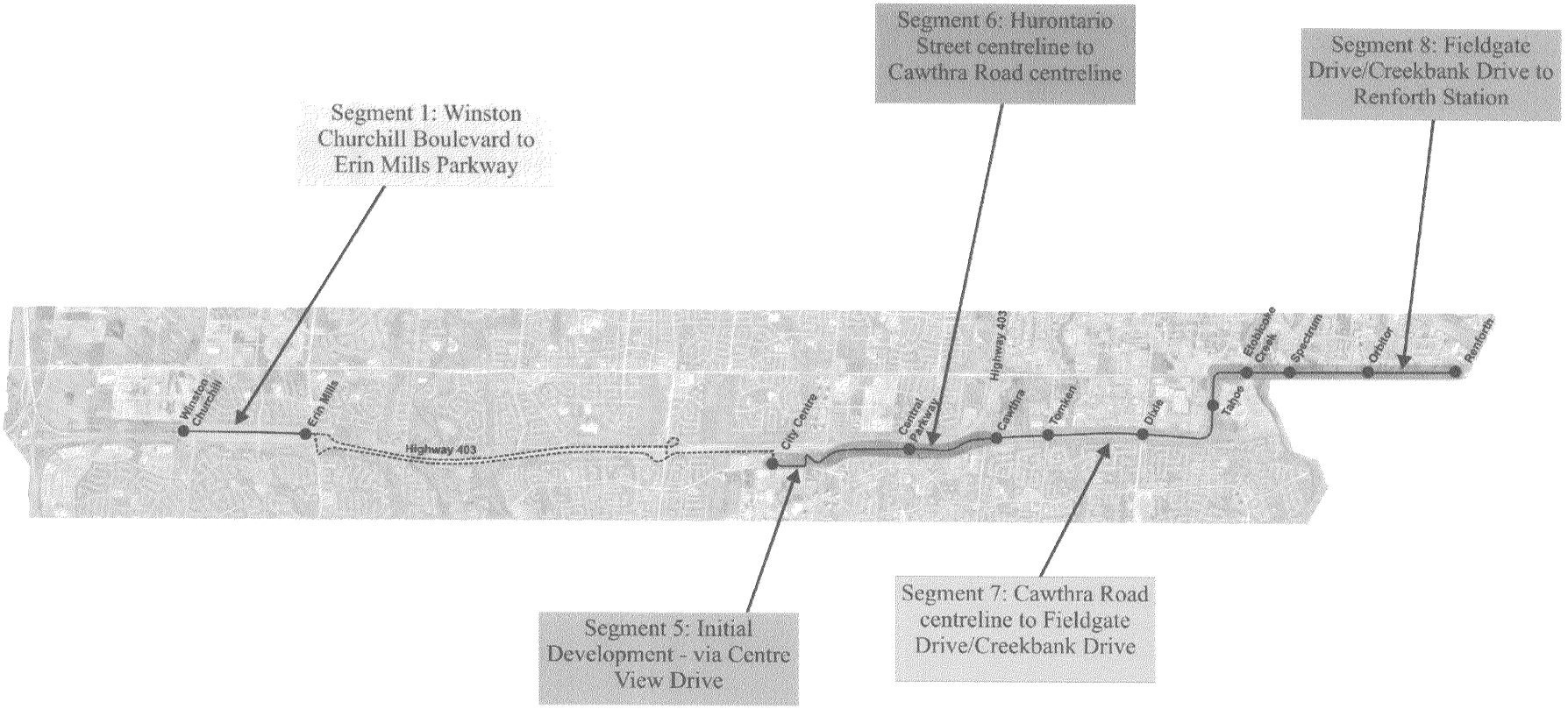
This notification is being provided in hopes that the Department of Indian and Northern Affairs - Specific Claims Branch can assist us in determining if any First Nation groups may hold an interest in this project. Any input that you can provide would be greatly appreciated. To date only the Mississaugas of the New Credit First Nation have received notification. Please respond to undersigned at the address noted above or feel free to call the Mississauga BRT Project Office at 905-615-3200 extension 5745.

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works

Figure 1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Transportation and Works Department

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June 18, 2008
File: PO.04.DES - 200

Mr. Kevin Clement
Acting Director, Financial Issues and Cost-Sharing
Comprehensive Claims Branch
Department of Indian and Northern Affairs
10 Wellington Street, Room 1310
Gatineau QU K1A 0H4

Dear Mr. Clement:

The City of Mississauga, in partnership with GO Transit, would like to inform the Department of Indian and Northern Affairs of Phase One of the Mississauga Bus Rapid Transit (BRT) Project. This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

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This notification is being provided in hopes that the Department of Indian and Northern Affairs - Comprehensive Claims Branch can assist us in determining if any First Nation groups may hold an interest in this project. Any input that you can provide would be greatly appreciated. To date only the Mississaugas of the New Credit First Nation have received notification. Please respond to undersigned at the address noted above or feel free to call the Mississauga BRT Project Office at 905-615-3200 extension 5745.

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works

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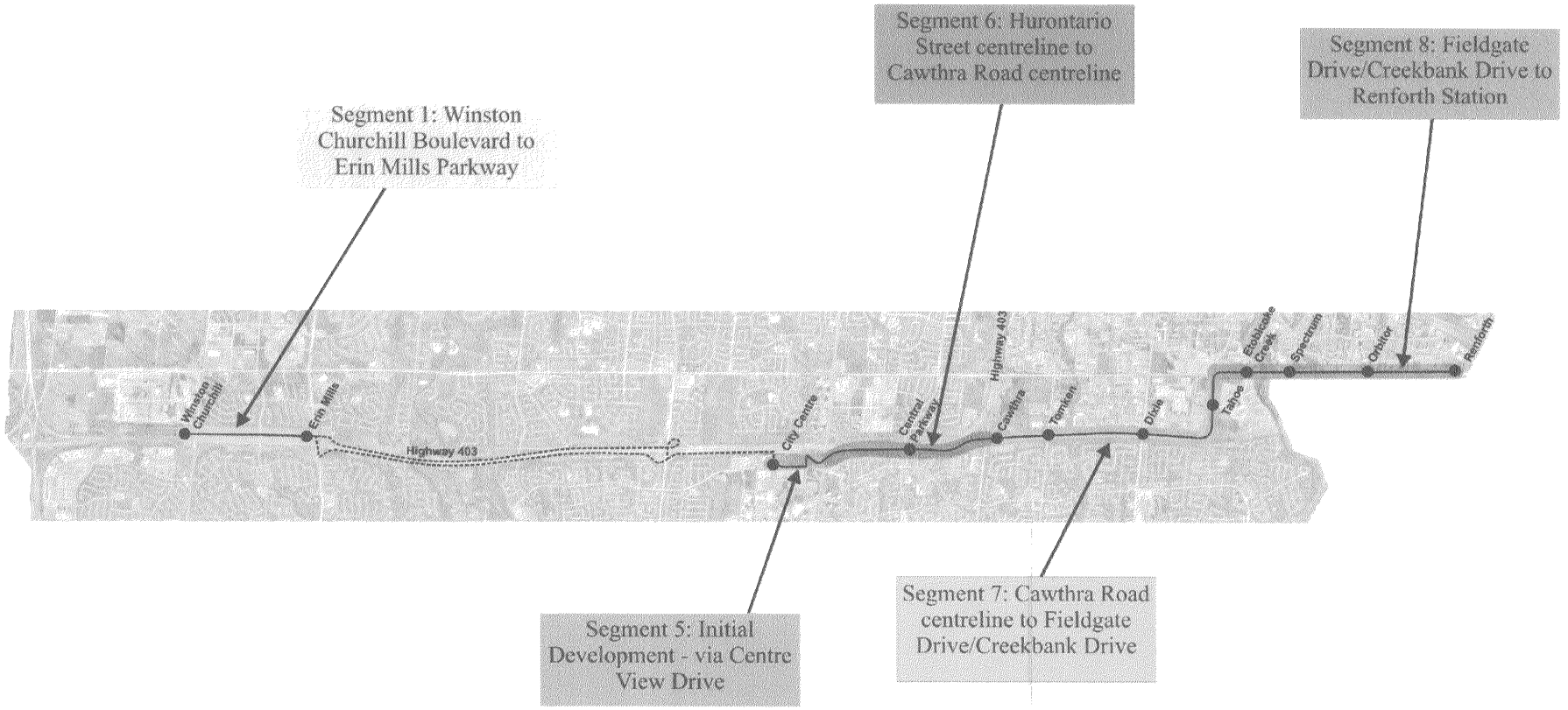
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Transportation and Works Department

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June 18, 2008
File: PO.04.DES - 200

Mr. Franklin Roy
Director
Litigation Management and Resolution Branch
Department of Indian and Northern Affairs
10 Wellington Street, 25 Eddie 1430
Gatineau QU K1A 0H4

Dear Mr. Roy:

The City of Mississauga, in partnership with GO Transit, would like to inform the Department of Indian and Northern Affairs of Phase One of the Mississauga Bus Rapid Transit (BRT) Project. This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

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This notification is being provided in hopes that the Department of Indian and Northern Affairs - Litigation Management and Resolution Branch can assist us in determining if any First Nation groups may hold an interest in this project. Any input that you can provide would be greatly appreciated. To date only the Mississaugas of the New Credit First Nation have received notification. Please respond to undersigned at the address noted above or feel free to call the Mississauga BRT Project Office at 905-615-3200 extension 5745.

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works

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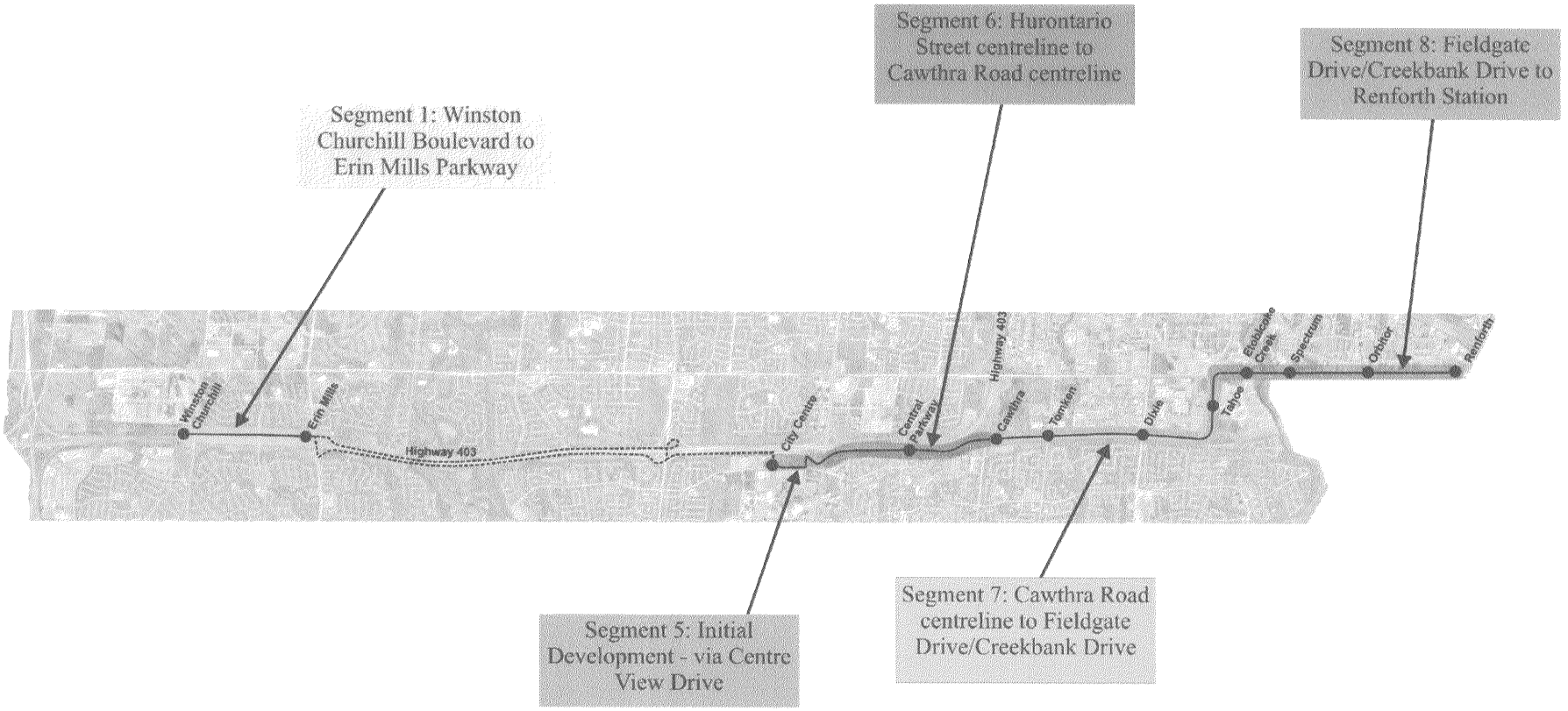
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Transportation and Works Department

City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4

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June 18, 2008
File: PO.04.DES - 200

Mr. Alan Kary
Deputy Director
Policy and Relationships Branch
Ministry of Aboriginal Affairs
720 Bay Street, 4th Floor
Toronto ON M5G 2K1

Dear Mr. Kary:

The City of Mississauga, in partnership with GO Transit, would like to inform the Ministry of Aboriginal Affairs of Phase One of the Mississauga Bus Rapid Transit (BRT) Project. This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

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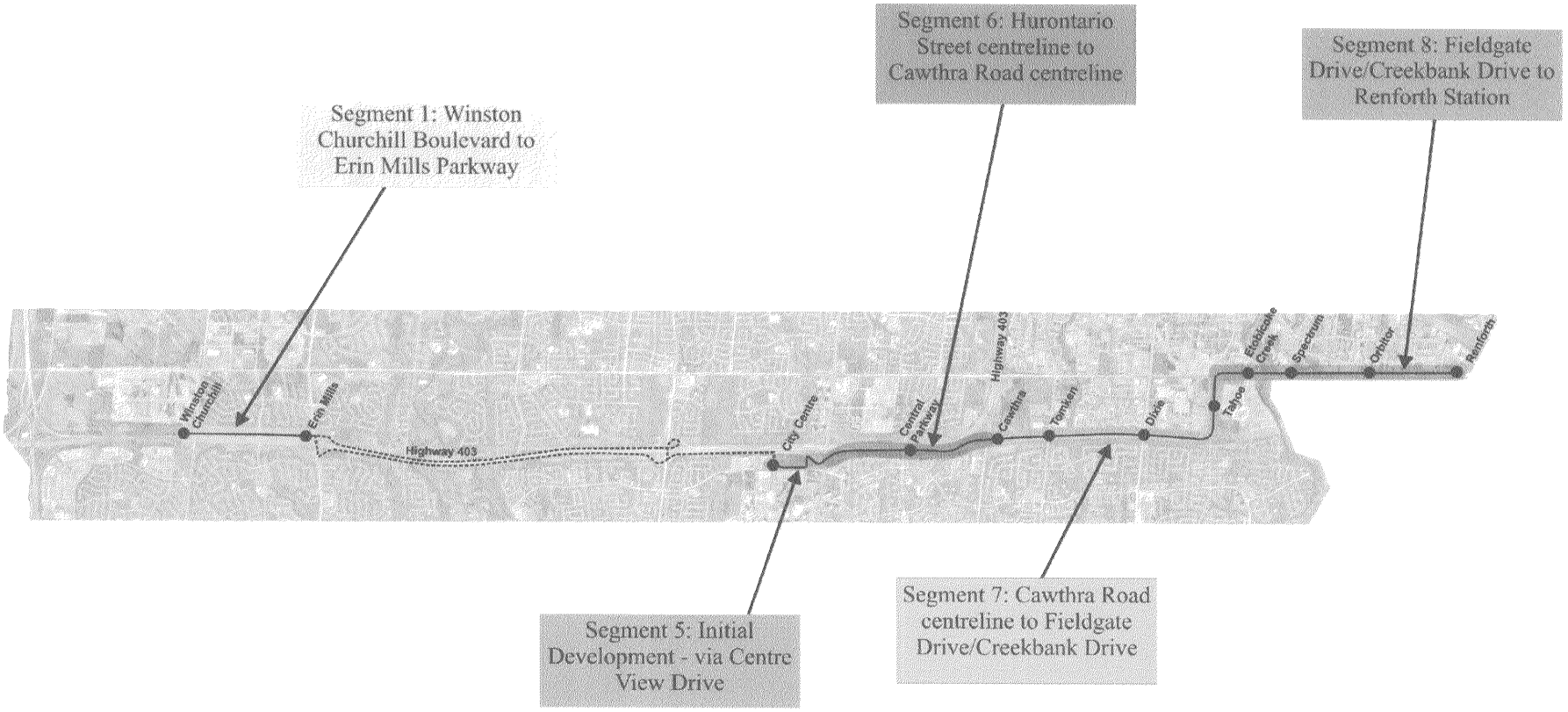
This notification is being provided in hopes that the Ministry of Aboriginal Affairs - Policy and Relationships Branch can assist us in determining if any First Nation groups may hold an interest in this project. Any input that you can provide would be greatly appreciated. To date only the Mississaugas of the New Credit First Nation have received notification. Please respond to undersigned at the address noted above or feel free to call the Mississauga BRT Project Office at 905-615-3200 extension 5745.

Sincerely,

Geoff Wright, P.Eng, MBA
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works

Figure 1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Affaires indiennes et du Nord Canada
Indian and Northern Affairs Canada

www.ainc-inac.gc.ca

JUL 0 2 2008

Votre référence - Your file

Notre référence - Our file
B 8260-12

Geoff Wright
Director, BRT Project Office
Transportation and Works Department
City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4

Dear Mr. Wright:

Re: First Nation Interests – Mississauga Bus Rapid Transit Project

I am writing in response to your letter of June 18, 2008, inquiring if any First Nation groups may hold an interest in the above noted study.

We have conducted a brief search of our records and determined that a specific claim has been submitted by the following First Nation in the vicinity of the area of interest:

Mississaugas of the New Credit First Nation
2789 MISSISSAUGA ROAD R.R. #6 HAGERSVILLE ON N0A 1H0
(905) 768-1133

I note that you have already contacted this First Nation.

In addition, there is another First Nation in the vicinity of your area of interest. You may wish to contact this First Nation to advise them of your intentions. They can be reached at:

Six Nations of the Grand River
P.O. Box 5000 OHSWEKEN ON N0A 1M0
(519) 445-2201

For more information, you may wish to consult a "Public Information Status Report" on all claims which have been submitted to date. This information is available to the public on the Indian and Northern Affairs Canada (INAC) website and can be found at http://www.ainc-inac.gc.ca/ps/clm/pis_e.html.

It should be noted that the reports available on the INAC website are updated quarterly and therefore, you may want to check this site at regular intervals for updates. In accordance with legislative requirements, confidential information has not been disclosed.

.../2

You may also wish to visit http://www.ainc-inac.gc.ca/nr/iss/acp/acp-eng.asp on the INAC website for information regarding the Federal Action Plan on Aboriginal Consultation and Accommodation.

Please rest assured that it is the policy of the Government of Canada as expressed in *Outstanding Business: A Native Claims Policy* that "in any settlement of specific native claims the government will take third party interests into account. As a general rule, the government will not accept any settlement which will lead to third parties being dispossessed."

We can only speak directly to claims filed under the Specific Claims Policy in the Province of Ontario. We cannot make any comments regarding potential or future claims, or claims filed under other departmental policies. This includes claims under Canada's Comprehensive Claims Policy or legal action by a First Nation against the Crown. You may wish to contact INAC's Negotiations East Branch at (819) 994-7521 or its Litigation Management and Resolution Branch at (819) 934-2185 directly for more information. In addition, you may wish to consult the Assessment and Historical Research Unit at (819) 994-6453, and the Consultation and Accommodation Unit at (613) 944-9313.

To the best of our knowledge, the information we have provided you is current and up-to-date. However, this information may not be exhaustive with regard to your needs and you may wish to consider seeking information from other government and private sources (including Aboriginal groups). In addition, please note that Canada does not act as a representative for any Aboriginal group for the purpose of any claim or the purpose of consultation.

I hope this information will be of assistance to you. I trust that this satisfactorily addresses your concerns. If you wish to discuss this matter further please contact me at (819) 953-1940.

Yours sincerely,

Fred Hosking
Senior Claims Analyst
Ontario Research Team
Specific Claims Branch

From: Lachance, Francois (MAA) [Francois.Lachance@ontario.ca]

Sent: July 7, 2008 2:33 PM

To: Willy Ing

Subject: RE: Mississauga Bus Rapid Transit - Ministry of AboriginalAffairs: Organization of interest to Contact

Dear Willy Ing

With respect to your project, the Bus Rapid Transit Project has indicated that you have contacted the Mississaugas of New Credit. We have reviewed the brief materials you have provided, and can advise that this project does not appear to be located in an area where any additional First Nations may have existing or asserted rights that could be impacted by your project.

François Lachance
Policy Advisor
Ministry of ABORIGINAL AFFAIRS
416-326-4754 (VOICE)

-----Original Message-----
From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: July 7, 2008 1:57 PM
To: Lachance, Francois (MAA)
Cc: Andrea McLeod; Geoff Wright
Subject: Mississauga Bus Rapid Transit - Ministry of AboriginalAffairs: Organization of interest to Contact

Dear Mr. Lachance,

The City of Mississauga's Bus Rapid Transit Project Office has received a voice mail message from your office in response Geoff Wright's letter dated June 18, 2008 to Mr. Alan Kary (attached). Your message indicated that the only organization of interest that we should contact is the "Mississauga's of the New Credit". It would be appreciated if you would confirm this via e-mail, as we need to make written documentation in our Federal Environmental Assessment (CEAA).

Should you have any concerns, you may contact me.

Willy

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504

From: Willy Ing [Willy.Ing@mississauga.ca]

Sent: July 11, 2008 12:10 PM

To: hoskingf@inac.gc.ca

Cc: Geoff Wright

Subject: First Nations Interests - Mississauga Bus Rapid TransitProject

Attachments: Fred-Hosking-Response-07-02-08.pdf; BRT PISR July 11 2008.pdf

Dear Mr. Hosking,

Regarding your letter dated July 2, 2008 to Mr. Geoff Wright(attached), the Mississauga Bus Rapid Transit Project Office have researched the Public Information Status Report with respect to a potential claim being made by "Mississaugas of the New Credit First Nations". According to the report, the only claimant that we found which maybe similar is noted on page 186 of 272 "Mississaugas of the Credit (Band - 120)" attached. To assist us with our communications with the First Nations, would it be possible for your office to clarify which specific claim your brief search has revealed?

Should you have any questions please contact me. My contact information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Phone Call: July 31, 2008, 11:37:48 am
From: Doherty, Andrea [Andrea.Doherty@DFO-MPO.GC.ca]
To: LeBrun, Kim
Subject: Re: Mississauga BRT – DFO SAR Risk mapping

DFO's Distribution of Species At Risk mapping indicates the potential presence of Redside Dace and Atlantic Salmon in Little Etobicoke Creek within the study area and Elmcrest and Renforth Creeks immediately downstream of the study area.

DFO was contacted to clarify whether the potential presence indicated by the maps pertained to Redside Dace or Atlantic Salmon (or both).

Andrea Doherty confirmed that the SARA potential mapping in these areas was referring only to Redside Dace populations, not Atlantic Salmon.

Andrea confirmed that the only reason these areas are still identified as having potential for Redside Dace is due to the historic records (NHIC reports last record in 1949).

Andrea recommended that Ecoplans check the Redside Dace Recovery Strategy/Plan for additional information.

The Recovery Strategy indicates that Redside Dace has likely been extirpated from the Etobicoke Creek Watershed. TRCA (pers comm. Scott Smith, Tuesday July 29, 2008) confirms that Redside Dace were extirpated from Etobicoke Creek.

Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

www.inac.gc.ca
www.ainc.gc.ca

10 SEP. 2009

Your file - Votre référence

Our file - Notre référence

Geoff Wright
Director, BRT Project Office
City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA, ONTARIO L5B 2T4

Dear Mr. Wright:

Re: Mississauga Bus Rapid Transit (BRT) Project – Phase One

I am writing in response to your letter of June 18, 2008 addressed to Franklin Roy inquiring about any claims that may affect the subject property. I regret that we were unable to respond earlier.

We can advise that our inventory does not include active litigation in the vicinity of this property. Please note that we are unable to make any representations regarding potential or future claims.

We cannot make any comments regarding claims filed under other departmental policies. For information on any claims you should also contact Fred Hosking of the Specific Claims Branch at (819) 953-1940 to inquire about any Specific Claims, and Guy Morin of the Comprehensive Claims Branch at (819) 956-0325 to inquire about any current Comprehensive Claims.

.../2

If you have any further questions please do not hesitate to contact me at (819) 994-1947.

Sincerely,

Marc-André Millaire
Litigation Team Leader
Litigation Portfolio Operations East
Litigation Management and Resolution Branch

First Nations

Transportation and Works Department

City of Mississauga
3484 Semenyk Court
MISSISSAUGA ON L5C 4R1

FAX: 905-896-5504
FAX: 905-615-3173
www.mississauga.ca

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March 19, 2008
File: FA.05.CEA

Chief M. Bryan Laforme
Mississaugas of the New Credit First Nation
RR #6, Hagersville, Ontario
N0A 1H0

Dear Chief Laforme:

The City of Mississauga, in partnership with GO Transit, would like to inform the Mississaugas of the New Credit First Nation that a Federal Environmental Assessment has been initiated through the Canadian Environmental Assessment Agency (CEAA) for Phase One of the Mississauga Bus Rapid Transit (BRT) Project.

This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

In 1992, the Provincial Ministry of the Environment approved the Mississauga BRT Project from Ridgeway Drive in the west to Renforth Drive in the east and addendum in 2004. We enclose a copy of the latest addendum for your information.

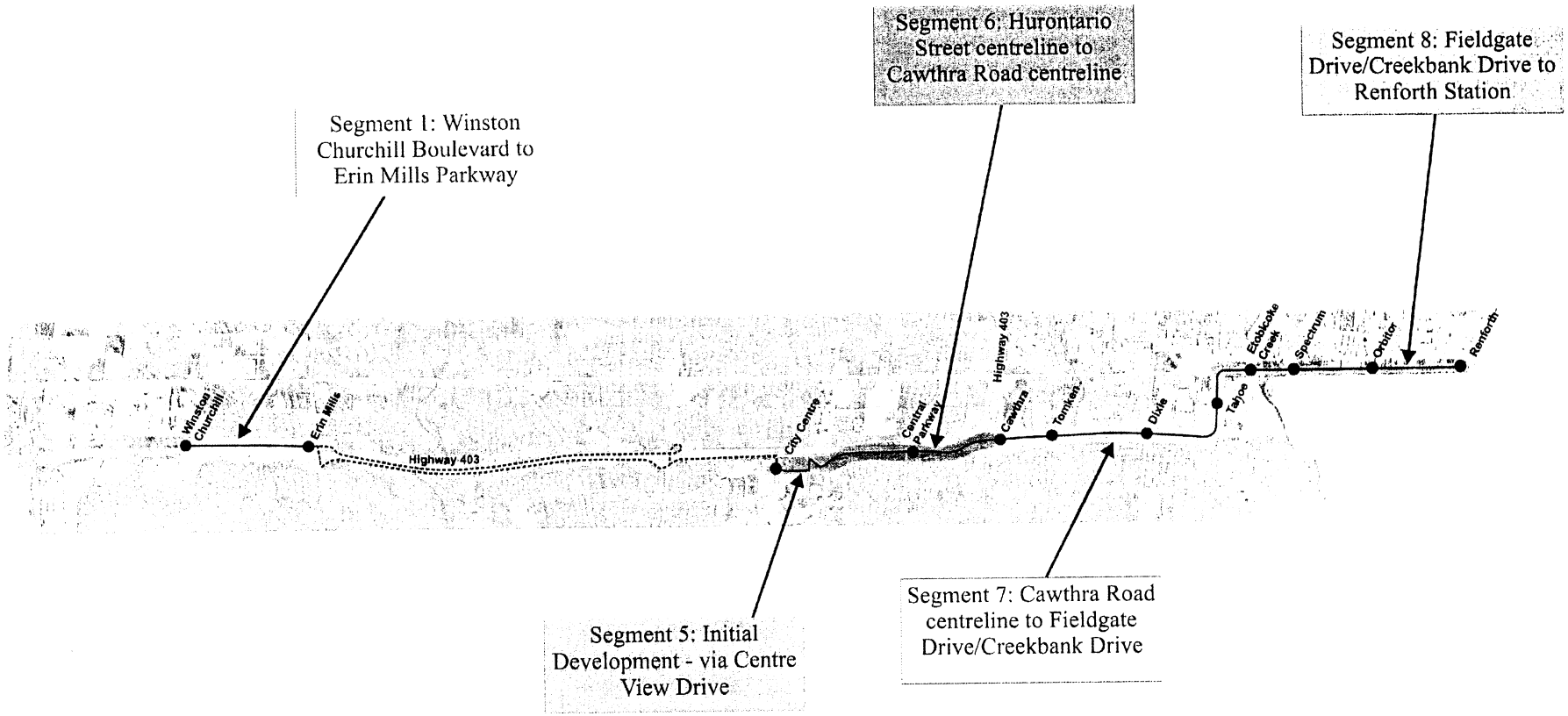
We would invite you to provide comments on the CEAA Screening Report for the Mississauga BRT Project once it is released. As well, if you would like to discuss this project in greater detail, please contact the Mississauga BRT Project Office at 905-615-3200 extension 5745 to arrange a meeting.

Sincerely,

Geoff Wright
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works
R. Parkin, Transport Canada

Figure 1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Transportation and Works Department

City of Mississauga
3484 Semenyk Court
MISSISSAUGA ON L5C 4R1

FAX: 905-896-5504
FAX: 905-615-3173
www.mississauga.ca

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March 19, 2008
File: FA.05.CEA

Chief M. Bryan Laforme
Mississaugas of the New Credit First Nation
RR #6, Hagersville, Ontario
N0A 1H0

Dear Chief Laforme:

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Sincerely,

Geoff Wright
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works
R. Parkin, Transport Canada

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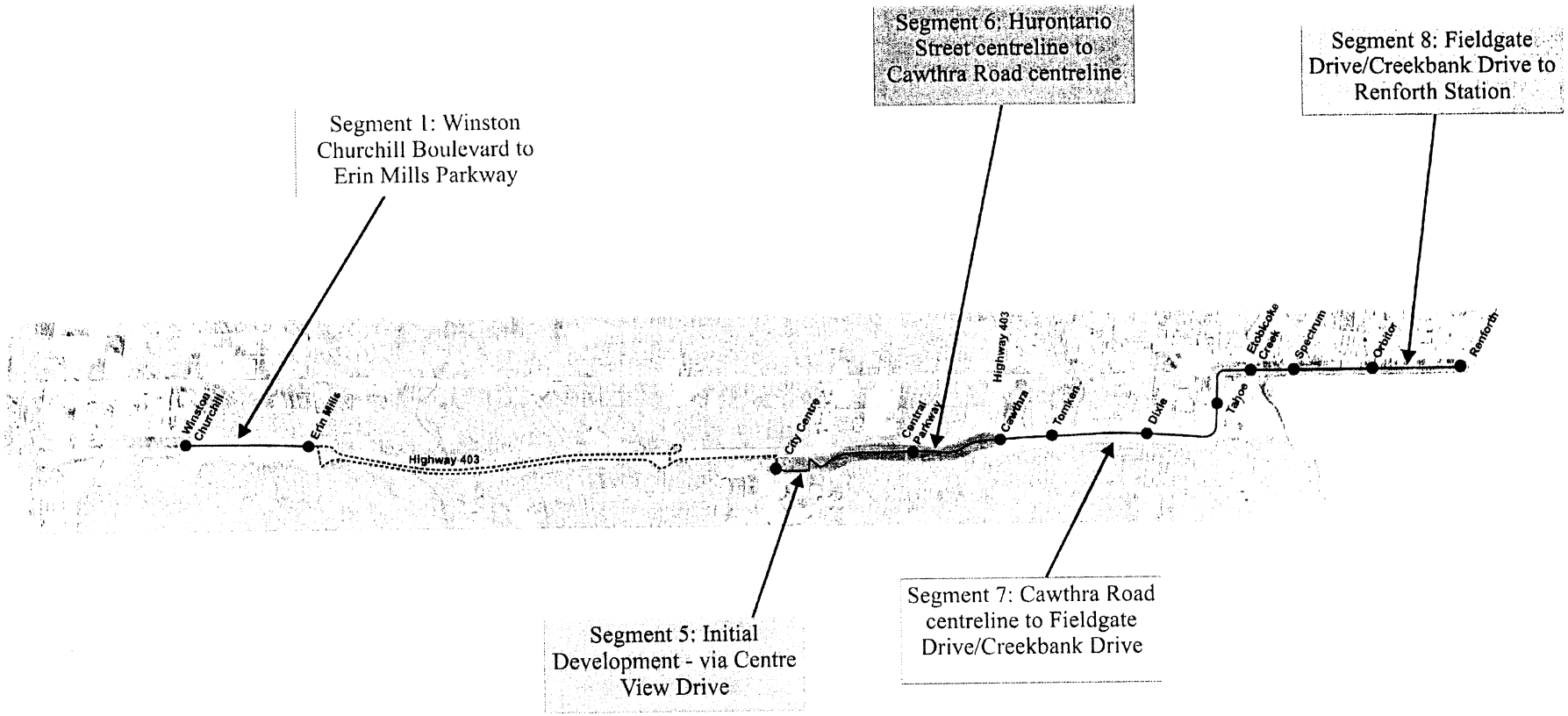
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Transportation and Works Department

City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4

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July 16, 2008
File: PO.04.DES - 200

Six Nations of the Grand River
P.O Box 5000
Ohsweken, Ontario
N0A 1M0

Dear Sirs:

The City of Mississauga, in partnership with GO Transit, would like to inform the Six Nations of the Grand River of Phase One of the Mississauga Bus Rapid Transit (BRT) Project. This project involves the construction of a new bus only roadway (busway) across Mississauga and eleven new bus stations. Specifically, the new busway will extend from Winston Churchill Boulevard to Erin Mills Parkway and from the Mississauga City Centre to Renforth Drive running adjacent to the Highway 403, Eastgate Parkway, and Eglinton Avenue corridors. **Figure 1** (attached) provides an overview of the Mississauga BRT Project corridor.

In 1992, the Provincial Ministry of the Environment approved the Mississauga BRT Project from Ridgeway Drive in the west to Renforth Drive in the east and a subsequent Environmental Assessment Addendum in 2004. The BRT Project is currently in the Preliminary Design stage, which also includes the undertaking of a Canadian Environmental Assessment Act Screening Report.

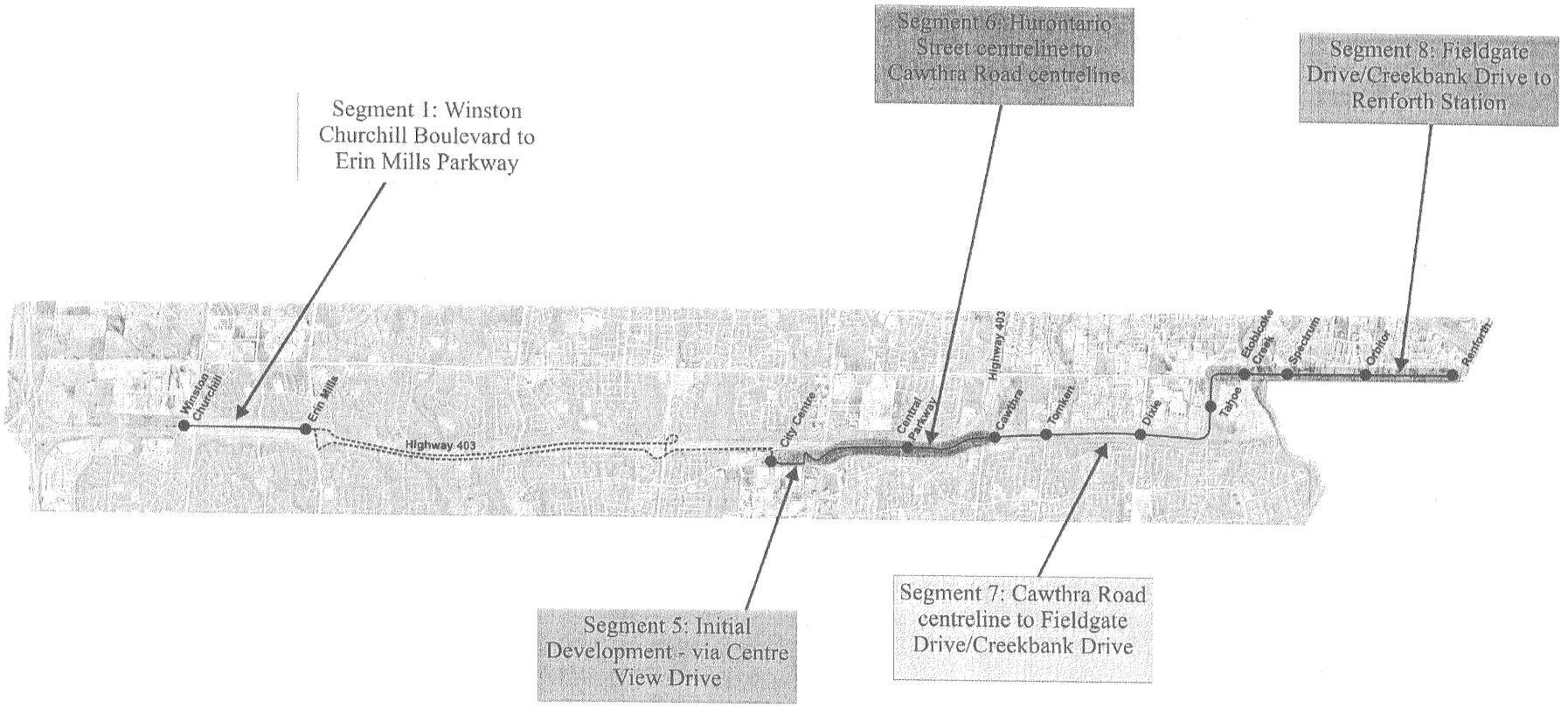
This notification is being provided in hopes that the Six Nations of the Grand River can assist us in determining if you may hold an interest in this project. Any input that you can provide would be greatly appreciated. To date we have notified the Mississaugas of the New Credit First Nation, the Ministry of Aboriginal Affairs, and the Department of Indian and Northern Affairs. Please respond to the undersigned at the address noted above or feel free to call the Mississauga BRT Project Office at 905-615-3200 extension 5745.

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office

c: M. Powell, Commissioner, Transportation and Works

Figure 1


Segment 1: Winston Churchill Boulevard to Erin Mills Parkway
Segment 6: Hurontario Street centreline to Cawthra Road centreline
Segment 8: Fieldgate Drive/Creekbank Drive to Renforth Station
Winston Churchill
Erin Mills
Highway 403
City Centre
Central Parkway
Highway 403
Cawthra
Tomken
Dixie
Tahoe
Etobicoke Creek
Spectrum
Chintor
Renforth
Segment 5: Initial Development - via Centre View Drive
Segment 7: Cawthra Road centreline to Fieldgate Drive/Creekbank Drive

From: Willy Ing [Willy.Ing@mississauga.ca]
Sent: October 20, 2008 4:13 PM
To: Bright, Katie; Bricks, Mike
Cc: Geoff Wright; Schijns, Steve; Shea, Andrew; Andrea McLeod
Subject: Our phone call to Six Nations of the Grand River

Hi Mike and Katie,

I called the Six Nations of the Grand River today and spoke to Kate Cave (1-519-445-2563). They did receive our letter of July 16, 2008, but did not respond to us as they didn't have any interest in our BRT Project.

However, I advised Kate that our project is along existing corridors and that an archaeological review is being conducted as part of our project. Kate replied indicating that if the archaeological review reveals any remains, they need to be contacted and advised of the findings, otherwise they do not need to see the reports.

Willy

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

Transportation and Works Department

City of Mississauga
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4

www.mississauga.ca

Leading today for tomorrow

October 21, 2008
File: PO.04.DES-200

Chief Laforme
Mississaugas of the New Credit First Nation
2789 Mississauga Road
R.R. #6 Hagersville, Ontario
N0A 1H0

Dear Chief Laforme:

Further to my letter of March 19, 2008, a copy of which is attached for your convenience, we would like to inform the Mississaugas of the New Credit First Nation that we are currently undertaking the final phases of the required Canadian Environmental Assessment Agency screening report, and our addendum to the approved Provincial Environmental Assessment for the Mississauga Bus Rapid Transit (BRT) project.

For your information, as part of our project we are conducting an archaeological review. Once this archaeological review is completed and should the review reveal the presence of any remains, we will endeavour to notify the Mississaugas of the New Credit First Nation.

Should you have any questions or concerns regarding our BRT Project, please contact me at 905-615-3200, extension 4940 (email: geoff.wright@mississauga.ca), or contact Mr. Willy Ing, BRT Project Leader, at 905-615-3200 ext. 5791 (email willy.ing@mississauga.ca).

Sincerely,

Geoff Wright, P.Eng., MBA
Director, BRT Project Office
905-615-3200 ext. 4940

WI:arm
Enclosure

c: M. Powell, Commissioner, Transportation and Works
W. Ing, BRT Project Leader

M T O

Willy Ing

From: Willy Ing
Sent: 2008/11/13 10:33 AM
To: 'Tupaz, Aimee Rose (MTO)'
Cc: White, Jason (MTO); Geoff Wright; Scott W Anderson; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Aimee and Jason,

This is to inform the MTO that the City of Mississauga's Bus Rapid Transit Project office has requested our consultant to review your concerns. We hope to provide you with a response or meet with you to discuss the issues soon.

Willy

From: Tupaz, Aimee Rose (MTO) [mailto:AimeeRose.Tupaz@ontario.ca]
Sent: 2008/11/03 3:12 PM
To: Willy Ing
Cc: White, Jason (MTO); Geoff Wright; Scott W Anderson
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy,

The ministry recognizes that the Mississauga BRT project is still in the preliminary design phase, however, there are several design concepts which have not yet been finalized that hinders the ministry's ability to comment. The ministry has identified areas for improvement within the current BRT preliminary design to the consultant at two meetings held in October. Given the short time frame to review the draft EA addendum (September 2008) for the Mississauga Bus Rapid Transit project, the ministry has the following comments.

- The ministry understands that due to physical constraints in the Highway 403 corridor, it may not be feasible to meet all ministry standards on its facilities being impacted by the BRT, however; safety measures to mitigate these issues must be implemented in accordance with ministry standards. For example, the separation of the E-N/S and S-W ramp at the Winston Churchill Boulevard interchange does not meet current ministry standards. The ministry would like to ensure that the proper mitigation measures are provided for both ramps to address this concern.
- The ministry has concerns with the feasibility of the staging plan outlined in the EA addendum for Winston Churchill Boulevard. It states that two lanes per direction as well as existing pedestrian access will be maintained throughout construction. Based on the construction staging drawings shown for the BRT West section, overbuilding of the existing Winston Churchill Boulevard structure may be required to maintain the traffic/pedestrian flow stated in the EA addendum. Cross section details for the construction staging plan on Winston Churchill Boulevard were not provided to the ministry to assess the feasibility of maintaining two lanes per direction and pedestrian access during construction without the need to overbuild the existing structure. The ministry has yet to receive the staging plan for the BRT East segment for a preliminary review.
- The ministry has concerns with its ability to widen Highway 403 in the future once the BRT is operational. The ministry would like a future commitment from the proponent of the BRT that they will undertake the appropriate safety measures for the BRT as required during construction when the ministry proceeds with Highway 403 widening.
- There are a number of the ministry's ramps which will now be impacted by the BRT. After review of the preliminary design, the ministry would like the proposed grades of these ramps to be minimized and confirmation that the new alignments for all ramps meets ministry standards for stopping sight distance, sight lines and other relevant design criteria.
- The ministry has concerns with the proposed design of a direct taper versus the existing dedicated parallel lane for the S-W ramp from Winston Churchill Boulevard to Highway 403. The preliminary design shows the addition of a third through lane in the northbound direction for Winston Churchill. Do the existing traffic volumes on Winston Churchill warrant an additional through lane? Has there been any traffic modelling done at the

intersection to assess the queuing for the S-W ramp with this new lane on Winston Churchill with this proposed design? If an additional through lane is warranted for Winston Churchill, the ministry would like the dedicated parallel lane for the S-W ramp to be reinstated.

- Drainage and grading work still needs to be finalized in the preliminary design. For instance, based on the grading shown in the preliminary design, additional retaining walls may be required along the BRT. The landscaping plan as shown in the EA Addendum may not be feasible based on the grading shown on the preliminary design drawings.
- There is a change in the BRT East segment with the Cawthra ramp alignment being modified and this has not been addressed in this EA addendum, should it not be included as part of this EA addendum?

The ministry is looking forward to meeting with you should you wish to discuss any of our comments further.

Regards,

Aimee

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: October 20, 2008 3:26 PM
To: Willy Ing; White, Jason (MTO)
Cc: Tupaz, Aimee Rose (MTO); Geoff Wright; Scott W Anderson
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Jason,

As a follow up, by now you should have your copies of the draft EA Addendum. Due to our schedule / time constraints, if the MTO is not able to provide comments by the end of October, you will have the opportunity to review the Final Addendum when we formally file it with the MOE in mid to late November. We hope that the MTO will not have any major comments that would delay our project during the formal 30 day review process. However, if you can anticipate any major issues at this time it would be very helpful to us.

Willy

From: Willy Ing
Sent: 2008/10/15 10:08 AM
To: 'White, Jason (MTO)'
Cc: Tupaz, Aimee Rose (MTO); Geoff Wright; Scott W Anderson; 'ashea@mrc.ca'
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Jason,

My apologies that you have not received your copies. We were updating our e-mail system and our consultants did not receive our message. I have spoken to Andrew Shea at MRC they, will be sending you 4 copies by late today or tomorrow.

It is mainly an addendum to address BRT changes at 5 locations:

1. Winston Churchill Boulevard at Hwy 403 Interchange, BRT will go over the "from the east to N-S terminal ramp"
2. Hurontario Street at Hwy 403, alignment change to the BRT to run parallel along the east side of Hurontario Street to Rathburn Road
3. Tomken Road, BRT will go over Tomken Road
4. Dixie Station, the station and parking lot has been moved to the west side
5. Eastgate Parkway crossing, the BRT will go over Eastgate Parkway at the curve in the vicinity of Fieldgate Drive

We hope the MTO are able to meet our acute timelines. However, if you need more time as your comments are beneficial to us, we will see if the MOE can provide and exception.

Willy

From: White, Jason (MTO) [mailto:Jason.White@ontario.ca]
Sent: 2008/10/15 9:14 AM
To: Willy Ing
Cc: Tupaz, Aimee Rose (MTO); Geoff Wright; Scott W Anderson
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy

Before I commit us, any idea when we will be getting the draft report to look at? At this point, we aren't even sure what is covered off in the addendum. We will do our best to meet your deadline, so any information you could feed us now would be helpful.

Thanks

Jason

> -----Original Message-----
> **From:** Willy Ing [mailto:Willy.Ing@mississauga.ca]
> **Sent:** October 14, 2008 9:38 AM
> **To:** White, Jason (MTO)
> **Cc:** Tupaz, Aimee Rose (MTO); Geoff Wright; Scott W Anderson
> **Subject:** RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum
>
> Jason,
>
> Wanted to confirm as per our message to Lou Politano at the bottom of this message that the MTO will be able to provide comments by the end of October? Please let me know as we are working very closely with the MOE on this draft EA Addendum.
>
> Willy

> **From:** White, Jason (MTO) [mailto:Jason.White@ontario.ca]
> **Sent:** 2008/10/10 3:00 PM
> **To:** Willy Ing
> **Cc:** Tupaz, Aimee Rose (MTO)
> **Subject:** FW: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum
>
> Willy
>
> Can you include myself and Aimee Tupaz on the distribution for this addendum. We will also link up with our Transit Office to see who needs to be involved from their shop.
>
> Thanks
>
> Jason
>
> -----Original Message-----
> **From:** Politano, Lou (MTO)
> **Sent:** September 29, 2008 9:47 PM
> **To:** White, Jason (MTO)
> **Subject:** RE: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

ok. thanks. pl let him know

From: White, Jason (MTO)
Sent: Sat 27/09/2008 8:44 AM
To: Politano, Lou (MTO)
Cc: Korpal, Peter (MTO)
Subject: Re: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Lou

I seem to recall both cr and PP being involved in the EA addendum. CR has been in the design, but PP is also involved. I just am not sure what they do.

Since they aren't specific about what the new ea work is for, both groups should be involved. I know willy and can let him know.

Jason

Sent from my BlackBerry Wireless Handheld

-----Original Message-----
From: Politano, Lou (MTO)
To: White, Jason (MTO)
CC: Korpal, Peter (MTO)
Sent: Fri Sep 26 22:53:46 2008
Subject: FW: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Jason, thoughts ?

who should represent MTO ? us, P&P, both?

who's been the primary contact so far?

Lou

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Fri 26/09/2008 10:04 AM
To: Politano, Lou (MTO)
Cc: Geoff Wright
Subject: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Dear Mr. Politano:

The City of Mississauga in partnership with GO Transit are undertaking an Environmental Assessment Addendum of the Mississauga Transitway, now known as the Mississauga Bus Rapid Transit (BRT) which received approval from the Ministry of the Environment (MOE) in 1992.

In order to move this addendum forward, the Ministry of the Environment suggests that there may be benefit to engaging some members of the Government Review Team (GRT) at a preliminary stage to expedite the final addendum review process. We are engaging the Ministry of Transportation Ontario to determine if the MTO would be interested in participating in this draft EA Addendum review process, and if possible, that any comments from the MTO be provided to the City of Mississauga by the end of October 2008.

It is important to note that the EA Addendum focuses on alternatives/evaluations for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

For your information, our consultant McCormick Rankin Corporation (MRC) is consulting with various MTO staff regarding the Preliminary Design.

Please provide a response to this e-mail in 5 working days to the City of Mississauga.

Should you have any questions you may contact Mr. Geoff Wright, Director Bus Rapid Transit Project Office at 905-615-3200 Ext 4940 e-mail: geoff.wright@mississauga.ca <mailto:geoff.wright@mississauga.ca> , or you may contact me directly, my information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca <mailto:willy.ing@mississauga.ca>

TECHNICAL MEMORANDUM

To: Sunil Jain
McCormick Rankin Corporation
File: 6964/3

From: Jeff Schroeder
Date: Oct. 22, 2008

RE: Mississauga BRT Preliminary Design
Cooksville Creek Hydraulic Assessment

1.0 INTRODUCTION

1.1 Study Purpose

Hydraulic assessments were completed for the BRT crossing of Cooksville Creek as part of the Mississauga BRT Preliminary Design.

This Technical Memo details the development of the hydraulic models and the evaluation of the hydraulic impact of the Cooksville Creek crossing.

1.2 Proposed Structure

The proposed BRT alignment crosses over the 209.7 metre long twin 5500x2700mm culverts underneath Hurontario Street and Rathburn Road (See Exhibit 1). Due to grading issues, the profile of the BRT would cut into the top of the twin culverts (See Exhibit 2). The alignment centreline of the proposed BRT would cut into the top of the existing culverts by 0.5 metres approximately 125 metres upstream of the Rathburn Road outlet.

1.3 Study Scope

This Technical Memo includes the following:

- Identification of design flows during 2-year, 5-year, 10-year, 25-year, 50-year, 100-year and Regional rainfall events;
- Development of hydraulic models for calculating water surface elevations;
- Impact assessment results and recommendations.

2.0 DESIGN FLOWS

2.1 Design Storms

Peak flows for the 2-year, 5-year, 10-year, 25-year, 50-year, 100-year and Regional rainfall events were provided by the Credit Valley Conservation (CVC) in the HEC-2 model Cook.hec. Table 1 summarizes the peak flows at each crossing.

Table 1 - Summary of Peak Flows (m^3/s)

2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Regional
55.0	65.0	70.0	90.0	105.0	115.0	145.0

3.0 HYDRAULIC MODELLING

3.1 Model Setup

The CVC provided an original HEC-2 model for Cooksville Creek. For the analysis the original model was converted into the river analysis program HEC-RAS and the converted model was used as a base and comparison model for the proposed BRT model.

HEC-RAS is a well established backwater model developed by the U.S. Army Corps of Engineers and widely used to estimate water surface elevations in river systems. The HEC-RAS model is particularly well suited for assessing the impacts of culverts and bridges on water surface elevations. It is the *de facto* standard for water surface elevation calculations and flood risk mapping in Ontario and many other North American jurisdictions. However, HEC-RAS was not designed to easily handle a situation where the height of a culvert is reduced part way through its length and then expanded again.

The approach used was to split the twin culverts into three separate structures with a small space in between instead of one long structure. The first structure underneath Rathburn Road covers a length of 115 metres, the second structure underneath the proposed BRT location covers a length of 15 metres and the third structure underneath Hurontario Street is 79.7 metres long.

Two existing conditions models were created for the analysis. One model simulates the twin culverts as one long structure (conventional method) and the second model simulates the twin culverts as three separate structures as mentioned above. The reason for creating two existing models is the need to compare the differences in results between the conventional modelling method and the alternative modelling approach. The results from the future conditions model (using the alternative modelling approach) were then compared to the results from the alternative existing conditions model. The only difference between the alternative existing conditions model and the future conditions model is that the middle twin culvert section only has a height of 2.2 metres instead of 2.7 metres.

As a further comparison and check, the hydraulic program XP-STORM was used and models were setup similarly to the conventional and alternative methods mentioned above.

3.2 Modelling Results

Table 2 compares the conventional modelling method with the alternative modelling method for existing conditions using HEC-RAS.

Table 2 – Flood Elevation Comparison-Conventional Method (Ex1) vs. Alternative Method (Ex2) (HEC-RAS) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.
8.473	0	151.17	151.17	0.00	152.02	152.02	0.00	152.72	152.72	0.00	153.19	153.19	0.00
8.52	40	150.98	150.98	0.00	151.86	151.86	0.00	152.57	152.57	0.00	153.06	153.06	0.00
8.549	70	151.58	151.58	0.00	152.34	152.34	0.00	152.92	152.92	0.00	153.40	153.40	0.00
8.55	71	151.43	151.43	0.00	152.22	152.22	0.00	152.82	152.82	0.00	153.30	153.30	0.00
8.555	75	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	151.36	151.36	0.00	151.64	154.48	2.84	151.83	156.02	4.19	155.59	156.03	0.44
8.76	299.7	154.85	154.85	0.00	155.22	155.22	0.00	155.47	155.47	0.00	155.74	155.74	0.00

Table 3 compares existing conditions with future conditions using HECRAS for the alternative modelling method.

Table 3 – Flood Elevation Comparison-Existing vs. Future Conditions (HEC-RAS) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex2	Fut	Diff.	Ex2	Fut	Diff.	Ex2	Fut	Diff.	Ex2	Fut	Diff.
8.473	0	151.17	151.17	0.00	152.02	152.02	0.00	152.72	152.72	0.00	153.19	153.19	0.00
8.52	40	150.98	150.98	0.00	151.86	151.86	0.00	152.57	152.57	0.00	153.06	153.06	0.00
8.549	70	151.58	151.58	0.00	152.34	152.34	0.00	152.92	152.92	0.00	153.40	153.40	0.00
8.55	71	151.43	151.43	0.00	152.22	152.22	0.00	152.82	152.82	0.00	153.30	153.30	0.00
8.555	75	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	151.36	151.36	0.00	154.48	154.97	0.49	156.02	156.03	0.01	156.03	156.03	0.00
8.76	299.7	154.85	154.85	0.00	155.22	155.22	0.00	155.47	155.47	0.00	155.74	155.74	0.00

The results indicate that there is a significant difference in results between the conventional and alternative method models for existing conditions at the structure inlet upstream of Hurontario Street. The results for the conventional method more accurately reflect actual conditions but the results for the alternative method model are needed to assess the impact of the BRT crossing. It should be noted that the flood elevations do not differ 15 metres upstream of the structure inlet. The results in Table 3 indicate that there is little impact from lowering the top of the twin culverts by 0.5 metres at the proposed BRT crossing except for the 25-year storm. However the increases in flood levels would not cause an increase in flood risk. Flows do not overtop Hurontario Street or spill onto Rathburn Road during any storm including the Regional Storm.

Table 4 compares the conventional modelling method with the alternative modelling method for existing conditions using XP-STORM.

Table 4 – Flood Elevation Comparison-Conventional Method (Ex1) vs. Alternative Method (Ex2) (XP-STORM) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.
8.555	0	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	152.14	152.65	0.51	152.78	154.00	1.22	153.53	154.85	1.32	154.45	156.50	2.05

Table 5 compares existing conditions with future conditions using XP-STORM for the alternative modelling method.

Table 5 – Flood Elevation Comparison-Existing vs. Future Conditions (HEC-RAS) (XP-STORM) (m)

Section Number	Chainage (m)	2-Year Storm			25-Year Storm			100-Year Storm			Regional Storm		
		Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.	Ex1	Ex2	Diff.
8.555	0	151.40	151.40	0.00	152.15	152.15	0.00	152.73	152.73	0.00	153.16	153.16	0.00
8.65	Structure												
8.745	284.7	152.65	152.65	0.00	154.00	154.05	0.05	154.85	154.85	0.00	156.50	156.60	0.10

Although XP-STORM produces different results from HEC-RAS, the flood elevation differences between existing and future conditions are comparable.

4.0 SUMMARY OF FINDINGS

Key findings are as follows:

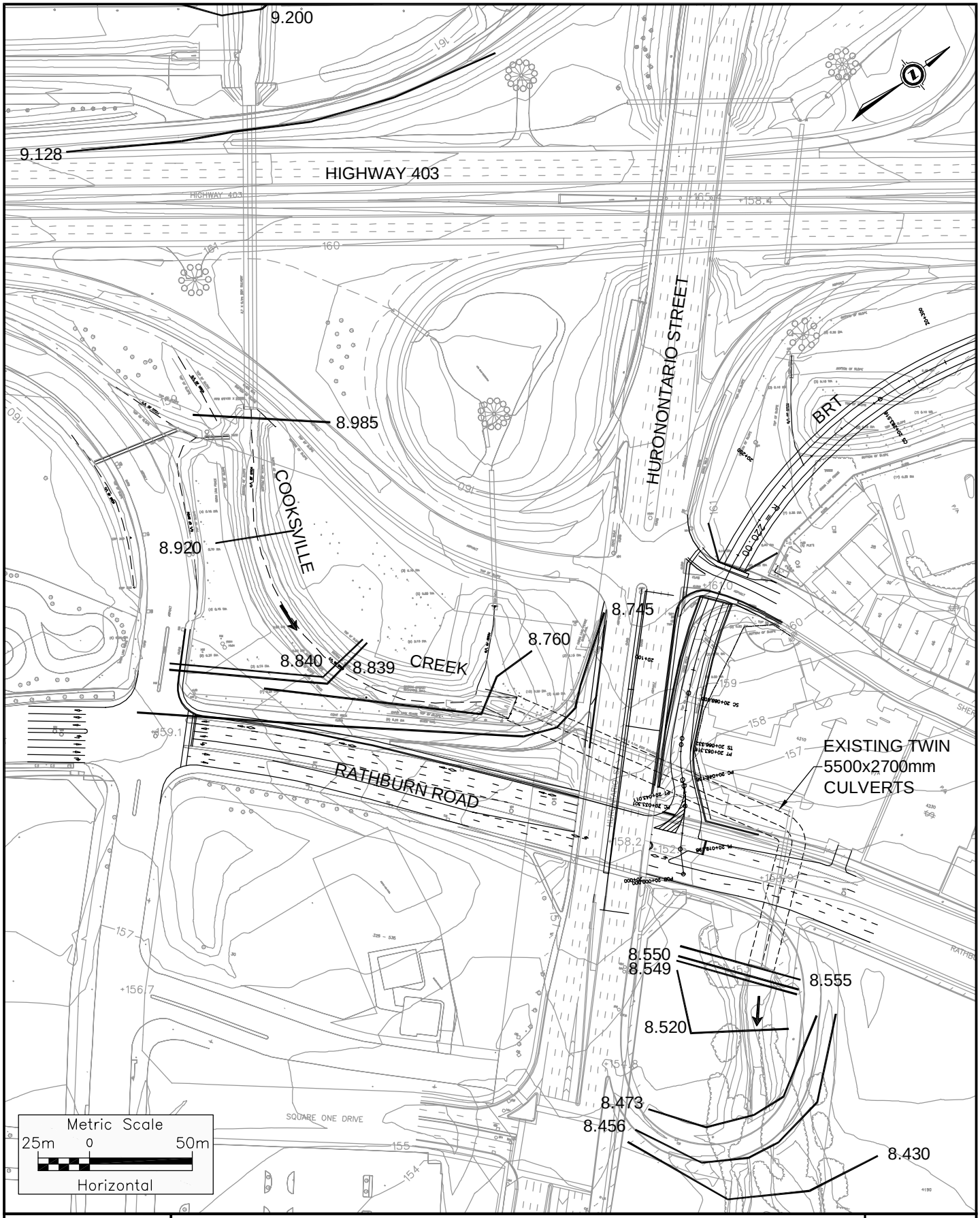
i) The HEC-RAS results indicate that there is a significant difference in results between the conventional and alternative modelling methods for existing conditions at the structure inlet. However the flood elevations did not differ 15 metres upstream of the structure inlet. The results also indicate that there is little impact from lowering the top of the culvert by 0.5 metres at the proposed BRT crossing.

ii) Although XP-STORM produces different results from HEC-RAS, the flood elevation differences between existing and future conditions are comparable.

iii) It is recommended that a smooth transition be made between the existing twin culverts and the impacted section to minimize hydraulic losses and to ensure that any debris does not get trapped by an abrupt change in cross-section.

All of which is respectfully submitted,
McCormick Rankin Corporation

Jeff Schroeder, C.E.T.



MODIFIED: Oct. 23, 2008 1:11 PM

DRAWING NAME: K:\DRAWINGS\6900-6999\6964 - MISSISSAUGA BRT\DRAINAGE\HEC-RAS SECTIONS\K6964-BRT COOKSVILLE HECRAS SECTION LOCATIONS.DWG

MRC

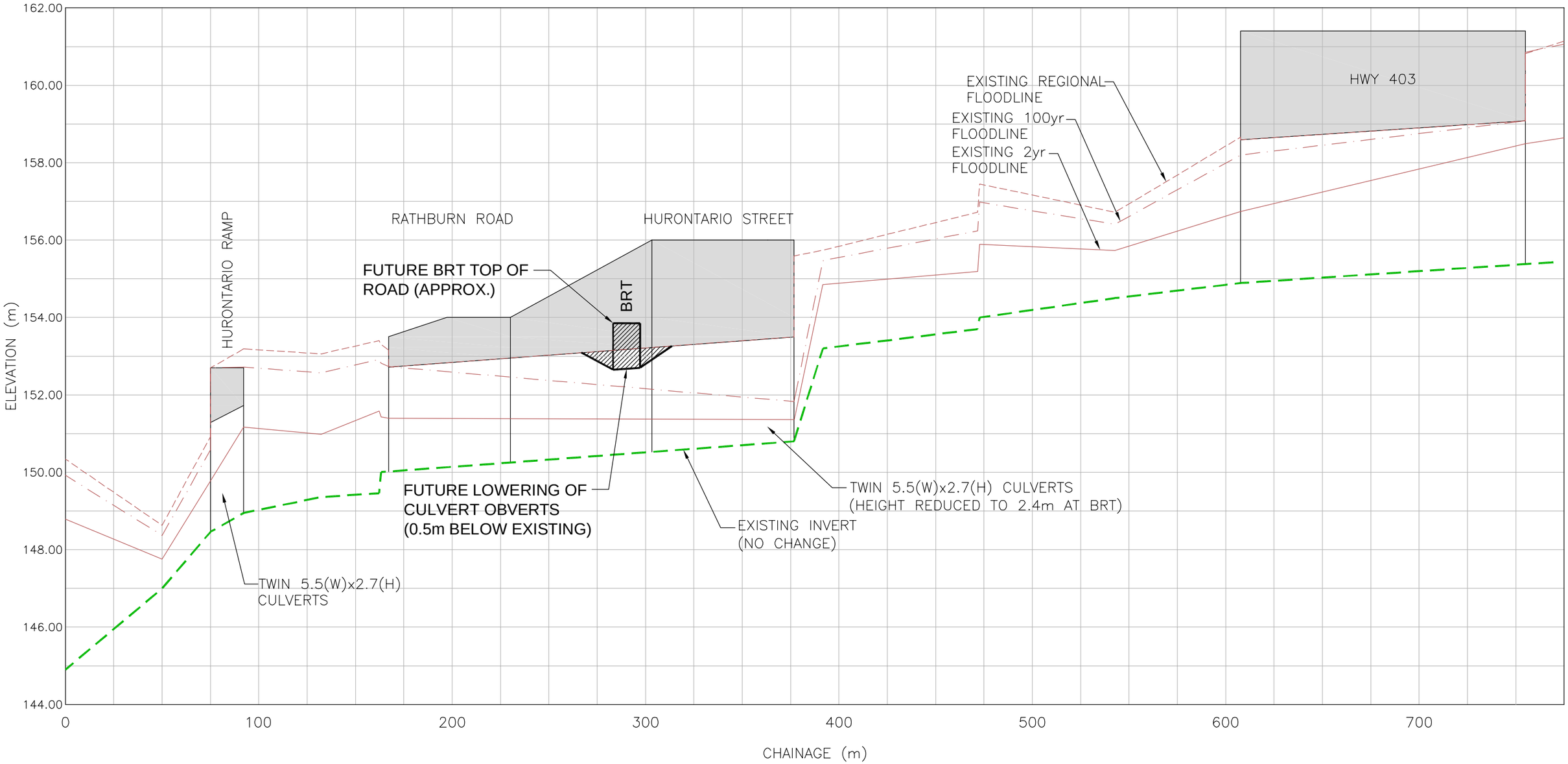
HEC-RAS SECTION LOCATIONS

BRT AT COOKSVILLE CREEK

EXHIBIT

1

MODIFIED: Oct. 23, 2008 1:08 PM



Metric Scale
1m 0 2m
Vertical

Metric Scale
25m 0 50m
Horizontal

MRC	COOKSVILLE CREEK PROFILES BRT AT COOKSVILLE CREEK	EXHIBIT 2

DRAWING NAME: K:\DRAWINGS\6900-6999\6964 - MISSISSAUGA BRT\DRAINAGE\K6964-COOKSVILLE CREEK PROFILE.DWG

Willy Ing

From: Schijns, Steve [SSchijns@mrc.ca]
Sent: 2008/11/26 4:29 PM
To: Marray, Liam; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Bright, Katie; Willy Ing; Kauppinen, Andrea
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum
Attachments: S6964-307-001GA.PDF

For your information, the structural General Arrangement drawing accompanying yesterday's e-mail regarding Cooksville Creek was outdated and inconsistent with the design memo; attached is the correct GA (please replace).

Regards,

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Schijns, Steve
Sent: November 25, 2008 2:56 PM
To: 'Marray, Liam'; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Bright, Katie; Willy Ing; Kauppinen, Andrea
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Liam – we are anxious to finalize the CEAA report, EA Addendum, and BRT Preliminary Design Report and would be pleased to meet with you at your convenience. CVC is the sole remaining stakeholder with CEAA comments outstanding. Please advise when we can meet.

Attached for your information is a drawing of the proposed lowering of the Cooksville Creek culvert obvert east of Hurontario Street, as well as a summary of the investigation into the hydraulic impact of the proposal.

Thank you

Stephen Schijns, P.Eng.
McCormick Rankin Corp.
2655 North Sheridan Way
Mississauga, ON
Canada
L5K 2P8

Tel: 905 823 8500 x 1268
Fax: 905 823 8503
E-mail: sschijns@mrc.ca
Web: www.mrc.ca

From: Marray, Liam [mailto:LMarray@creditvalleycons.com]
Sent: November 3, 2008 7:14 PM
To: Willy Ing; Murphy, Gary; Ul Haq, Rizwan
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy

I apologize for the delay in responding. CVC would like to set-up a meeting with you and your consultants to discuss.

Liam Marray

From: Willy Ing [Willy.Ing@mississauga.ca]
Sent: November 3, 2008 4:38 PM
To: Marray, Liam
Cc: Scott W Anderson; Andrew Shea; Geoff Wright; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

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Comments were due October 31st. Please advise if CVC will be sending comments.

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Sent: 2008/10/02 1:26 PM
To: Marray, Liam; Willy Ing
Cc: Scott W Anderson; Andrew Shea; Geoff Wright
Subject: RE: Mississauga Bus Rapid Transit Project - DraftEnvironmentalAssessment Addendum

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From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: September 29, 2008 8:53 AM
To: Liam Marray

Cc: Andrew Shea; Geoff Wright; Scott W Anderson; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - DraftEnvironmentalAssessment Addendum

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Meadowvale, Ontario L5N 6R4
Tel: (905) 670-1615 Ext. 239
Fax: (905) 670-2210
Email: lmarray@creditvalleyca.ca

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: September 26, 2008 11:19 AM
To: Marray, Liam
Cc: Geoff Wright
Subject: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Dear Mr. Marray:

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Please provide a response to this e-mail in 5 working days to the City of Mississauga.

Should you have any questions you may contact Mr. Geoff Wright, Director Bus Rapid Transit Project Office at 905-615-3200 Ext 4940 e-mail: geoff.wright@mississauga.ca, or you may contact me directly, my information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
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L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca

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Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum
Attachments: S6964-307-001GA.PDF; 6964jgs-Cooksville Creek Hydraulics Technical Memo-Oct 22 2008.pdf

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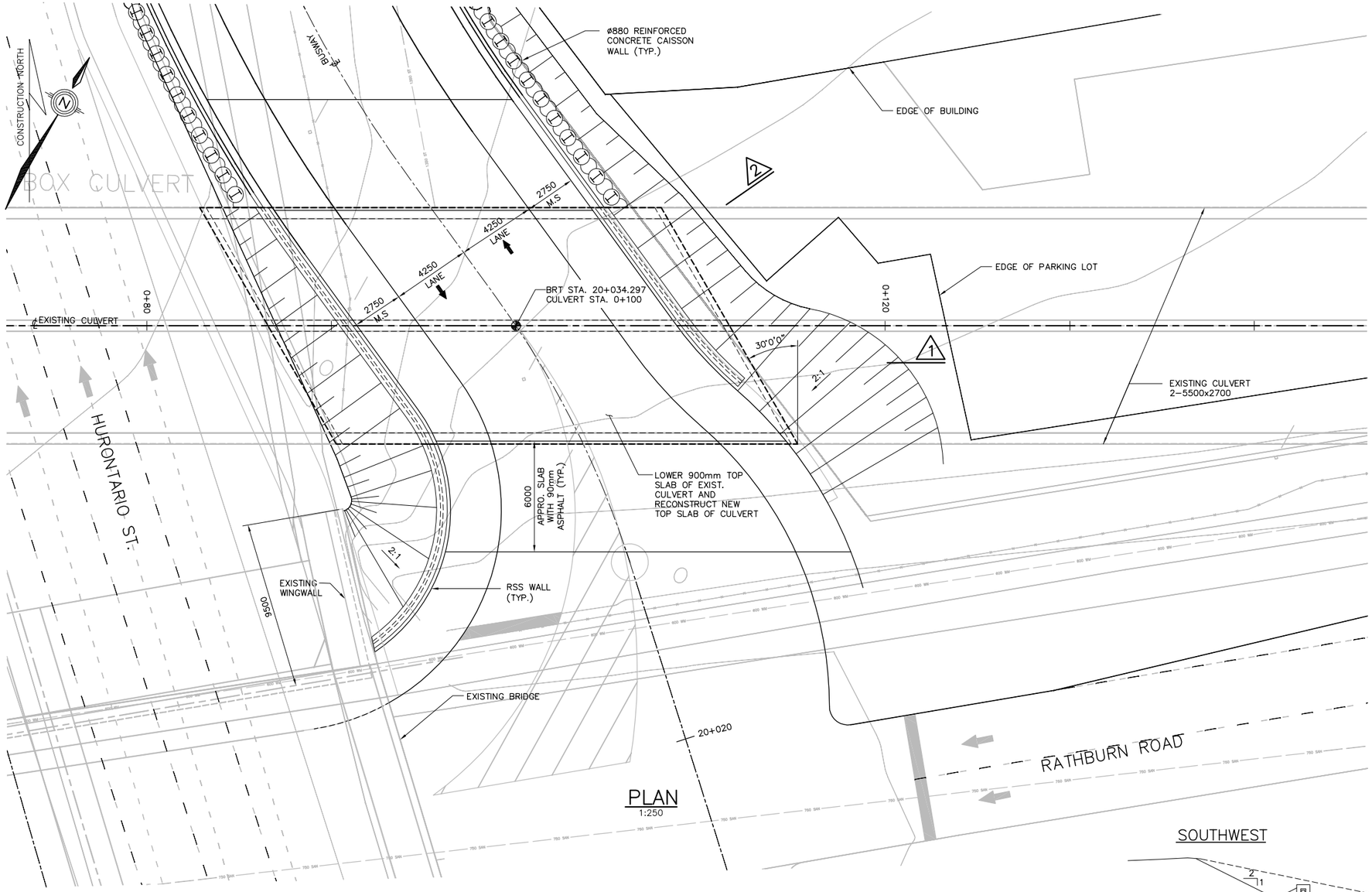

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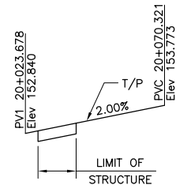

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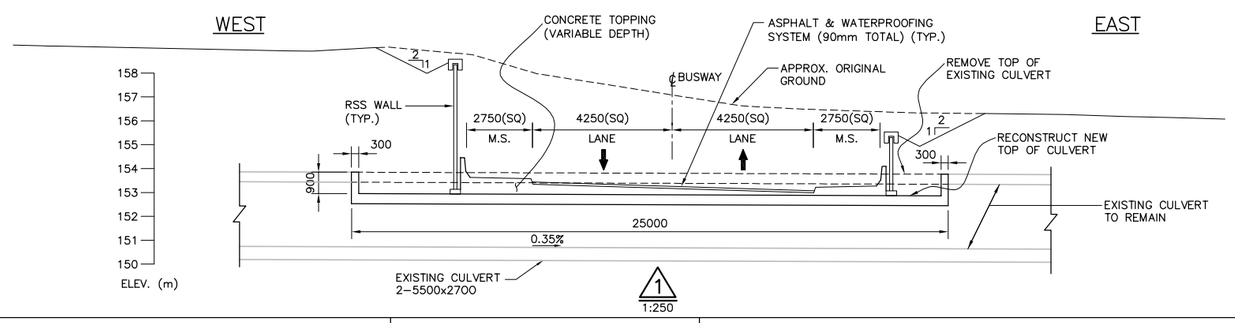

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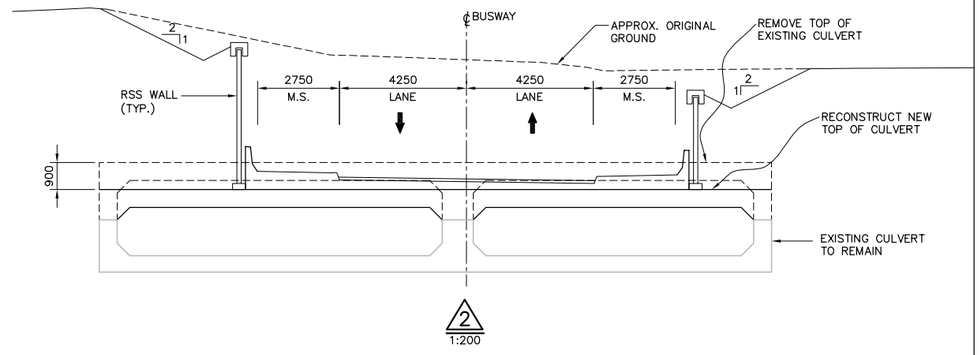

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McCORMICK RANKIN CORPORATION

MISSISSAUGA
Leading today for tomorrow

MISSISSAUGA BUS RAPID TRANSIT PRELIMINARY DESIGN

BRT At Cooksville Creek
Preliminary General Arrangement

Date: NOVEMBER 2008

Scale: AS SHOWN

FIGURE NO. ---

FILE LOCATION=S:\6964\7-BRT AT COOKSVILLE CREEK\
DRAWING NAME: S6964-307-001GA.DWG
DRAWN BY: AMY ZHANG
MODIFIED: 08/11/19 08:50:38
DATE PLOTTED: 08/11/19 08:50:38

TORONTO AND REGION Conservation

for The Living City

November 27, 2008 CFN 39971

BY MAIL AND EMAIL (mbricks@ecoplans.com)

Mr. Mike Bricks
Ecoplans Limited
2655 North Sheridan Way, Suite 280
Mississauga, ON L5K 2P8

Dear Mr. Bricks:

Re: Response to Draft Environmental Assessment (EA) Addendum
Mississauga Bus Rapid Transit (BRT) - (Eastgate Parkway at Highway 403 to Eglinton Avenue at Renforth Drive)
Etobicoke Creek Watershed; City of Mississauga; Regional Municipality of Peel

Toronto and Region Conservation Authority (TRCA) staff received the draft Environmental Assessment (EA) Addendum report, dated September 2008, on October 8, 2008. It is our understanding that an Individual EA was approved by the Ministry of the Environment (MOE) for a bus-only roadway in the Highway 403/Eglinton Avenue corridor on July 6, 1993. In 2005 an Addendum was approved which included several design changes to the original EA including station changes at Cawthra Road and Renforth Drive. Staff understands that this second Addendum involves revisions, within TRCA's jurisdiction, to the design at Tomken Road, Dixie Station and Eastgate Parkway at Fieldgate Drive.

Changes at Tomken Road include shifting the alignment of the busway over Tomken Road such that it is constructed as an overpass rather than an underpass to avoid floodproofing measures. At Dixie Road, the addendum proposes removing the west side bus ramp and creating a full-move bus-only signalized intersection on Dixie Road, locating a larger parking lot on the west side of Dixie Road, with access from Encino Street, and providing a bus link to the parking lot access area with a turnaround loop and layover area at the Encino Street connector. At Eastgate Parkway the approved plan was to construct the busway under Eastgate Parkway. This option would require relocation of several buried and aerial utilities. In addition, a pumping station would be required to drain the busway during storm events. The proposed alternative involves elevating the busway over Eastgate Parkway and under Fieldgate Drive.

While staff has no objection in principle to the preferred changes, the comments provided in Appendix A must be addressed in the final EA document, and should be included as an appendix in the final EA report.

Please ensure that the TRCA receives a copy of the Notice of Study Completion and one (1) hard copy and one (1) digital copy, in pdf form, of the final EA Addendum. The final EA document should be accompanied by a covering letter which uses the numbering scheme provided in this letter and identifies how these comments have been addressed.

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

Yours truly,

Sharon Lingertat

Sharon Lingertat
Planner II, Environmental Assessments
Planning and Development

SL/

BY EMAIL

cc: Mississauga: Geoff Wright (geoff.wright@mississauga.ca)
Willy Ing (willy.ing@mississauga.ca)
TRCA: Beth Williston, Manager, Environmental Assessments
Carolyn Woodland, Director, Planning and Development
Quentin Hanchard, Manager, Development, Planning and Regulation
Chandra Sharma, Etobicoke/Mimico Watershed Specialist

F:\EA\Letters for Mailing\39971 – draft Addendum

APPENDIX A

1. Section 2.1 refers to the Preliminary Design Reports for the Little Etobicoke Creek and Etobicoke Creek crossings. Please clarify whether TRCA staff will have an opportunity to review the design briefs, prior to detailed design.

2. Section 4.1.1.5 refers to future land use within and adjacent to the BRT corridor. In the absence of any specific detail, please try to accommodate flexibility into the designs of the proposed stormwater management (SWM) facilities such that additional treatment can be accommodated, where required, for future development.

3. Please ensure that the "west" and "east" designations are accurate in the descriptions for Outlets 8 and 9 in section 4.1.1.6.

4. The information provided for Outlet 10 (Section 4.1.16) indicates that the Eastgate Parkway Trunk sewer was designed to convey flows up to the Regional event. Please note that TRCA has recently updated the Etobicoke Creek hydrology model such that new Regional flow rates have been established. The new rates will need to be considered as part of the drainage strategy for the proposed busway.

5. Section 5.5.2.4 outlines the hydraulic and SWM criteria for the project. It is noted that appropriate erosion and sediment (ESC) measures will be implemented during construction. Please ensure that the ESC plan is submitted at detailed design.

6. Section 5.5.2.4 notes that TRCA and CVC will be consulted at detail design regarding the placement of fill. As noted in comment 9 below, TRCA staff will require a hydraulic assessment to confirm that the placement of fill within the floodplain will not have any adverse impacts on flood levels.

7. Section 5.5.2.4 refers to preliminary pond sizing and preliminary design of conveyance systems. Please clarify whether this information will be submitted as part of the preliminary design process.

8. The proposed option to lift the busway over Tomken Road is preferable from a flood management perspective. In Section 7.2 it is noted that the existing berms will need to be extended to augment protection of the residential areas to the south. Portions of the existing berms are located with the Regional Floodplain. Please clarify the extent of the proposed berm modifications. Where modifications are proposed within the Regional Floodplain, please undertake a hydraulic assessment to confirm that there are no adverse impacts to flood levels. Table 7-1 should also be updated to reflect the potential for floodplain impacts as a result of the proposed alternative (i.e., busway over Tomken Road).

9. The proponent has indicated in Section 7.5.2.4 that the proposed extension of the Etobicoke Creek crossing will have a negligible impact on flood levels. Please submit a hydraulic assessment that shows results for all frequency events and the Regional storm event.

10. Section 4.1.2 provides an overview of the natural features in and around the proposed alignment and it is recognized that the majority of the natural features found along the proposed alignment

are of 'low sensitivity', due to prior disturbance and invasive species. However, the document does not include a detailed description of the specific features and functions that will be impacted. As a result, impact assessment and potential mitigation and compensation have not been determined at this time. Further detail will be required at detailed design, once the areas to be disturbed are confirmed.

11. Staff suggests that at detailed design the existing flora and fauna data be augmented with further amphibian and fish surveys, specifically digger crayfish. This will allow for an environmental impact study (EIS) to determine the impacts as a result of the proposed busway, parking lots and stations. It should be clarified that the scale of this study can be scoped down significantly. Once the more intensive data is collected, a characterization of the possible impacts to the features, functions and any linkages between them will be required. If the data and analysis determine that the natural features are of low quality, TRCA staff will be in a position to support their removal or alteration, if appropriate mitigation and compensation is provided.

12. It appears that the initial intent of Section 4.1.2, Natural Environment, was to include a discussion on mitigation and compensation in the EA Addendum. However, this section refers to Section XX which does not exist. Please update this section accordingly.

13. Table 14c in the original EA (January 1992) indicates that there will be "possible removal of some vegetation and alteration of wet pockets...". Given the current alignment constraints, it appears as if several existing "wet pockets" will be removed entirely. The EA also indicates that natural vegetation will be supplemented with plantings and landscaping. TRCA staff requirements for a net ecological gain have been highlighted in previous comments and meetings. While several of the features to be impacted are tolerant, common communities, mitigation for the loss of these features will be required. Please include in the EA Addendum a commitment to supplement for vegetation loss such that compensation for this loss as a result of the proposed works can be provided in a manner reasonable to all parties and landowners involved.

14. Drawing 7.4, for example, shows the proposed location of the SWM ponds along with proposed landscape plans. Please note that details for these features will be reviewed, and comments provided, at detailed design.

15. Please provide a commitment in the EA Addendum that a net ecological gain will be achieved for this project. Areas and requirements will be further considered at detailed design.

16. Land ownership constraints and restoration opportunities will be assessed to provide the greatest possible net ecological gain as land ownership issues may not provide compensation opportunities along or near the Bus Rapid Transit (BRT) alignment. However, as indicated during previous meetings and site visits, staff would like to work with the City to determine appropriate locations for off site compensation. The Region of Peel is currently starting an EA for the Hanlan Feedermain and the City of Mississauga is going to be starting detailed design for the rehabilitation of the Little Etobicoke Creek valley between Highway 401 and Eglinton Avenue. Proposed works in this reach may not fully restore the valley to its full potential and there may be additional opportunities, using existing construction access in the valley, for significant planting within the valley. If a net ecological gain is not possible for lands along the BRT route, this requirement may be satisfied by enhancing city lands where opportunities and access exist.

17. It should be noted that the digger crayfish found in and near the alignment are considered fish under the Federal *Fisheries Act*. Following internal discussions with Fisheries and Oceans Canada (DFO) staff, any crayfish sites that are connected to a watercourse are considered federal fisheries waters. This means that the mineral meadow marsh on the north side of the alignment, immediately east of Little Etobicoke Creek, is considered fish habitat. Works in and around this feature will require a *Fisheries Act* review.

18. Please consider additional surveys for digger crayfish. This will allow for identification of other locations where alteration to features containing digger crayfish requires a *Fisheries Act* review.

19. At detailed design, MNR should be contacted to determine wildlife collection/rescue requirements for any features to be altered or removed.

20. The above mentioned EIS should also consider impacts and possible improvements to fish habitat at the Etobicoke Creek and Little Etobicoke Creek crossings. Discussions have taken place with Ecoplans and MRC regarding possible improvements at Little Etobicoke Creek. Additionally, concrete repairs near pier locations for the Etobicoke Creek crossing should also be considered.

21. Section 7.5.1.2 indicates that between Cawthra Road and Tomken Road no utility relocation is required. Please note that consideration should also be made for the Regulated wetland features located north of Eastgate Parkway.

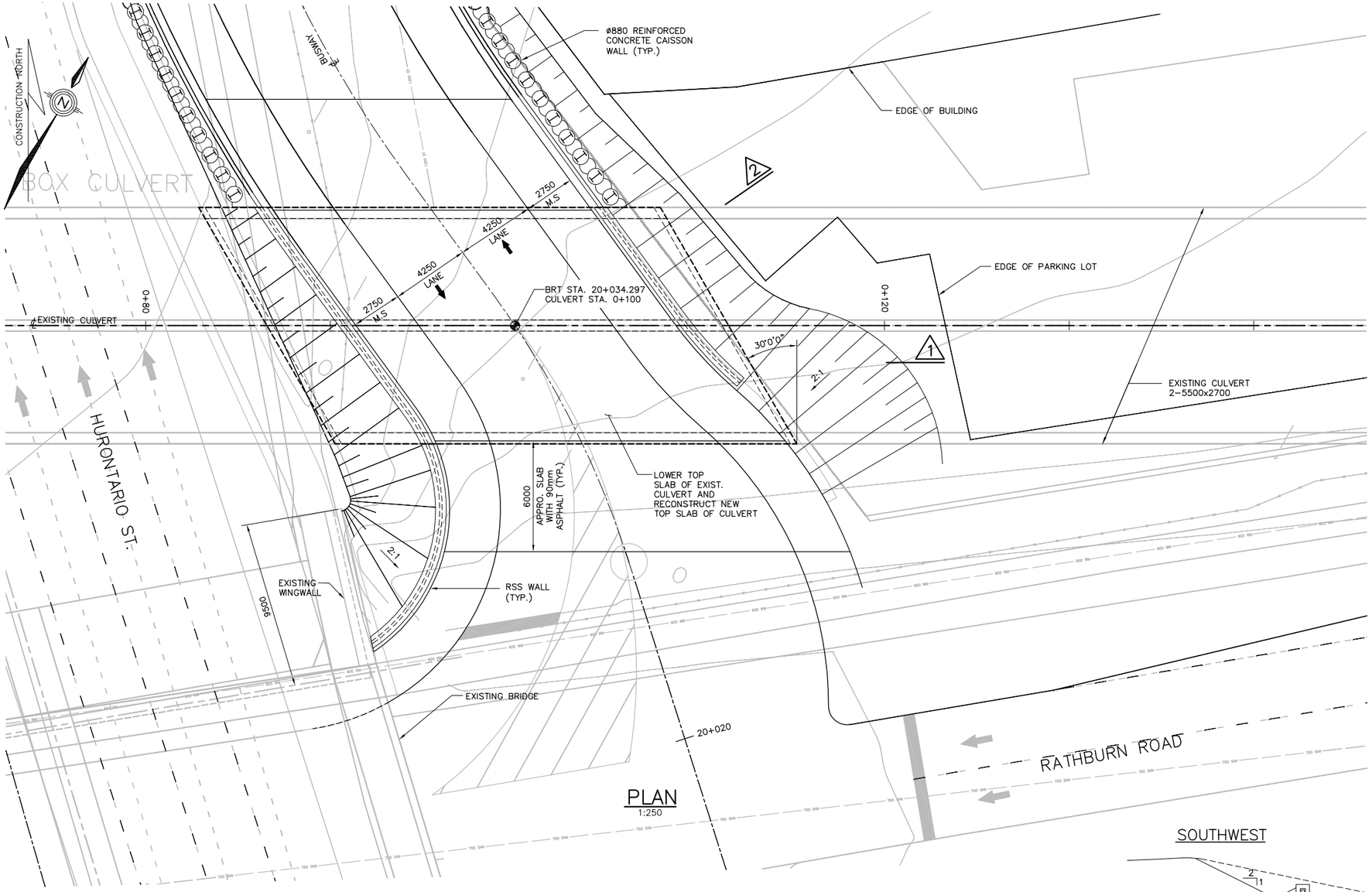
22. The above-noted requirements should be included in the EA Addendum and it should be made clear to the proponent and in the file that these issues will need to be addressed at detailed design.

23. Please submit geotechnical and hydrogeology reports with the detailed design submission.

24. Please ensure that details for proposed retaining walls are provided at the detailed design stage.

25. Please ensure that the Regulation Limits are included on your detailed design submissions.

26. TRCA correspondence is missing from the report. Please add TRCA letters dated November 30, 2007, April 4, 2008, April 25, 2008 and October 3, 2008 to Appendix C, Agency Consultation.



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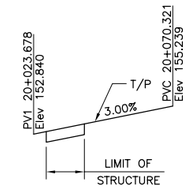

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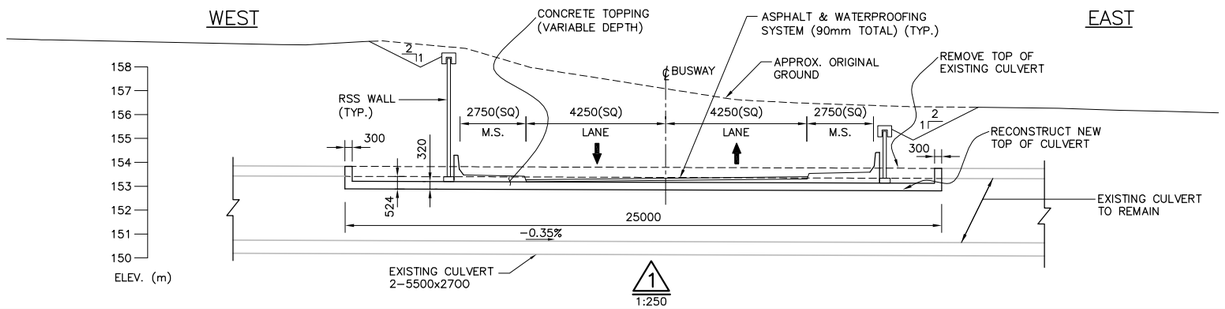
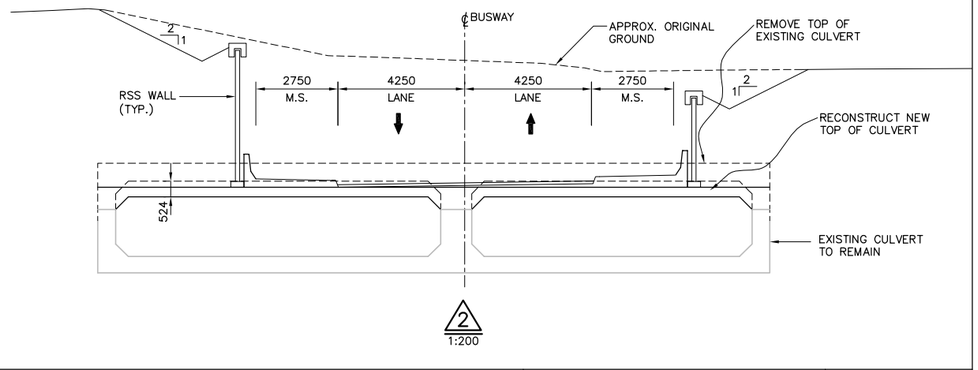


SOUTHWEST NORTHEAST



McCORMICK RANKIN CORPORATION	MISSISSAUGA Leading today for tomorrow	MISSISSAUGA BUS RAPID TRANSIT PRELIMINARY DESIGN	BRT At Cooksville Creek Preliminary General Arrangement	Date: NOVEMBER 2008 Scale: AS SHOWN FIGURE NO. ---

FILE LOCATION=S:\6964\7-BRT AT COOKSVILLE CREEK\
DRAWING NAME: S6964-307-001GALDWG
DRAWN BY: AMY ZHANG
MODIFIED: 08/11/26 16:16:57
DATE PLOTTED: 08/11/26 16:16:57

M T O

Willy Ing

From: Tupaz, Aimee Rose (MTO) [AimeeRose.Tupaz@ontario.ca]
Sent: 2008/10/30 2:53 PM
To: Willy Ing
Cc: White, Jason (MTO)
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Importance: High

Willy,

MTO is in the process of reviewing the draft EA Addendum and will be providing comments to you shortly.

Aimee

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: October 20, 2008 3:26 PM
To: Willy Ing; White, Jason (MTO)
Cc: Tupaz, Aimee Rose (MTO); Geoff Wright; Scott W Anderson
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

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Thanks

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> **Subject:** RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum
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> **Subject:** FW: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum
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> **Sent:** September 29, 2008 9:47 PM

To: White, Jason (MTO)
Subject: RE: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

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Cc: Korpal, Peter (MTO)
Subject: Re: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

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Jason

Sent from my BlackBerry Wireless Handheld

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To: White, Jason (MTO)
CC: Korpal, Peter (MTO)
Sent: Fri Sep 26 22:53:46 2008
Subject: FW: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Jason, thoughts ?

who should represent MTO ? us, P&P, both?

who's been the primary contact so far?

Lou

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: Fri 26/09/2008 10:04 AM
To: Politano, Lou (MTO)
Cc: Geoff Wright
Subject: Mississauga Bus Rapid Transit Project - Draft EnvironmentalAssessment Addendum

Dear Mr. Politano:

The City of Mississauga in partnership with GO Transit are undertaking an Environmental Assessment Addendum of the

Mississauga Transitway, now known as the Mississauga Bus Rapid Transit (BRT) which received approval from the Ministry of the Environment (MOE) in 1992.

In order to move this addendum forward, the Ministry of the Environment suggests that there may be benefit to engaging some members of the Government Review Team (GRT) at a preliminary stage to expedite the final addendum review process. We are engaging the Ministry of Transportation Ontario to determine if the MTO would be interested in participating in this draft EA Addendum review process, and if possible, that any comments from the MTO be provided to the City of Mississauga by the end of October 2008.

It is important to note that the EA Addendum focuses on alternatives/evaluations for revisions to the design approved as part of the 1992 Environmental Assessment and the 2004 Environmental Assessment Addendum. This EA Addendum is not at a Preliminary Design level of detail and does not include the level of detail that will be included as part of Preliminary Design. Preliminary Design is separate from this EA Addendum and will be documented in Preliminary Design Reports which will be made available for stakeholder review.

For your information, our consultant McCormick Rankin Corporation (MRC) is consulting with various MTO staff regarding the Preliminary Design.

Please provide a response to this e-mail in 5 working days to the City of Mississauga.

Should you have any questions you may contact Mr. Geoff Wright, Director Bus Rapid Transit Project Office at 905-615-3200 Ext 4940 e-mail: geoff.wright@mississauga.ca <mailto:geoff.wright@mississauga.ca> , or you may contact me directly, my information is noted below.

Willy Ing
Project Leader, Bus Rapid Transit (BRT)
City of Mississauga
Transportation and Works Department
201 City Centre Drive
Suite 800
Mississauga, Ontario
L5B 2T4.
Phone: 905-615-3200 Ext. 5791
Fax: 905-896-5504
e-mail: willy.ing@mississauga.ca <mailto:willy.ing@mississauga.ca>

Willy Ing

From: Willy Ing
Sent: 2008/11/13 10:33 AM
To: 'Tupaz, Aimee Rose (MTO)'
Cc: White, Jason (MTO); Geoff Wright; Scott W Anderson; Schijns, Steve
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Aimee and Jason,

This is to inform the MTO that the City of Mississauga's Bus Rapid Transit Project office has requested our consultant to review your concerns. We hope to provide you with a response or meet with you to discuss the issues soon.

Willy

From: Tupaz, Aimee Rose (MTO) [mailto:AimeeRose.Tupaz@ontario.ca]
Sent: 2008/11/03 3:12 PM
To: Willy Ing
Cc: White, Jason (MTO); Geoff Wright; Scott W Anderson
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy,

The ministry recognizes that the Mississauga BRT project is still in the preliminary design phase, however, there are several design concepts which have not yet been finalized that hinders the ministry's ability to comment. The ministry has identified areas for improvement within the current BRT preliminary design to the consultant at two meetings held in October. Given the short time frame to review the draft EA addendum (September 2008) for the Mississauga Bus Rapid Transit project, the ministry has the following comments.

- The ministry understands that due to physical constraints in the Highway 403 corridor, it may not be feasible to meet all ministry standards on its facilities being impacted by the BRT, however; safety measures to mitigate these issues must be implemented in accordance with ministry standards. For example, the separation of the E-N/S and S-W ramp at the Winston Churchill Boulevard interchange does not meet current ministry standards. The ministry would like to ensure that the proper mitigation measures are provided for both ramps to address this concern.
- The ministry has concerns with the feasibility of the staging plan outlined in the EA addendum for Winston Churchill Boulevard. It states that two lanes per direction as well as existing pedestrian access will be maintained throughout construction. Based on the construction staging drawings shown for the BRT West section, overbuilding of the existing Winston Churchill Boulevard structure may be required to maintain the traffic/pedestrian flow stated in the EA addendum. Cross section details for the construction staging plan on Winston Churchill Boulevard were not provided to the ministry to assess the feasibility of maintaining two lanes per direction and pedestrian access during construction without the need to overbuild the existing structure. The ministry has yet to receive the staging plan for the BRT East segment for a preliminary review.
- The ministry has concerns with its ability to widen Highway 403 in the future once the BRT is operational. The ministry would like a future commitment from the proponent of the BRT that they will undertake the appropriate safety measures for the BRT as required during construction when the ministry proceeds with Highway 403 widening.
- There are a number of the ministry's ramps which will now be impacted by the BRT. After review of the preliminary design, the ministry would like the proposed grades of these ramps to be minimized and confirmation that the new alignments for all ramps meets ministry standards for stopping sight distance, sight lines and other relevant design criteria.
- The ministry has concerns with the proposed design of a direct taper versus the existing dedicated parallel lane for the S-W ramp from Winston Churchill Boulevard to Highway 403. The preliminary design shows the addition of a third through lane in the northbound direction for Winston Churchill. Do the existing traffic volumes on Winston Churchill warrant an additional through lane? Has there been any traffic modelling done at the

intersection to assess the queuing for the S-W ramp with this new lane on Winston Churchill with this proposed design? If an additional through lane is warranted for Winston Churchill, the ministry would like the dedicated parallel lane for the S-W ramp to be reinstated.

- Drainage and grading work still needs to be finalized in the preliminary design. For instance, based on the grading shown in the preliminary design, additional retaining walls may be required along the BRT. The landscaping plan as shown in the EA Addendum may not be feasible based on the grading shown on the preliminary design drawings.
- There is a change in the BRT East segment with the Cawthra ramp alignment being modified and this has not been addressed in this EA addendum, should it not be included as part of this EA addendum?

The ministry is looking forward to meeting with you should you wish to discuss any of our comments further.

Regards,

Aimee

From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: October 20, 2008 3:26 PM
To: Willy Ing; White, Jason (MTO)
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2655 North Sheridan Way
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Website: www.mrc.ca

Geoff
copy: Scott
Willy
File: PD.04-DES
MRC 700

MEMO

SUBJECT: Mississauga BRT

TO: Aimee-Rose Tupaz, P.Eng.

FROM: Stephen Schijns, P.Eng.

DATE: December 10th, 2008

COPIES: **MTO:** Jason White, Ted Lagakos, Martin Sedkowski, Clement Shim, Chris Tschirhart, Chris Blaney, Ram Dharamdial, Branko Zivkovic
GO Transit: Stephanie Davies, Muyiwa Adebayo, Jeff Bateman
Mississauga: Geoff Wright
MRC: Dale Turvey, Andrew Shea, Kevin Rodger

OUR FILE: 6964

SUBJECT: Response to MTO Comments on draft Preliminary Design Reports

The following MTO comments were provided to the City, GO Transit, and/or MRC upon MTO review of the draft EA Addendum and a two-day review session (October 20, 21) for the Mississauga BRT project. The responses indicate how the comments are being addressed in the BRT PDRs.

General Comments for the BRT	Response
1. The ownership of the BRT lands is an important issue and needs to be addressed.	Noted. The City of Mississauga and GO Transit will be responsible for negotiating property lease and/or acquisition.
2. There is still work to be done regarding the drainage for the BRT. There is concern that minor areas are being widowed in the drainage plan and are being conveyed to the ministry's ditch line with minor or no treatment. The ministry is still reviewing the expansion of its existing SWM ponds.	Noted. Without specific locations identified, this comment cannot be addressed further at this time. There is a commitment to treat all surface runoff affected by the BRT project, and that will be a guiding principle through detail design.
3. The grading shown along the BRT still needs work and additional retaining walls may be required. The landscaping plan as shown in the EA Addendum may not be feasible based on the grading shown on the preliminary design drawings	Grading plan is complete. Landscaping plan is conceptual and will be reviewed and confirmed/modified as necessary during detailed design phase of study.
4. Access to all SWM ponds must be maintained.	Access to one MTO SWM pond will be affected (east of Central Parkway); that access road will be relocated to preserve access. Access to all other MTO SWM ponds in the corridor is not affected.
5. The ministry understands that due to physical constraints in the Highway 403 corridor, it may not be feasible to meet	Addressed in BRT PDR and in MTO P&R Lot PDR.

General Comments for the BRT	Response
all ministry standards on its facilities being impacted by the BRT. Justification as to why ministry standards can not be met and safety measures to mitigate these issues must be implemented in accordance with ministry standards.	
6. There are a number of the ministry's ramps which will now be impacted by the BRT. After review of the preliminary design, the ministry would like the proposed grades of these ramps to be minimized and confirmation that the new alignments for all ramps meets ministry standards for stopping sight distance, sight lines and other relevant design criteria.	All ramp grades and other proposed design features are within Ministry standards. See Table 1.
7. MTO permits will be required for all works within our property limits. Sign permits will be required for any visible signs within 400 m of MTO property limits.	Noted. These approvals will be addressed during the detailed design / construction phases of the project.
BRT WEST	
1. HML is being relocated on slope – accessibility for maintenance, constructability – auguring on slope and slope stability, impacts to nearby residents regarding the new lighting envelope.	Location of specific concern not identified. HMLs will, in general, be relocated to level, accessible sites within the corridor and as close as possible to existing sites. The location shown for the relocated HML adjacent to the N-W ramp at Winston Churchill Boulevard in the draft plans is altered to reflect updated grading requirements.
2. The EP to EP ramp separation of the S-W and E-N/S ramp at Winston Churchill does not meet ministry standards. Installation of barrier curb is not acceptable. The consultant must provide justification as to why this does not meet ministry standards and propose mitigation measures, done in accordance with ministry standards, to address this concern.	At its closest, the two ramps are separated (e/p to e/p) by 4.2 m, which requires that they be barrier separated. The gap provides for a 1.0 m outer shoulder on the S-W ramp, 0.8 m for a standard OPSD concrete tallwall barrier on the loop ramp, and a 2.4 m paved inner shoulder on the E-N/S ramp. All dimensions meet or exceed MTO GDSOH standards. Due to the proximity of existing hydro towers to both the E-N/S and S-W ramps, they cannot be realigned without compromising minimum geometric design requirements, and the loop ramp cannot stay on its current alignment without creating a substandard grade on the busway. Relocation of one or both of the hydro towers is costly, not preferred by Hydro One, and not necessary in light of the proposed ramp layout meeting MTO standards. Furthermore, the E-N/S ramp exit terminal cannot be shifted due to the undesirability of reducing the upstream weave length on Highway 403, while the intersection with Winston Churchill Boulevard is similarly constrained by the presence of stormwater management ponds immediately to the north (the option of relocating the intersection northward was previously reviewed and rejected by MTO).
3. The proposed relocated S-W ramp will be relocated closer to the existing Hydro tower. Clearance must be acceptable to Hydro One and the ministry has no	The inner edge of pavement of the proposed S-W ramp is at exactly the same offset from the existing hydro tower relocation as the edge of pavement of the current E-N/S ramp. This positioning is intentional, so as to avoid any

General Comments for the BRT	Response
influence on the required clearances by Hydro One.	Hydro One concerns.. This situation is to be reviewed with Hydro One.
4. What will be the impacts to the existing water main and Enbridge gas facilities with the new structure of the N-W ramp?	The existing water main will be relocated to the east of the proposed N-W ramp structure prior to its construction, as illustrated in Figure 1 (attached). The north-south Enbridge pipelines will remain in situ, without being affected by the structure or footings.
5. The ditches along Highway 403 in this section are gone, how will drainage be conveyed?	Ditches along Highway 403 are not affected, except at ramp locations. Drainage will continue to be conveyed along existing ditches, and reconfigured ramp drainage will feed into existing MTO Highway 403 ditches.
6. There is no cross-section for the BRT in this section, is it to be the same as the cross section for BRT east? If so, BRT east is fully paved however BRT west is shown with a grass swale?	The cross-section for the BRT guideway is the same as in the BRT East, featuring 3.75 m wide lanes and 2.75 m wide paved shoulders. The "grass-swales" shown are grading limits, and will be present in both the BRT East and West wherever the elevation of the busway differs from that of the existing ground.
7. The ministry has concerns with the proposed design of a direct taper versus the existing dedicated parallel lane for the S-W ramp from Winston Churchill Boulevard to Highway 403. The preliminary design shows the addition of a third through lane in the northbound direction for Winston Churchill. Do the existing traffic volumes on Winston Churchill warrant an additional through lane?	The need to provide additional capacity on the northbound approach to the E-N/S ramp intersection was identified as part of the MTO's Transit Supportive Off Highway Improvements Study in 2005. Subsequent analysis has confirmed this conclusion. Existing PM peak period conditions at the E-N/S ramp terminal see the NB through move operating near or at capacity, and the introduction of a fourth leg to the intersection will take green time and necessitate greater throughput on the other legs. After an exhaustive analysis of alternative interchange and access designs, the direct taper approach was developed as part of the Highway 403 Park & Ride Lots Preliminary Design study, and was incorporated in the plan reviewed with MTO Senior Engineering staff on May 20, 2006, July 9, 2007 and August 20, 2007 (Presentations and notes of meeting attached). The design was also discussed at several Project Team meetings through 2005 and 2006. The design was endorsed by the project team, and no objection to the approach was voiced at any time during the study by senior management. The proposed configuration is not inconsistent with MTO practice and is familiar to Highway 403 users. The identical configuration exists at the adjacent Erin Mills Parkway interchange, with three through lanes and a direct taper to both the S-W and N-E loop ramps to Highway 403 having been in operation there for many years. The Mavis Road and Hurontario Street interchanges with Highway 403 offer more local examples of this configuration. These roads feature higher arterial and ramp volumes than Winston Churchill Boulevard. It may also be noted that the six lane + direct taper configuration (built as four lanes with parallel lanes) is the design guideline being used in new MTO freeways (e.g. Highway 407 East). The southbound approach to the Winston Churchill intersection has three through lanes.

General Comments for the BRT	Response
Has there been any traffic modelling done at the intersection to assess the queuing for the S-W ramp with this new lane on Winston Churchill with this proposed design?	The S-W loop ramp is currently used by 123 veh/h in the AM peak and 74 veh/h in the PM peak. Development to the south is mature and significant growth is not expected. The two northbound through lanes on Winston Churchill Boulevard are currently used by 1,690 veh/h in the AM peak and 1,850 veh/h in the PM. In addition, there are over 1,600 veh/h using the E-N/S ramp in the PM peak. The additional intersection capacity provided by a third northbound through lane would yield operational benefits (delay reduction, queue length reduction) for over 3,500 veh/h. Modelled NB Queue Length (95th percentile): Existing (no P&R lot) (2 lanes): 150 m (AM); 350 m (PM) Forecast with P&R lot (2 lanes): 280 m (AM); 325 m (PM) Forecast with P&R lot (3 lanes):133 m (AM); 177 m (PM) The reduction in queue length of 150 m for 1690 – 1850 veh/h for the 3 lane vs. 2 lane approach may be compared to the reduced risk of delay to those loop ramp vehicles arriving at the end of the NB queue during the NB red phase during the PM peak period (approximately 40 veh/h). Given the ramp volume at risk of being delayed by one red phase (less than 1 % of the intersection volume) and considering that the risk of delay is little different from that experienced at any of the other traffic signals upstream on the arterial system, there appears to be little justification for either maintaining the parallel ramp lane at the expense of a through lane or for significant expenditure on a new (wider) Highway 403 structure.
If an additional through lane is warranted for Winston Churchill, the ministry would like the dedicated parallel lane for the S-W ramp to be reinstated.	Traffic analysis inputs and outputs (Synchro) were provided to the MTO for review in August 2007. No concerns were identified. The requirement to provide a dedicated parallel lane for the S-W ramp is new, and can only be achieved by either a) limiting Winston Churchill Boulevard to two northbound lanes, b) converting the loop ramp to a D loop design, or c) replacing the northbound structure across Highway 403 with a wider one. As outlined above, leaving Winston Churchill Boulevard with two northbound lanes would conflict with MTO's previous direction to maintain a good LOS at the E-N/S ramp terminal. Converting the loop ramp to a D loop design introduces safety, capacity, and goods movement issues that do not make it a preferred option. The existing structure across Highway 403 is a post-tensioned design that cannot be widened to the extent necessary for an additional lane; as well, the traffic disruption during its replacement would likely exceed any incremental reduction in delay to S-W loop traffic in years to come. Finally, creating a different interchange configuration that avoids impact on the E-N/S intersection has been

General Comments for the BRT	Response
	thoroughly examined as part of the Park & Ride Lot Preliminary Design Study and all such alternatives have been rejected by the Ministry. In the absence of physically acceptable or reasonably cost-effective solutions to retaining a dedicated parallel lane for the S-W ramp, we would seek Ministry guidance and direction as to the approach to take.
8. There may be an issue with the grading of the ramp and drainage being conveyed close to the hydro tower in the S-W ramp.	There is a drainage ditch between the hydro tower and the E-N/S ramp at present. Several options exist to direct ramp drainage in a way that fits within Hydro One's design and maintenance parameters. Further review with Hydro One during detail design will determine the most appropriate.
9. Lane designation at the intersection shows the right most left turn lane lining up with the left most through lane to the parking lot. How is that to be signed? Is this lane supposed to be a bus priority lane which will only allow that movement for buses?	Lane alignment at intersection has been modified to address alignment concerns (see Figure 1). The lane is for use by all vehicles destined to the Park & Ride facility. The four E-N/S ramp lanes will be signed as left – left – through/right – right, with both roadside and overhead signs per MTO standards.
10. Lane configuration development on E-N/S ramp. Develops on right side from the two left turn lanes. If queuing occurs, people will not be able to get in the right lane, same problem again. Left lane and right lane should develop.	Lane marking revised to show left lane and right lane developed.
11. The analysis of alternative structure types i.e. how they arrived at the proposed structure types for the 5 bridges. The same information should be included in the Preliminary Design Report.	Proposed structure types are based on MRC's structural design experience with bridges of similar spans and circumstances; recommendations consider factors such as span length, structure depth, any site-specific constraints (e.g. topography, utilities, foundation conditions), durability, constructability, and cost.
12. Details of connecting the twin structures over Highway 403 at Winston Churchill Boulevard. MRC shall submit structural analysis and design calculations to demonstrate that the concrete in the structure will not be overstressed as a result of the proposed connection.	The 5 cm gap between the structures is proposed to be covered by a plate during the detour stage; the structures themselves will not be connected. Structural analysis details and calculations will be reviewed with MTO the detail design stage.
13. There should be no decrease in the effectiveness of the berms or depressed Highway 403 for the noise sensitive areas on the north side of the highway. If there are noise problems from the operation of the parking lots and transitway, the proponent will need to provide solutions.	Noise analysis indicates no significant increases in noise, and EA approval has been granted on that basis. Noise impacts associated with the implementation of the busway do not warrant noise mitigation under the Region of Peel, City of Mississauga, or Ministry of the Environment noise criteria, and therefore no further noise mitigation measures are proposed.
14. Maintain existing number of lanes on E-N/S Off-ramp to WCB during all construction phases.	Note included in BRT West PDR for construction / implementation.
15. Revise NB lane arrangement on WCB south leg	Drafting revised to clearly show bullnose location and lane arrangement.
16. Show bus turning templates at intersections to and from carpool. (Mississauga Transit also uses accordion style buses)	Due to shorter wheelbase, articulated buses track tighter than standard highway coaches and 12 m buses; GO Transit highway coach is the design vehicle.

General Comments for the BRT	Response
17. What closures, if any are anticipated, on Hwy 403 mainline and ramp will be required?	No closures are required on the Highway 403 mainline. Temporary, short-term closures (overnight or, at most, a weekend) are proposed only to tie-in realigned ramps to the existing ramps.
18. The ministry has concerns with the feasibility of the staging plan outlined in the EA addendum for Winston Churchill Boulevard. It states that two lanes per direction as well as existing pedestrian access will be maintained throughout construction. Based on the construction staging drawings shown for the BRT West section, overbuilding of the existing Winston Churchill Boulevard structure may be required to maintain the traffic/pedestrian flow stated in the EA addendum. Cross section details for the construction staging plan on Winston Churchill Boulevard were not provided to the ministry to assess the feasibility of maintaining two lanes per direction and pedestrian access during construction without the need to overbuild the existing structure.	On the north part of the crossing, the 5 cm gap between the existing Winston Churchill / 403 structures will need to be covered and the median modified to allow detouring to extend onto the northern end of the structures. This will allow four lanes of traffic to be shifted among the six lanes available on the structures, and will not require overbuilding the existing structure(s). The mechanics of removing the north part of the median, covering the gap with a temporary plate, adjusting the driving surface, and restoring the median after completion have been reviewed with our experienced structural engineers and they are satisfied that this is a reasonable and feasible approach. The details will be developed and presented to MTO for approval during the detail design stage.
19. Is the construction work required to be access from under the Winston Churchill bridge for the proposed connection? If so, MRC is required to get MTO Traffic's approval as the work will impact Highway 403 traffic underneath. It is advisable to have MRC contact Traffic Office in advance to ensure its constructability.	Various site access options exist; final access plan to be defined through consultation with MTO during detail design.
BRT EAST	
1. Berms for disposal of excess fill are OK but some are too close to Hydro lines	Berming plan is conceptual at this point; it is to be reviewed with Hydro One / ORC prior to finalizing the preliminary design, and will be the subject of review and approval at the detail design stage.
2. Berm proposed with tying in the noise fence west of Hurontario looks ok in principle and would be a better solution	Assuming this comment refers to "east" of Hurontario; the berm south of the busway will only be implemented if the parking lot is removed. It is our understanding that the parking lot lease has been or will be renewed by MTO and that the lot will remain for the foreseeable future. The berm proposal has therefore been removed from the plan.
3. Replacement of noise walls like for like should not be impeded on the basis of cost	Any MTO noise walls impacted by the BRT will be replaced on the south side of the Busway.
4. The analysis of alternative structure types i.e. how they arrived at the proposed structure types for the 4 bridges. The same information should be included in the Preliminary Design Report.	Proposed structure types are based on MRC's structural design experience with bridges of similar spans and circumstances; recommendations consider factors such as span length, structure depth, any site-specific constraints (e.g. topography, utilities, foundation conditions), durability, constructability, and cost. All structures are of standard types. Notes will be included in PDR.
5. The noise barrier wall shown in Figure 1 needs to be extended westerly	Noise wall adjusted. Revised plan illustrated in Figure 2.

General Comments for the BRT	Response
approximately 300 metres to help reduce noise levels for the homes on the western end of Chalfield Lane. The Ministry constructed a berm here on the recent 8 laning of Highway 403 due to noise complaints in this area.	
6. Cross section C – C shows the noise barrier to be removed and the note on the plan shows the wall to be retained. Which comment is correct?	The existing Highway 403 noise wall at the Central Parkway crossing is to be retained only in the station area. Beyond that, the noise barrier will be replaced with a new noise barrier on the south side of the busway, as illustrated on Figure 2.
7. The barrier profile of the wall to remain shows that the wall is over 5 m in height. I believe that the wall is only 4 m high. The wall should be replaced as it is 27 years old and is at the end of its life span. It will look very bad if it is the only remaining section of old steel wall.	The BRT project will replace any MTO noise walls that are physically affected by construction Replacement of other existing MTO noise walls due to age, condition, or for aesthetic consistency with new walls is not part of the BRT project scope.
8. Provide stopping sight distance on realigned W-N/S Cawthra Off-Ramp, does it meet ministry standards?	SSD on the proposed ramp meets MTO standards. See Table 1.
9. What is the width between the BRT and Hwy 403 EB lanes, with respect to roadside protection and clear zone requirements?	The offset between the Highway 403 EB lanes and the proposed BRT is typically 27 m (from edge to edge of travelled way); it reduces to 14 m at part of the EB exit ramp to Eastgate Parkway. The existing guiderail adjacent to the eastbound Highway 403 shoulder (covering approximately 2/3 of the distance over which the busway is adjacent) will be retained, and extended as necessary to provide a continuous barrier between the two facilities.
10. Provide staging drawings for the Ramp realignment and structure construction.	Staging drawings are included in current draft of BRT East PDR (Nov-08). See Figure 3.
11. What closures, if any are anticipated, on Hwy 403 mainline and ramp will be required?	No mainline closures are required. Ramp closures will be limited to the brief time required to tie in the realigned Eastgate exit ramp with the existing ramp.
12. Existing storm sewer location shown in profile in Figure 3, is it correct?	Yes.
13. Existing HML pole not shown where excess fill will be placed on the existing berm.	Location of concern is not specified. In general, excess fill shown as conceptual; grading in the field will reflect all existing conditions and avoid the need to relocate HML poles, utilities, etc. This will be addressed in detail design.
Additional queries by e-mail, Dec. 2, 2008	
14. Is it possible to obtain a copy of the revised drawing at the Winston Churchill and E-N/S ramp terminal intersection?	Attached as Figure 1.
15. With regards to the additional lane for Winston Churchill NB, it states that this additional lane was reviewed by MTO. I was not aware that this had been previously reviewed by the ministry. Can you please provide me with the documentation that warrants the additional lane for Winston Churchill and the removal of the existing dedicated lane for the S-W ramp and the relevant traffic analysis and any other supporting documentation relating	Documentation appended, drawn from the Off-Highway Transit-Supportive Improvements study (2005), the Park & Ride Lots Preliminary Design study (2007), and the Mississauga BRT West Preliminary Design report (2008). The proposed plan showing the intersection arrangement was reviewed by the Transit-Supportive Improvements Study project team and presented to MTO Central Region Senior Management on May 29, 2006, July 9, 2007 and again on August 20, 2007. The requirement for the third NB lane was laid out on May 29, 2006, and was accepted without comment; no concerns were raised at subsequent meetings.

General Comments for the BRT	Response
to this so that it can be included in my file?	Part of the problem in documentation may stem from the turnover of Ministry staff on this particular project; it may be that additional documentation may be found in the files of the previous Project Managers Nancy Adriano, Ayvun Jeganathan, Ansar Ahmed, Jason White, and/or Has Shah.
16. Have there been any preliminary drawings for the PHM 125 for Winston Churchill and Erin Mills?	The draft PHM 125 drawings were included in Appendix D of the draft Preliminary Design Report for the Park & Ride Lots, submitted to MTO for review in August 2008. They are attached as Figures 4a and 4b. The drawings will need to be modified to reflect the changes in item 9 above.

Table 1: MTO Interchange Ramps Affected by Mississauga BRT Project

Ramp	Design Speed	Grade			Minimum Radius (m)			Stopping Sight Distance (m)		
		Existing	Standard	Proposed	Existing	Standard	Proposed	Existing	Standard	Proposed
Winston Churchill Blvd N-W ramp	50 km/h	+1.7% / -1.2% K crest=40 K sag=60	+ 5% / - 8% (K crest > 15; K sag > 18)	+1.33% / -4.75% (K crest = 17)	250	120 des (50 min)	125	65	65	65
Winston Churchill Blvd S-W ramp	40 km/h	-4.5% / +1.0% K crest= 30 K sag = 35	+ 5% / - 8% (K crest > 4; K sag > 8)	-4% / +1.0% K crest=40 K sag = 14	50	50	65	45	45	45
Winston Churchill Blvd E-N/S ramp	50 - 80 km/h	+3.0% K sag = 50	+ 5% / - 8% (K crest > 35; K sag > 30)	+3.0% K crest=50 K sag = 80	100/236.5	230 des (120 min) / 120 des (50 min)	236.5 / 90	65/135	65/135	66/135
Erin Mills Parkway N-W ramp	50 km/h	+1% / - 1.2% K crest=50 K sag=40	+ 5% / - 8% (K crest > 15; K sag > 18)	+2.7% / -4.0% K crest = 17 K sag = 17	175	120 des (50 min)	110	65	65	65
Erin Mills Parkway E-N/S ramp	50 - 80 km/h	+3% K crest= 25	+ 5% / - 8% (K crest > 35; K sag > 30)	+3% K crest=20 K sag = 70	95	230 des (120 min) / 120 des (50 min)	100	65/135	65/135	66/135
EB Exit to Eastgate / Cawthra ramp	60 - 80 km/h	- 1 % max	+ 5% / - 8% (K crest > 35; K sag > 30)	+2.8% / -2.68% (K crest = 38; K sag = 35)	straight	230	340 / 250 / 380	n/a	135 (80 km/h); 85 (60 km/h)	85 at BRT crossing

Figure 1: Utility Relocation Plan and intersection layout – Winston Churchill Boulevard

Figure 2: Noise Wall Plan – Hurontario to Central Parkway

Figure 3: Staging Plans for 403-Eastgate Exit Ramp and Structure

Figure 4a/4b: PHM Drawings for Winston Churchill Boulevard and Erin Mills / E-N/S Ramp Intersections

Appendix 1: Winston Churchill Interchange Third Northbound Lane Documentation

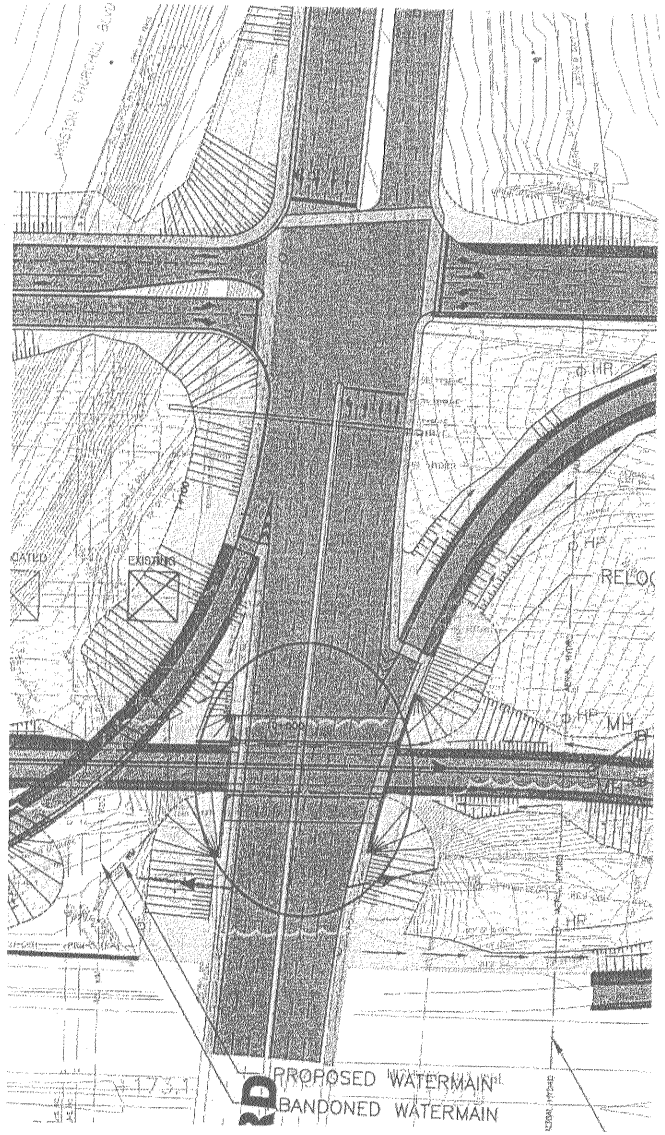
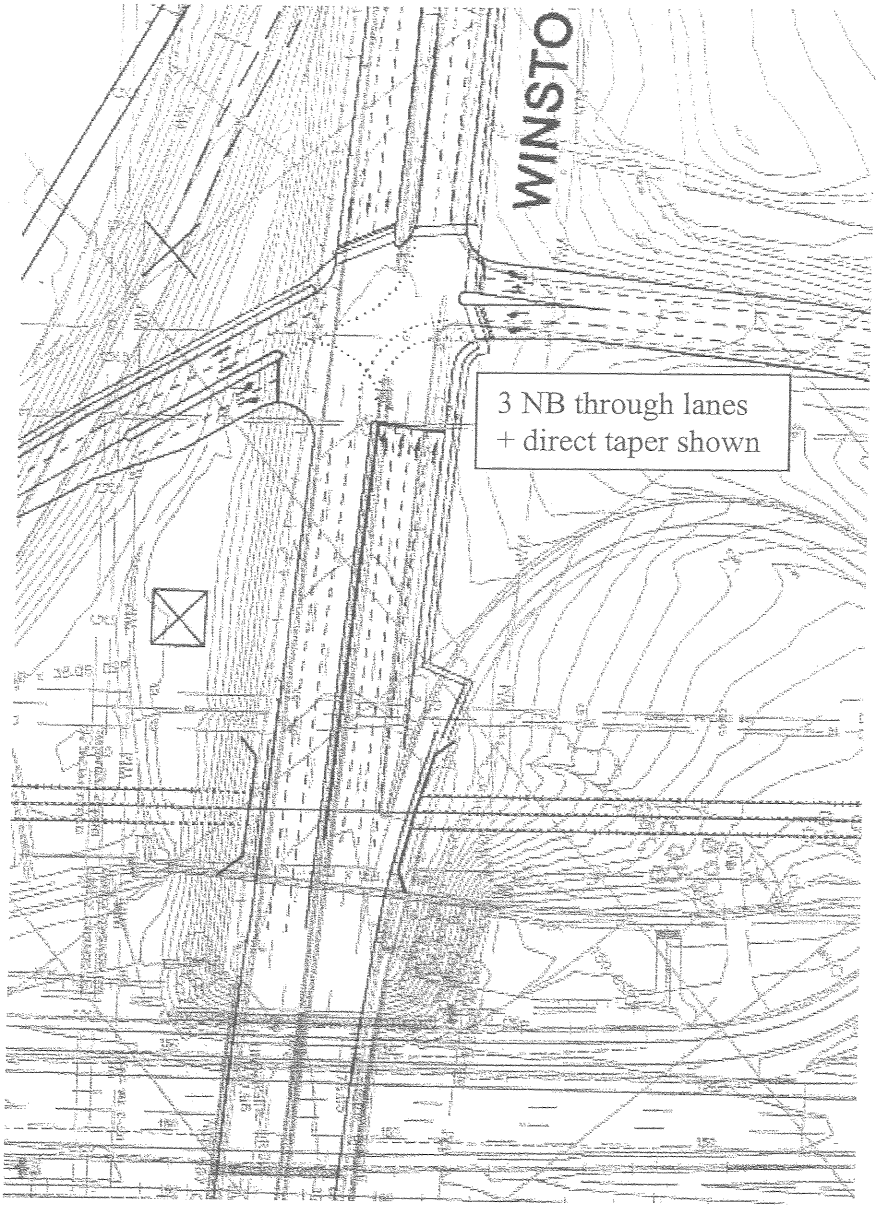


Figure 1: Utility Relocation Plan and intersection layout – Winston Churchill Boulevard

Winston Churchill access configuration as shown and discussed at MTO Project Team meeting (Transit Supportive Off-Highway Improvements Study), January 11, 2005



Transit Supportive Off-Highway Improvements Study

MTO Central Region Engineering Meeting

May 29, 2006

MRC

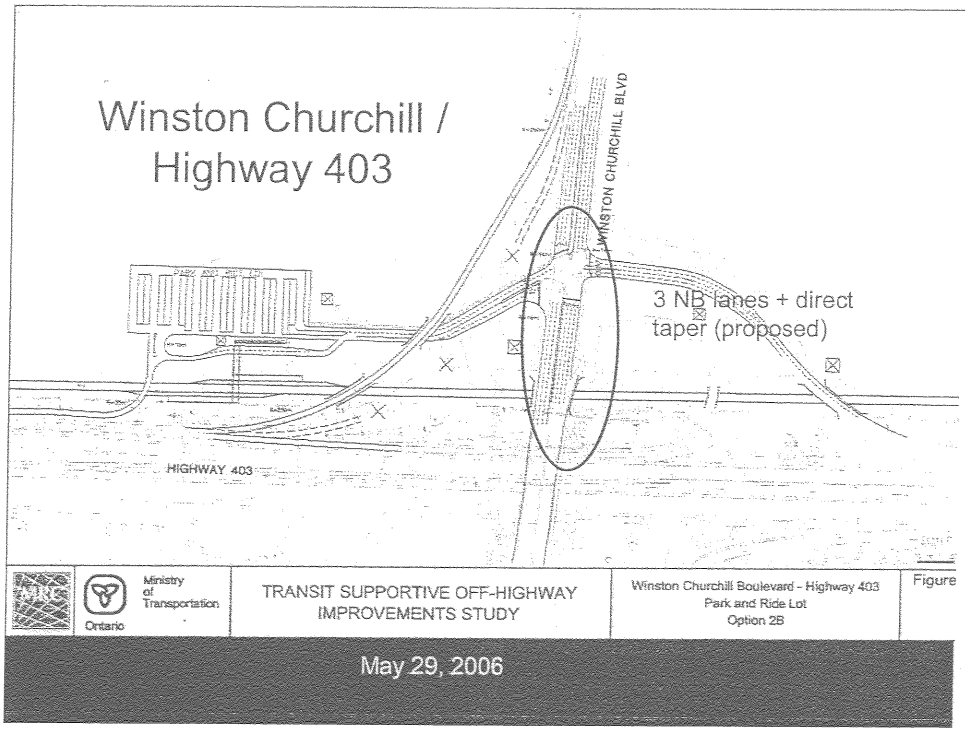
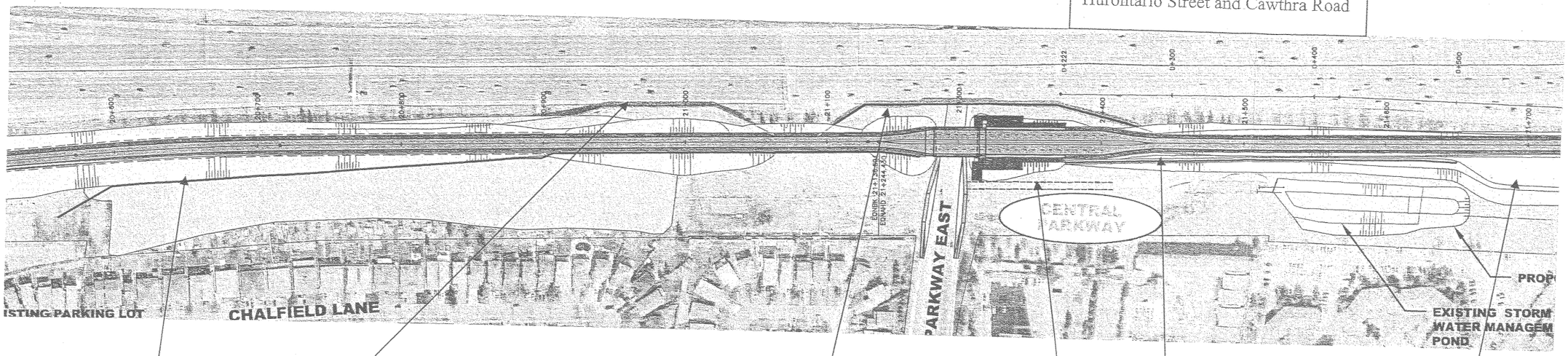


Figure 2: Noise Wall Plan between Hurontario Street and Cawthra Road



Busway noise wall (limit to be determined in detail design)

Existing MTO Noise Wall to be removed and replaced by new wall south of busway

Existing MTO Noise Wall to be retained

Existing MTO Noise Wall to be supplemented by new wall south of busway

Extend berm from pond easterly

SWM pond access road to be shifted southerly

STAGE 1 DETOUR
1:1000

Figure 3a: Detour Plan at Highway 403 Exit ramp to Eastgate Parkway – Two Stage Alternative

STAGE 2 DETOUR
1:1000

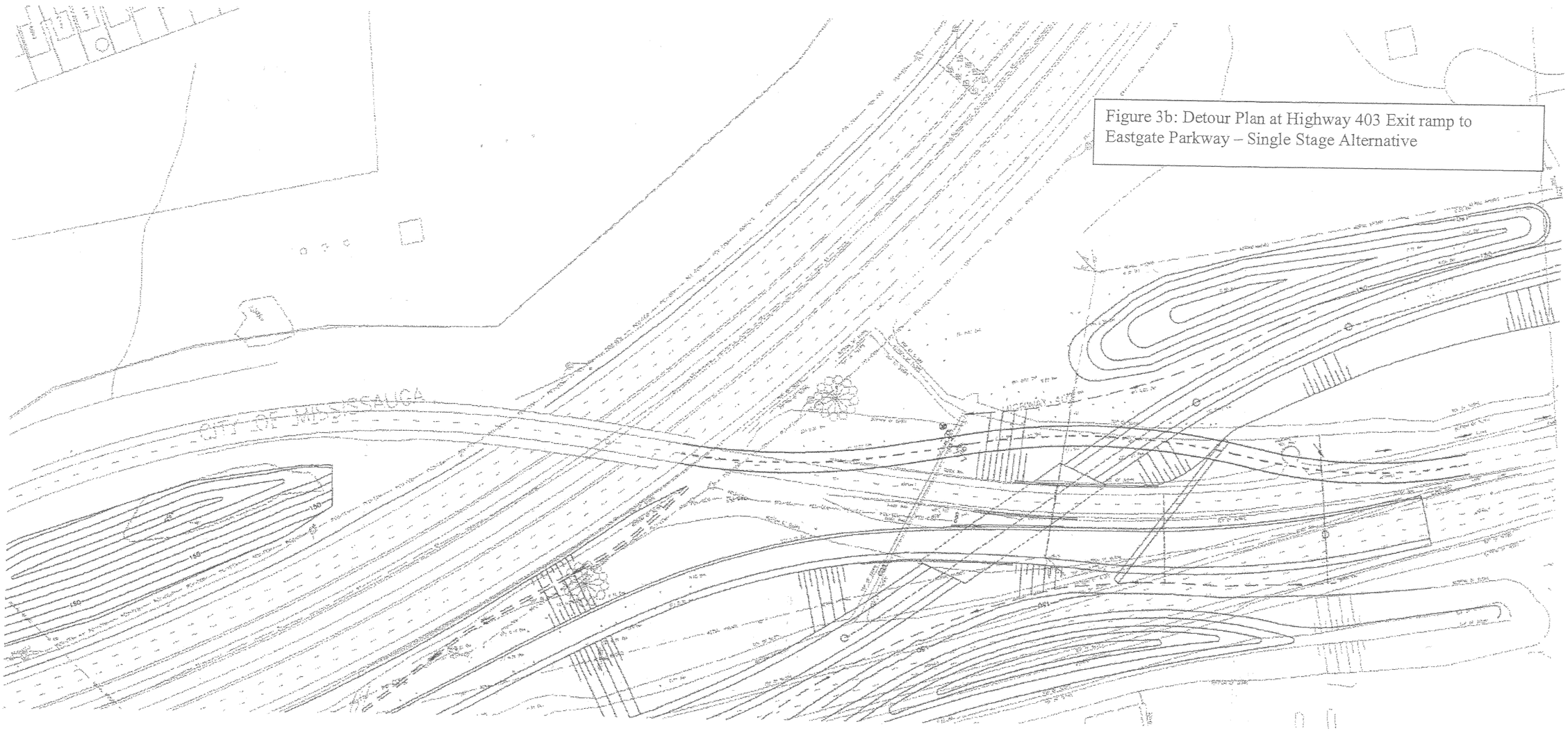
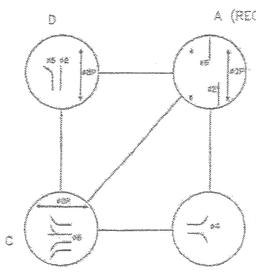


Figure 3b: Detour Plan at Highway 403 Exit ramp to Eastgate Parkway – Single Stage Alternative



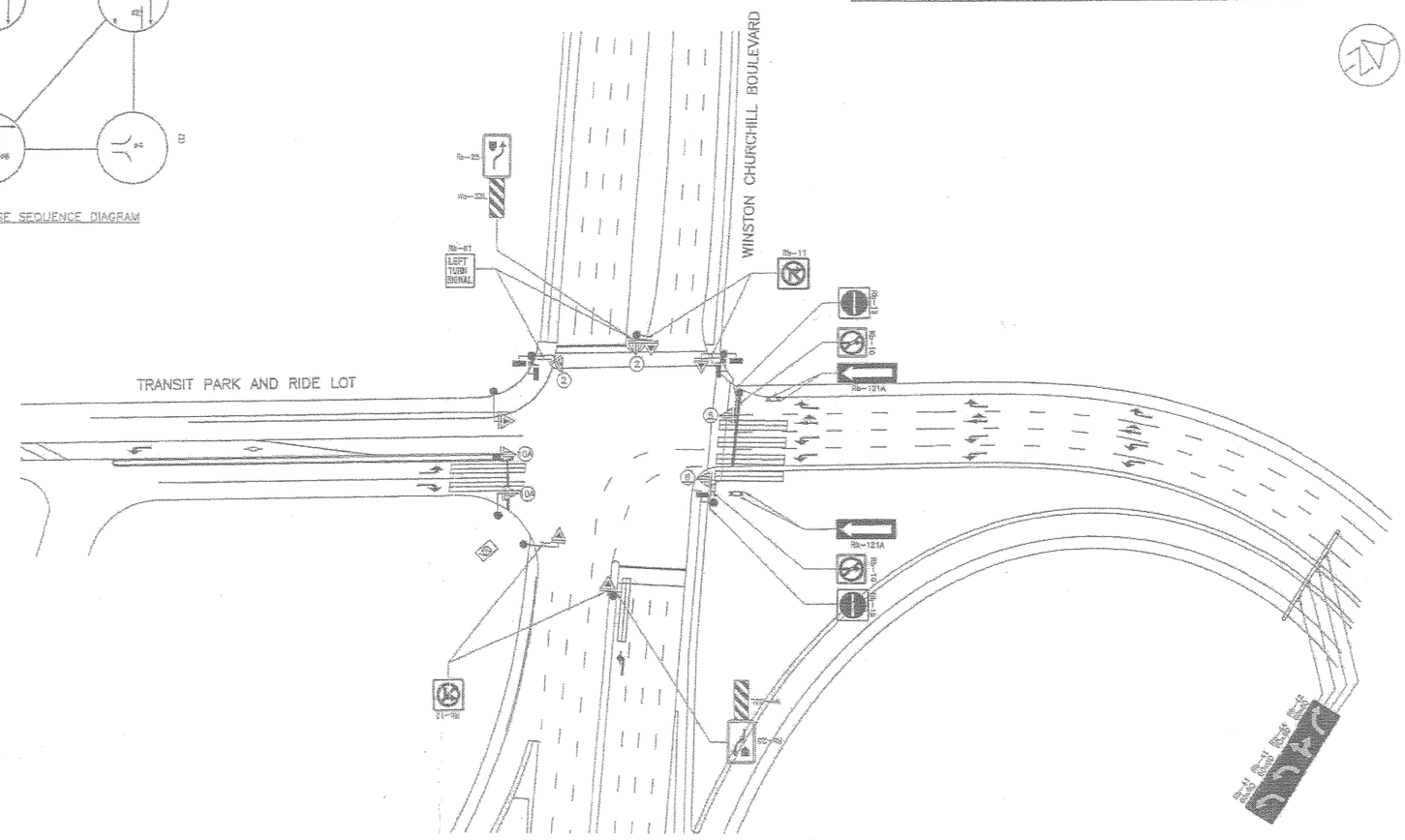


Figure 4a: draft PHM 125 for Winston Churchill Boulevard / 403 E/N/S Ramp Intersection

FORM PH-M-125 90-12

COLLISION DIAGRAM

NUMBER OF ANGLE COLLISIONS

Year	No.
TOTAL	
AVERAGE PER YEAR	

MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNALS
(WARRANT ANALYSIS FORMS SHOULD BE ATTACHED)

LOCATION ____________ AT ____________
MUNICIPALITY ____________ DATE OF SURVEY ____________

	WARRANT	DESCRIPTION	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS: FREE FLOW OPERATING SPEED GREATER THAN OR EQUAL TO 70 km/h	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS: RESTRICTED FLOW OPERATING SPEED LESS THAN 70 km/h	COMPLIANCE: SECTIONAL %	COMPLIANCE: ③ ENTIRE %
INTERSECTION	1. MINIMUM VEHICULAR VOLUME	①A Vehicle Volume, All Approaches for Each of the Heaviest 8 hours of an Average Day, and	480	720		
		①B Vehicle Volume, Along Minor Streets for Each of the Same 8 hours	120	170		
	2. DELAY TO CROSS TRAFFIC	①A Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720		
		②B Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 hours	50	75		
	3. ACCIDENT HAZARD	A Total Reported Accidents of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged Over a 36 Month Period, and	5			
		B Adequate Trial of Less Restrictive Remedies, Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Accidents, and	Yes ☐ No ☐			
		C Fulfillment of Either of the Above Warrants (Minimum Vehicular Volume or Delay to Cross Traffic) to the Extent of 80% or More.	Yes ☐ No ☐			
	4. COMBINATION WARRANT	Two or More of the Above Warrants (1, 2, or 3) Satisfied to the Extent of 80% or More.	Yes ☐ No ☐			
MID-BLOCK	5. ⑤ MINIMUM PEDESTRIAN VOLUME	A Pedestrian Volume Crossing the Major Street Average per Hour for the Heaviest 8 Hours of an Average Day, and	120	240		
		①B Vehicle Volume Along Major Street Average Per Hour for the Same 8 Hours.	290	575		

NOTES:
① Vehicle Volume Warrants (1A), (2A) and (2B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above.
② For Definition of Crossing Volume Refer to Note ⑥ on the Signal Warrant Analysis Form E2.03.08
③ The Lowest Sectional Percentage Governs the Entire Warrant.
④ For 'T' Intersections the Values for Warrant (1B) Should Be Increased by 50%
⑤ Pedestrian Mid Block Signals may also be warranted based on a Pedestrian cross over warrant.

LEGEND

HIGHWAY SIGNAL HEAD (30cm Red) WITH BACKBOARD AND MAST ARM	VEHICLE PASSAGE LOOP DETECTOR
HIGHWAY SIGNAL HEAD (30cm Red) WITH BACKBOARD AND OVERHEAD CABLE	SIMPLE LOOP DETECTOR
HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 30cm LENSES)	DUPLEX LOOP DETECTOR
SPECIAL HEAD WITH ARROW INDICATION AND BACKBOARD (Example shows Type ② Head)	DIAMOND LOOP DETECTOR
SPECIAL HEAD WITH BACKBOARD AND ONE OR MORE PROGRAMMABLE LENSES (Example shows Type ② Head)	MICRO-LOOP DETECTOR
STANDARD SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 20cm LENSES)	EMERGENCY VEHICLE PRE-EMPTION DETECTOR MICRO-WAVE DETECTOR
STANDARD SIGNAL HEAD WITH MAST ARM WITHOUT BACKBOARD	TRAFFIC CONTROLLER
PEDESTRIAN SIGNAL HEAD	TRAFFIC CONTROLLER W/ PAD
PEDESTRIAN PUSH BUTTON	TRAFFIC SIGN
	TRAFFIC SIGN WITH FLASHING BEACON
	ILLUMINATED TRAFFIC SIGN
	POLE

CLASSIFICATION OF ROADWAY	TRAFFIC SIGNAL HEADS: TYPE	SIZE	BACKBOARD	LOCATION: MOUNTING HT.	OFFSET FROM POLE
ROADWAY WINSTON CHURCHILL BOULEVARD	PRIMARY	[illegible] TYPE 3	YES	5.0m	N.B. 4.8m S.B. 7.3m N.B. LT. 0.8m FACE ON
	SECONDARY	[illegible] TYPE 2	YES	5.0m	N.B. 3.6m S.B. 5.5m N.B. LT. 4.5m
	AUXILIARY				
MULTILANE ☒	SEPARATE LT. TURN APPROACHES: PRIMARY				
TWO-LANE ☐	SECONDARY				
ROADWAY 403 W-N/S RAMP	PRIMARY	W.B. HWY E.B. TYPE 9	YES	5.0m	W.B. 4.8m E.B. 4.6m
	SECONDARY	W.B. TYPE 10A E.B. TYPE 9	YES	5.0m	W.B. 0.5m E.B. 4.9m
	AUXILIARY	W.B. TYPE 10A	YES	5.0m	W.B. 4.8m
MULTILANE ☒	SEPARATE LT. TURN APPROACHES: PRIMARY				
TWO-LANE ☐	SECONDARY				

TYPES OF SPECIAL ARROW HEADS WITH BACKBOARD
ALL 30cm LENSES, EXCEPT AS NOTED

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

⑧ ⑨ AMBER ARROW MUST BE USED IN A PROTECTED/PERMISSIVE SIMULTANEOUS LEFT TURN OPERATION.

NOTE: FOR SPECIAL ARROW HEADS ⑧, ⑨, ⑩ AND ⑪, THE "A" REFERENCE INDICATES ALL 30cm LENSE INDICATIONS

MUNICIPALITY REGION OF PEEL/CITY OF MISSISSAUGA
INTERSECTION WINSTON CHURCHILL BOULEVARD AT HWY 403 E-N/S RAMP
DATE FEBRUARY 22, 2008 SCALE 1:500
RECOMMENDED BY ____________
MUNICIPAL OFFICIAL (MUNICIPAL INSTALLATION)
REGIONAL TRAFFIC REPRESENTATIVE (MINISTRY INSTALLATION)

MINISTRY OF TRANSPORTATION, ONTARIO
SIGNALS WARRANTED:
SIGNAL DESIGN RECOMMENDED FOR APPROVAL:
SIGNAL INSTALLATION APPROVED AS PER SECTION 144 (31) H.T.A.:
APPROVAL DATE:

Figure 4b: draft PHM 125 for Erin Mills Parkway / 403 E/N/S Ramp Intersection

FORM PH-M-125 90-12

COLLISION DIAGRAM — NUMBER OF ANGLE COLLISIONS: Year / No. — TOTAL — AVERAGE PER YEAR

MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNALS
(WARRANT ANALYSIS FORMS SHOULD BE ATTACHED)

LOCATION _____ AT _____
MUNICIPALITY _____ DATE OF SURVEY _____

WARRANT		DESCRIPTION	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS: FREE FLOW OPERATING SPEED EXCEEDS 70 km/h OR EQUAL TO	MINIMUM REQUIREMENT FOR TWO-LANE ROADWAYS: RESTRICTED FLOW OPERATING SPEED LESS THAN 70 km/h	COMPLIANCE: SECTIONAL %	COMPLIANCE: ENTIRE %
1. MINIMUM VEHICULAR VOLUME	1A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of an Average Day, and	480	720		
	1B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	120	170		
2. DELAY TO CROSS TRAFFIC	2A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	480	720		
	2B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	55	75		
3. ACCIDENT HAZARD	A	Total Reported Accidents, of Types Susceptible to Correction by a Traffic Signal, per 12 Month Period Averaged Over a 36 Month Period, and	5			
	B	Adequate Trial of Less Restrictive Remedies, Where Satisfactory Observance and Enforcement Have Failed to Reduce the Number of Accidents, and	Yes ☐ No ☐			
	C	Fulfillment of Either of the Above Warrants (Minimum Vehicular Volume or Delay to Cross Traffic) to the Extent of 80% or More.	Yes ☐ No ☐			
4. COMBINATION WARRANT		Two or More of the Above Warrants (1, 2, or 3) Satisfied to the Extent of 80% or More.	Yes ☐ No ☐			
5. MINIMUM PEDESTRIAN VOLUME	A	Pedestrian Volume Crossing the Major Street Average per Hour for the Heaviest 8 Hours of an Average Day, and	120	240		
	B	Vehicle Volume Along Major Street Average Per Hour for the Same 8 Hours.	280	570		

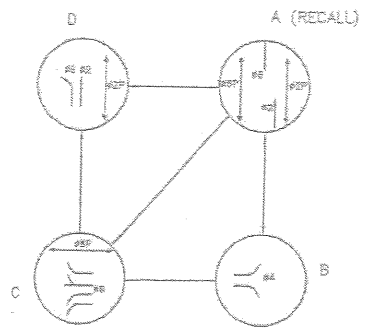
NOTES:
① Vehicle Volume Warrants (1A), (1B) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above.
② For Definition of Crossing Volume Refer to Note ⑤ on the Signal Warrant Analysis Form 80.03.08
③ The Lowest Sectional Percentage Governs the Entire Warrant.
④ For "T" Intersections the Values for Warrant (1B) Should Be Increased by 50%
⑤ Pedestrian Mid Block Signals may also be warranted based on a Pedestrian Group Over Warrant

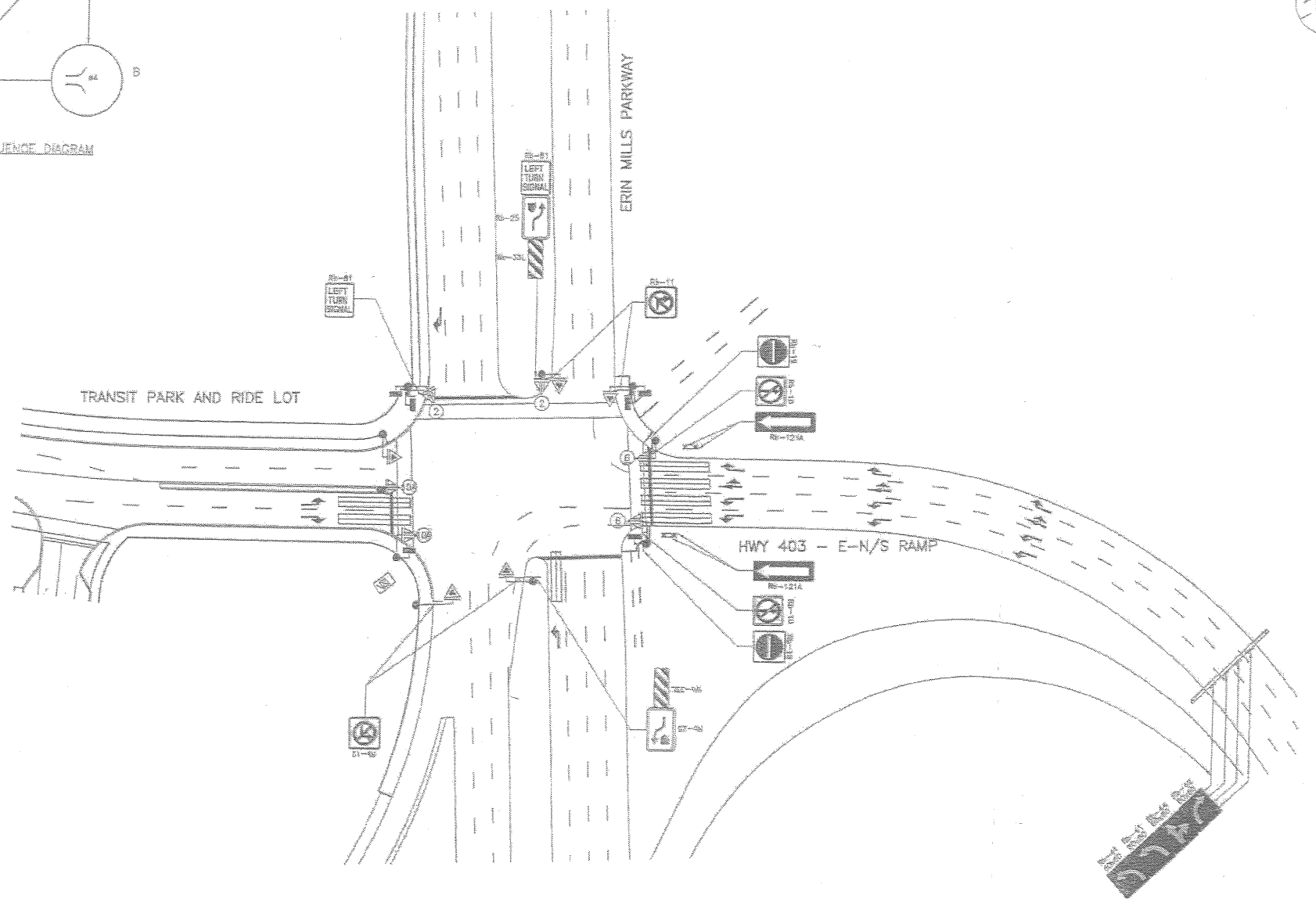
LEGEND

- HIGHWAY SIGNAL HEAD (300mm Red) WITH BACKBOARD AND MAST ARM
- HIGHWAY SIGNAL HEAD (300mm Red) WITH BACKBOARD AND OVERHEAD CABLE
- HIGHWAY SIGNAL HEAD WITH BACKBOARD AND MAST ARM (ALL 300mm LENSES)
- SPECIAL HEAD WITH ARROW INDICATION AND BACKBOARD (Example shows Type ⑤ Head)
- SPECIAL HEAD WITH BACKBOARD AND ONE OR MORE PROGRAMMABLE LENSES (Example shows Type ⑤ Head)
- STANDARD SIGNAL HEAD WITH BACKBOARDS AND MAST ARM (ALL 300mm LENSES)
- STANDARD SIGNAL HEAD WITH MAST ARM WITHOUT BACKBOARD
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- VEHICLE PASSAGE LOOP DETECTOR
- SIMPLE LOOP DETECTOR
- DUPLEX LOOP DETECTOR
- DIAMOND LOOP DETECTOR
- MICRO-LOOP DETECTOR
- EMERGENCY VEHICLE PRE-EMPTION DETECTOR MICRO-WAVE DETECTOR
- TRAFFIC CONTROLLER
- TRAFFIC CONTROLLER W/ PAD
- TRAFFIC SIGN
- TRAFFIC SIGN WITH FLASHING BEACON
- ILLUMINATED TRAFFIC SIGN
- POLE

CLASSIFICATION OF ROADWAY		TRAFFIC SIGNAL HEADS: TYPE	SIZE	BACKBOARD	LOCATION: MOUNTING HT.	OFFSET FROM POLE
ROADWAY ERIN MILLS PARKWAY	PRIMARY			YES	5.0m	N.B. 4.6m S.B. 7.0m; N.B. LT. (LBm FACE OF
MULTILANE ☒ TWO-LANE ☐	SECONDARY			YES	5.0m	N.B. 3.8m S.B. 3.8m; N.B. LT. 3.8m
	OPPOSING APPROACHES	AUXILIARY				
		PRIMARY				
		SECONDARY				
ROADWAY 403 W-N/S RAMP	PRIMARY	W.S. HWY		YES	5.0m	W.B. 4.6m E.B. 4.6m
MULTILANE ☒ TWO-LANE ☐	SECONDARY	W.S. TYPE 10A		YES	5.0m	W.B. 0.6m E.B. 3.8m
	AUXILIARY	W.S. TYPE 10A		YES	5.0m	W.B. 4.6m
	OPPOSING APPROACHES	PRIMARY				
		SECONDARY				

PHASE SEQUENCE DIAGRAM





TYPES OF SPECIAL ARROW HEADS WITH BACKBOARD
ALL 300mm LENSES, EXCEPT AS NOTED

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

⑥ ⑦ AMBER ARROW MUST BE USED IN A PROTECTED/PERMISSIVE SIMULTANEOUS LEFT TURN OPERATION.

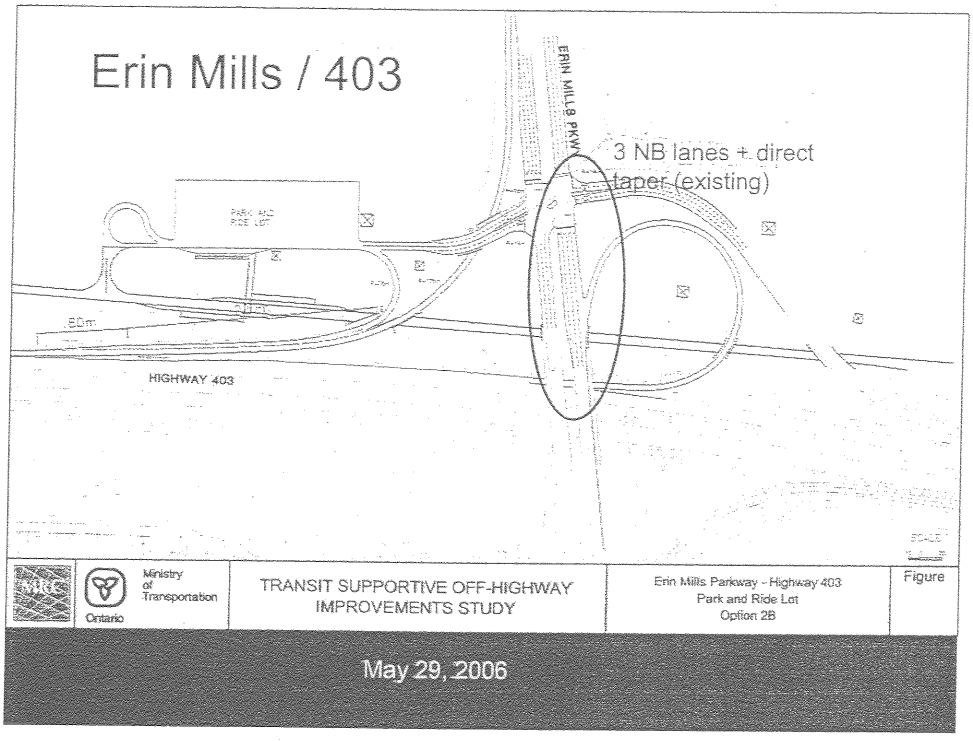
NOTE: FOR SPECIAL ARROW HEADS ⑥, ⑦, ⑧ AND ⑨, THE "A" REFERENCE INDICATES ALL 300mm LENSE MODIFICATIONS

REVISIONS	DATE	ANALYST	DESCRIPTION OF REVISIONS	RECOMMENDED BY

MUNICIPALITY REGION OF PEEL/CITY OF MISSISSAUGA
INTERSECTION ERIN MILLS PARKWAY AT HWY 403 E-N/S RAMP
DATE FEBRUARY 22, 2008 SCALE 1:500
RECOMMENDED BY _____ (MUNICIPAL OFFICIAL (MUNICIPAL INSTALLATION) / REGIONAL TRAFFIC REPRESENTATIVE (MINISTRY INSTALLATION))

MINISTRY OF TRANSPORTATION, ONTARIO

SIGNALS WARRANTED:
SIGNAL DESIGN RECOMMENDED FOR APPROVAL:
SIGNAL INSTALLATION APPROVED AS PER SECTION 144 (31) H.T.A.:
APPROVAL DATE:


Erin Mills / 403
ERIN MILLS PKWY
3 NB lanes + direct taper (existing)
HIGHWAY 403
Ministry of Transportation
Ontario
TRANSIT SUPPORTIVE OFF-HIGHWAY IMPROVEMENTS STUDY
Erin Mills Parkway - Highway 403
Park and Ride Lot
Option 2B
Figure
May 29, 2006

<excerpts from memorandum sent to MTO (Ayvun Jeganathan) on March 14, 2007 regarding traffic operations at the Winston Churchill site; this memo summarized traffic analysis and modelling that extended back to 2005 and which had been the subject of review and discussion with the Ministry over the 2005 – 2007 period. The rationale for the third northbound lane at the ramp terminal intersection is highlighted.>

MEMO TO FILE - DRAFT

RE:	Highway 403 Park and Ride Lots
OUR FILE:	6121-100
PREPARED BY:	Andrew Shea
CC:	Steve Schijns
DATE:	February 12, 2007, Revised March 13th, 2007
SUBJECT:	Alternative Concept Plans for Park and Ride Lots

W:\6k\6121 Transit Supportive Off Hwy Improvements\403 P&R Lot Preliminary Design 2006\6121-100ss - Draft memo re alternative concepts - Mar08-07.doc

This memorandum summarizes the physical and operational characteristics of alternative concept plans for park and ride lots along Highway 403 at Winston Churchill Boulevard and Erin Mills Parkway.

Traffic Analysis

The alternatives described in the previous section were compared in a traffic impact evaluation. The existing traffic volumes were modified to include the assumed Park and Ride lot traffic, and redistributed as necessary. Initially, all alternatives were compared using the same lane configuration on the crossing street and ramp terminal. Subsequent revisions to the intersection configurations were made under some alternatives to improve operations in cases where significant delays were observed. All signal phasings were optimized to achieve the best possible intersection Level of Service and minimize overall intersection delay.

The existing and future traffic conditions under all short-listed alternatives were input into a computer traffic simulation model (Synchro) to determine the impacts on level of service and intersection capacity.

Methodology

In order to understand the impacts of a parking facility on the adjacent street network, it was first necessary to estimate the demand that would be generated by the facility. Given the limited availability in traffic data available specific to carpool/Park and Ride facilities, MRC was required to make a number of assumptions, discussed in later

sections of this memorandum. The estimated traffic generated by these parking facilities was then incorporated into the background traffic for the subsequent analysis.

Alternative access configurations were developed for both sites (Winston Churchill Boulevard/Highway 403 and Erin Mills Parkway/Highway 403) taking into consideration physical constraints and operational requirements. The forecast traffic volumes were then applied to each alternative in a Synchro traffic simulation to determine the performance of the alternative with regard to traffic operations. The results, along with a number of other factors, will provide a basis for selecting a preferred access configuration for each parking facility.

Park & Ride Lot Demand and Assumptions

In order to best evaluate the alternative park and ride lot access configurations from a traffic impact perspective, it was necessary to establish traffic volumes destined to/from the lot. Given the limited availability of survey data to establish Park and Ride lot traffic demand patterns, the park and ride lot demand analysis for the proposed Highway 403/Winston Churchill Boulevard lot was based on recent usage surveys of five MTO carpool/park and ride lots. They were:

- Highway 400 at Innisfil Beach Road
- Highway 400 at Highway 9
- Highway 400 at Highway 7
- Highway 407 at Trafalgar Road
- Highway 401E at Brock Street

The knowledge gained through the Carpool Lot Usage surveys was combined with previous experience in carpool/park and ride operations to develop the following assumptions used in the impact analysis for the park and ride lots at both Winston Churchill Boulevard and Erin Mills Parkway:

1. The Park and Ride lot utilization occurring during the AM Peak Period for background traffic would be in the order of 66% of the lot capacity.
2. 80% of the lot activity identified above would occur during the peak hour of Park and Ride lot activity. For a conservative estimate, this activity was assumed to coincide with the peak hour for background traffic (noting that many carpool lots have peak access / egress activity outside peak road traffic hours).
3. Given the uncertainty in staging/timing of the Mississauga Transitway, the usage of the lot was assumed to be split evenly between park and ride (bus passenger) activity and carpool activity.
4. Carpools would carry two persons, including driver.
5. The inbound lot activity in the PM Peak Hour would be the opposite of the outbound lot activity in the AM Peak Hour. Similarly, the outbound PM Peak Hour activity would be the opposite of the inbound AM Peak Hour activity.

6. The outbound lot activity was distributed according to interchange activity, with a nominal 5% of outbound traffic assumed destined to the north, and an additional 5% of outbound traffic assumed destined to the south.

The traffic analysis was conducted for scenarios including 200-space Park and Ride lots with an assumed 6 buses per hour operating on 10-minute headways. Note that each lot is intended to be built to 100 paved spaces initially, with grading for 200 spaces and the potential for further capacity increases if need be.

Future Growth

Northbound traffic through the intersections is anticipated to increase at a rate of 2.75% per year. Likewise, southbound traffic through the intersections is anticipated to increase at a rate of 3.25% per year (per the Region of Peel Development Charges Update Study, 2006, Zone 1 Screenline Analysis, 2006-2014 Growth Rate). These growth factors were also applied to Highway 403 traffic exiting at the interchanges.

It is recognized that the growth in background traffic will put a significant strain on both the intersection of the Highway 403 E-N/S ramp at Winston Churchill, and the intersection of the Highway 403 E-N/S ramp at Erin Mills Parkway. The intersections at both Winston Churchill Boulevard and Erin Mills Parkway will reach capacity conditions before the background traffic growth ends. It was therefore determined that any analysis of the future long term impact of implementing a Park and Ride lot at this location would indicate a failing intersection.

While the Park and Ride lot would contribute to this ultimate condition, it would not necessarily be fair to position the lot as being any more responsible for the deterioration in intersection LOS than any other contributor to background traffic growth. In fact, the function of the facility is to take cars off the road and promote more efficient shared-ride travel. With this in mind, it was determined that the traffic impact analysis would focus on the immediate impact of the lot, with consideration given to the ability of the alternatives to accommodate future demand.

Source of Base Traffic Counts:

- Highway 403 E-N/S Ramp at Winston Churchill Boulevard (2004), inflated to 2006 volumes using growth factors derived from the Region of Peel EMME/2 model (Peel Development Charges Study, 2006). The forecast 2006 volumes were then modified according to observed 2006 E-N/S ramp volumes (Highway 403 HOV Monitoring Study, 2006), with additional growth indicated in the HOV study being applied proportionately to the ramp movements, attributing the growth to the increased capacity on Highway 403.

- Highway 403 E-N/S Ramp at Erin Mills Parkway (2006)

Recognizing that the Ministry and GO Transit intend to develop the Park and Ride lots initially with a 100-vehicle capacity, the analysis was conducted based on a 200-capacity lot as an *ultimate* condition, and therefore no growth factors were applied to the lot-based activity throughout the future conditions analysis.

Intersection Configuration Assumptions/Refinements

The potential to better the intersection level of service at both Winston Churchill Boulevard and Erin Mills Parkway exists through modifications to the intersection geometry. However, these improvements to traffic flow should consider pedestrian needs as well.

For example, the channelization of right-turns from the E-N/S ramp to the crossing road may encourage drivers to perform the turning movement at a high rate of speed without providing the necessary breaks for pedestrian crossings. It was this concern that led to the assumption that right turns would not be channelized in the Synchro analysis.

Initial analyses have indicated that westbound right-turning movements at both the Winston Churchill Boulevard and Erin Mills Parkway interchanges would experience significant delays and queues due to a combination of high traffic volumes and the loss of green time to accommodate the additional eastbound signal phase at the ramp terminal. Indeed, this configuration is already a concern in day-to-day operations. As a result, right-turn manoeuvres were allowed from both the rightmost lane and the adjacent through lane. Given the relatively low westbound through movements at the intersection, it was determined that the residual capacity offered by the through lane could be better spent enhancing westbound right-turn operations. This operation requires that the eastbound and westbound signal phases be separated to avoid potential vehicle conflicts between eastbound left-turning vehicles and westbound through or right-turning vehicles.

Initial analyses also assumed a limited number of pedestrian crossings of Winston Churchill Boulevard and Erin Mills Parkway at the E-N/S ramp terminals. The effects of these crossings were considered negligible and were excluded from the analyses. Subsequent consideration has concluded that the effects of pedestrian crossings, although limited, should be considered in the analysis. Pedestrian crossing times of Winston Churchill Boulevard and Erin Mills Parkway were calculated at 39 seconds – considerably higher than the green time allotted to the eastbound/westbound movements at these intersections. Given the low (almost nonexistent) pedestrian crossings during peak hours at these interchanges today, a minimal amount of pedestrian phases were included in the revised traffic operational analysis. A total of three phases per peak hour were assumed to be affected by pedestrian crossings. These movements were assumed to occur with the westbound phase of the signal cycle, recognizing that the eastbound phase will require a considerably shorter phase to accommodate the limited traffic leaving the Park and Ride lots.

One outstanding issue is that of the N-W ramp traffic under Alternatives 1 and 2, and how the intersection will be configured to accommodate it. Typical practice is to develop the N-W ramp entry as a direct taper south of the E-N/S ramp terminal intersection. This would result in three southbound through lanes at both interchanges. Given the physical constraints at both Winston Churchill Erin Mills Parkway, substandard ramp geometry is required to retrofit the typical treatment into the chosen locations. Another option would be to develop a fourth through lane north of the E-N/S ramp terminal intersection that would, south of the intersection, become the exiting N-W ramp. This would allow ramp traffic to exit the stream of through vehicles north of the intersection, enhancing the intersection level-of-service.

The traffic capacity analyses for Alternatives 1 and 2 were initially conducted with the assumption that the N-W ramp would be developed south of the intersection at both sites; however, the preliminary analysis indicated that development of the ramp lane north of the intersection - and thereby providing a fourth southbound combined through/right-turn lane at the ramp terminal intersection - would be required at the Erin Mills Parkway site to maintain an acceptable level-of-service for the intersection during peak periods. The Winston Churchill Boulevard site appears to operate at an acceptable level-of-service with the existing three southbound-through lanes at the intersection; however, consideration should be given to developing the ramp lane north of the intersection to improve the N-W ramp geometry. This treatment can be found in many freeway interchanges in Ontario, for example the QEW at Erin Mills Parkway, or Highway 403 at Hurontario Street.

All alternatives were evaluated assuming an additional eastbound through/right lane would be constructed on the ramp to provide access to a new eastern intersection leg. The resulting configuration would offer two right-turn lanes and two left-turn lanes at both intersections. This configuration would require offset eastbound and westbound signal phases to eliminate potential turning movement conflicts. In order to further minimize conflicts between traffic exiting the lot and N-W ramp traffic under Alternatives 1 and 2, eastbound right-turns-on-red were restricted.

Results of Traffic Analysis

The details of the traffic analysis are included in the Appendix of this Technical Memorandum.

Although both intersections (Winston Churchill Boulevard and Erin Mills Parkway) appear to operate quite well in the AM peaks, the traffic analysis indicates that the E-N/S ramp terminal intersection at Winston Churchill Boulevard is operating at capacity in the PM peak hour.

At Winston Churchill Boulevard, the existing intersection operates with significant delays for all movements, resulting in a calculated level-of-service of F in the PM peak hour.

Improvements to the intersection are required under all alternatives to result in a system that operates at an acceptable level-of-service. Addition of third northbound through lane will offer some relief to this congestion, as will an additional westbound right-turn lane on the E-N/S ramp. For comparison against the Park and Ride alternatives, the traffic analysis was conducted for both the existing configuration and an alternative with these intersection improvements in place.

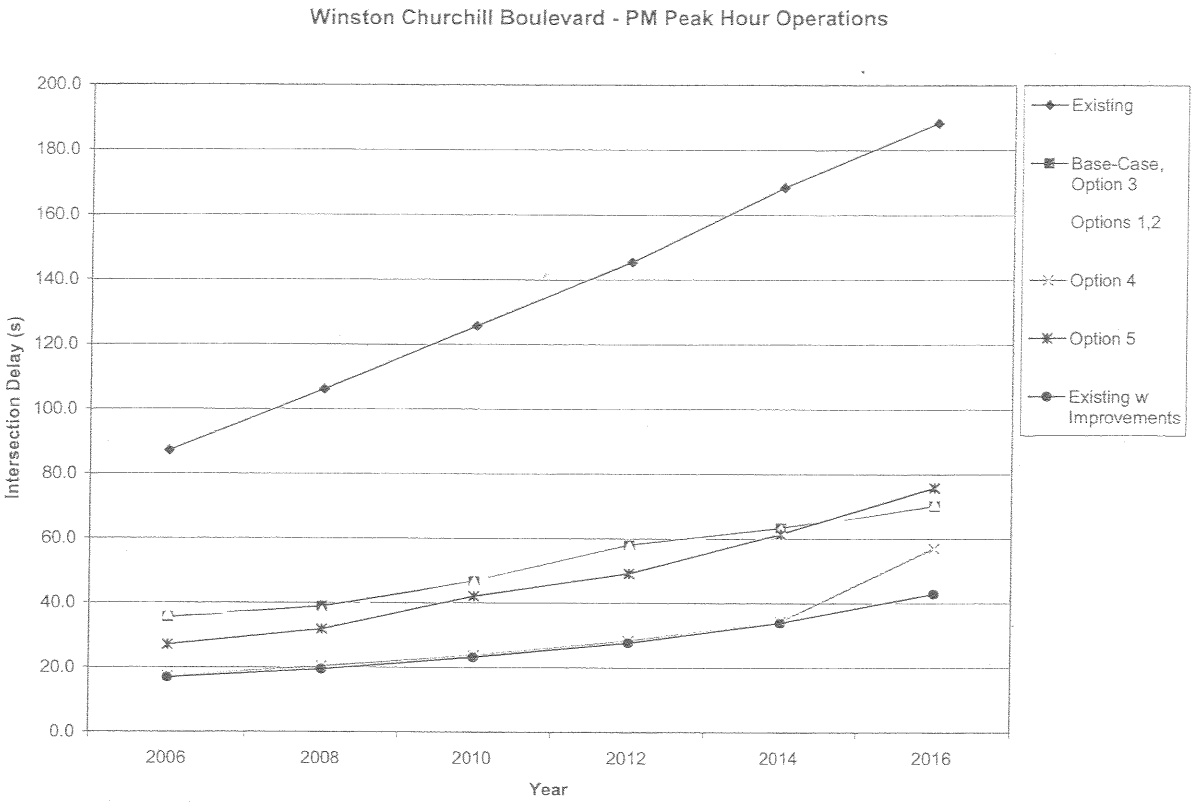
While the analyses focused on the existing (2006) conditions, average intersection delays were forecast for the PM peak hour (recognizing that the PM peak represents the critical period for both intersections) for each alternative, at 2-year intervals until 2016 to provide an indication of the long-term impact of the Park and Ride lot alternatives on the overall intersection operations.

Winston Churchill Boulevard

The level-of-service (LOS) analysis indicates that, in the AM peak hour, all alternatives will function at an acceptable LOS, achieving B or C. However, in the PM peak, intersection improvements are required to implement a Park and Ride access configuration with adequate capacity. The analysis indicates that Alternatives 1 and 2 can achieve a level-of-service of D in the PM peak hour - similar to that of the Base Case at Winston Churchill Boulevard - recognizing that the additional N-W ramp traffic can be accommodated within the excess southbound capacity at the ramp terminal intersection. Alternatives 4 and 5 both offer operational benefits over Alternatives 1 and 2 by eliminating the need for an eastbound signal phase at the ramp terminal intersection, providing a LOS of B or C in the PM peak.

The following figure summarizes the future delay forecast under each alternative.

<note that the third NB through lane and the fourth WB ramp lane are assumed in all cases other than "Existing"; much of the delay reduction from "Existing" stems from this additional capacity.>


Winston Churchill Boulevard - PM Peak Hour Operations
Intersection Delay (s)
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
2006
2008
2010
2012
2014
2016
Year
Existing
Base-Case, Option 3
Options 1,2
Option 4
Option 5
Existing w Improvements

ENGINEERING MEETING

Form Rev. Jan 07

MEETING No: 07-18	**MEETING DATE:** Monday, July 9, 2007
ITEM: Highway 403 Commuter Parking Lots at North-West Quadrants of Winston Churchill Blvd. (WCB) and Erin Mills Pkwy. (EMP) Interchanges, Mississauga	
Submitted By: H. Shah **Section:** Hwy. Engineering – P/H	**Previous Engineering Meeting Items # 05-34 & 05-36 - attached**
Requested Attendees: (Name & Section) L. Politano (Engineering) L. Smith (Traffic) P. Korpal (Planning & Design) J. White, H. Shah (Hwy. Eng. – P/H) F. Saccon (Traffic) J. Stevens (Urban Planning Office) D. Turvey (MRC)	**In Attendance:** (Name & Section) L. Politano (Engineering) L. Smith (Traffic) P. Korpal (Planning & Design) H. Shah (Hwy. Eng. – P/H) F. Saccon (Traffic) Martin Sedkowski.(Traffic) D. Turvey (MRC) S. Bowers (MRC)

1/ ISSUE

Preferred scheme for the alignment of the N-W ramp in order to accommodate commuter parking lot and the proposed Mississauga Transitway.

2/ OPTIONS/DISCUSSION

The memo prepared by MRC dated May 11, 2007 which evaluated various alternatives is attached.

D. Turvey made the presentation and the discussion was focussed mainly on the layout plans shown in Figures 1 and 2, and a quick overview was made on the layout plans shown in Figures 3,4,5,6 and 10.

In brief, the analysis determined that with enhancements at the E- N/S ramp terminal and the development of an auxiliary lane on the southbound approach to the E – N/S ramp terminal intersection, the current LOS (B during AM.and C during PM peak periods) could be maintained until 2014. This is based on an assumption of the historical growth in background

traffic and a 400 space park'n'ride lot. MRC pointed out that MTO would have an opportunity to assess the performance of the intersection prior to full development of the 400 space facility. The details of the SYNCHRO analysis have just been provided to MTO Traffic.

The introduction of an 80m radius for the N-W ramp of both interchanges would avoid significant utility relocation costs. Under the assumption of an 80 km design speed on the arterial roads, Table F5-1 of the 'Geometric Design Standards for Ontario Highways' shows a desirable standard radius of 130 m and a minimum radius of 55 m..

At WCB, the option shown in Figure 1 which retains the present N-W ramp alignment is estimated to cost $32.3M, while the option shown in Figure 2 that uses an 80 m ramp radius is estimated to cost $16.3M. The additional $16M in cost to retain the existing ramp alignment includes $10M for relocation of four pipelines, and $6M for additional impacts to the proposed transitway (additional retaining walls, more excavation and more staging). Besides significant additional cost, this option would introduce additional risk with respect to the construction schedule since the pipeline companies would be responsible for the timing of the relocation. At EMP, the cost premium is estimated to be similar in magnitude.

3/ RECOMMENDATION

Recommend that a N-W ramp radius of 80 m - Alternative 1 (Figure 2) at WCB and Alternative 1 (Figure 8) at EMP be approved.

4/ ENGINEERING MEETING DECISIONS	ACTION BY
1. Investigate the option of relocating the hydro tower and if this would allow increasing the radius of the N-W ramp at WCB and EMP interchanges.	MRC
2. Review SYNCHRO analysis prepared by MRC.	
3. Provide updated HOV and BRT demand forecasts.	M. Sedkowski
4. Obtain information on performance of the E/N ramp at QEW/Thoroldstone Rd	MRC
5. Review possibility of bringing the 2 lots closer together.	H. Shah MRC
6. Present findings of the above action items at an Engineering Meeting in 2 to 3 weeks time.	MRC / H. Shah

ENGINEERING MEETING

Form Rev. Jan 07

MEETING No: 07-20	**MEETING DATE:** Monday, August 20, 2007
ITEM: Highway 403 Commuter Parking Lots at North-West Quadrants of Winston Churchill Blvd. (WCB) and Erin Mills Pkwy. (EMP) Interchanges, Mississauga	
Submitted By: H. Shah **Section:** Hwy. Engineering – P/H	**Previous Engineering Meeting Items** **# 07-18, 05-34 & 05-36**
Requested Attendees: (Name & Section) L. Politano (Engineering) L. Smith (Traffic) P. Korpal (Planning & Design) J. White, H. Shah (Hwy. Eng. – P/H) R. De Gannes, B. Zivkovic (Traffic) J. Stevens (Urban Planning Office) S. Schijns, D. Turvey (MRC)	**In Attendance:** (Name & Section) L. Politano (Engineering) L. Smith (Traffic) J. White, H. Shah (Hwy. Eng. – P/H) R. De Gannes, M. Sedkowski (Traffic) S. Schijns, D. Turvey (MRC)

1/ ISSUE

A follow-up meeting to go over the alternatives and also the action items from Engineering Meeting 07-18.

2/ OPTIONS/DISCUSSION

The attached material by MRC was provided at the meeting.

A review of other ramps with tighter ramp radii was undertaken by the MTO (see Minutes of Engineering Meeting 05-36) The number of collisions and collision rates were obtained. Generally, a very small number of collisions occur or get reported on MTO on-ramps (average of < 1 collision / year). With a limited database, statistically significant conclusions on the relationship of collision experience and radii of the on-ramps cannot be made

Using a design speed of 80 km/h for Winston Churchill Blvd. and Erin Mills Parkway, the MTO Geometric Design Standards for Ontario Highways states that for a 6% maximum cross-fall, the minimum radius is 55 m and the standard radius is 130 m. This Manual also states the following: "Ramp designs are based on the standard design speeds where

feasible. Where ramps so designed are out of balance with the interchange or are unduly costly, a lower design speed is appropriate."

As stated in the Minutes of Engineering Meeting 07-18, maintaining the existing N-W ramp alignment will cost an additional $16M compared to using a ramp radius of 80 M to 90 M.

The standard minimum offset to hydro tower is believed to be around 15 m. Hydro tower relocation would provide a ramp radius of 125 m, but the offset to the hydro tower is about 7 m. It is not known at this time if Hydro One will accept a minimum offset of only 7 m.

The details of the layout of the parking lot, including bringing the two parking lots within each interchange closer together, can be worked out during detail design phase.

The parking lots can accommodate up to 400 vehicles. It is anticipated that a lot with a capacity of 200 vehicles would be sufficient. As part of the BRT design work, operation of the ramp terminal can be controlled to some extent by limiting the size of the lot.

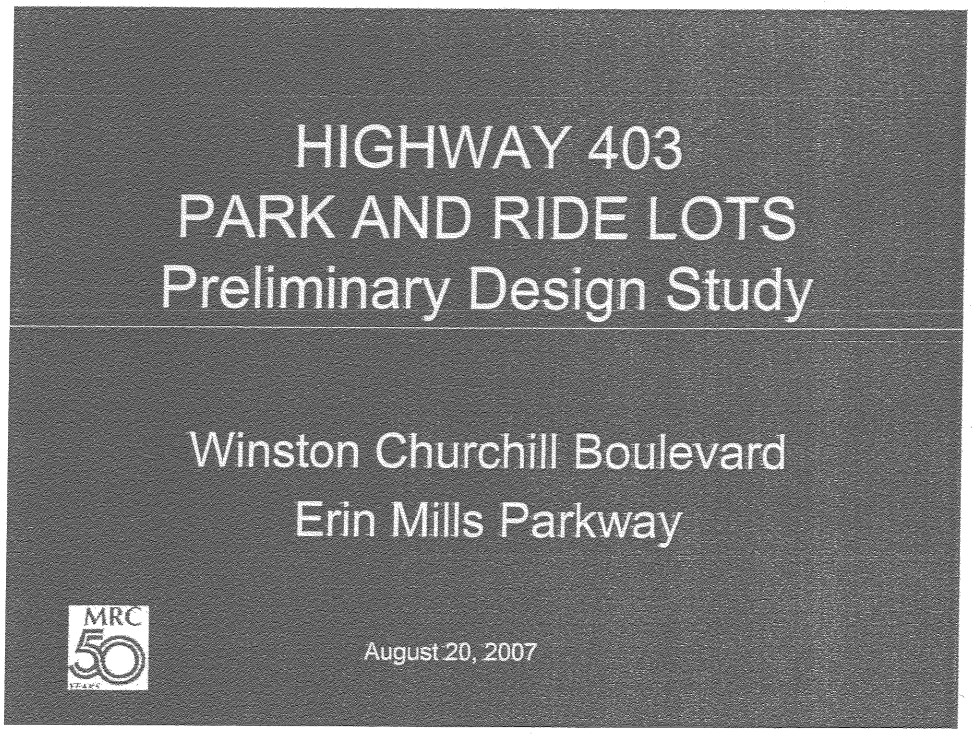
The schedule to implement the Bus Rapid Transitway is very aggressive in order for the Transitway project to receive Federal funding.

POST MEETING NOTE – At the Mississauga BRT Project Team Meeting this week, Steve Schijns of MRC informed that the City and GO agreed that the BRT Project Office would pursue the issue of Hydro tower relocation with Hydro One, and would fund the Hydro One engineering study if necessary.

3/ RECOMMENDATION

Implement 90 m radius for the N-W on-ramps at Winston Churchill Blvd. and Erin Mills Parkway interchanges.

4/ ENGINEERING MEETING DECISIONS	ACTION BY
See Post Meeting Note above, If Hydro One requires a minimum of 15 m clearance, then proceed with a minimum N-W on-ramp radius of 90 m at Winston Churchill Boulevard and Erin Mills Parkway interchanges, as we don't have a history of a collision problem with similar radius ramps elsewhere. If Hydro One will accept a minimum clearance of about 7 m, then proceed with a ramp radius of around 125 m.	Highway Engineering

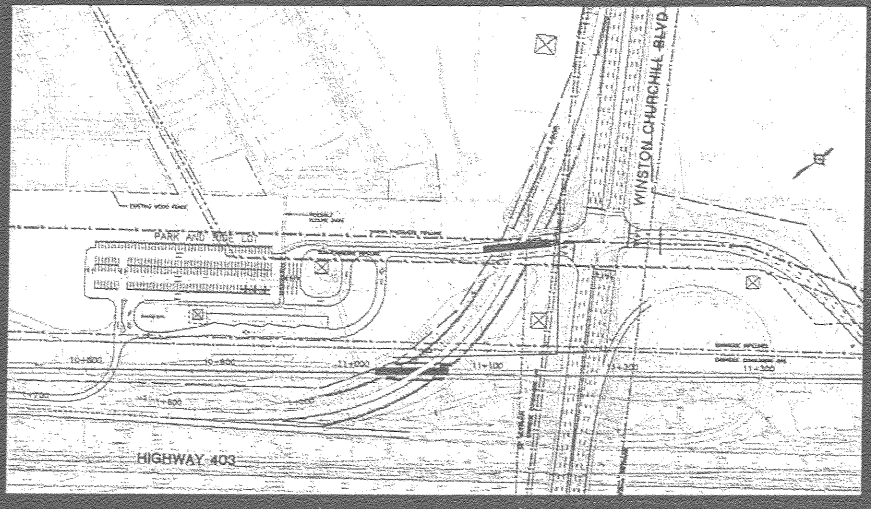

HIGHWAY 403
PARK AND RIDE LOTS
Preliminary Design Study
Winston Churchill Boulevard
Erin Mills Parkway
MRC
50
August 20, 2007

1. Alternatives

Note – all Winston Churchill alternatives show three through lanes + direct taper

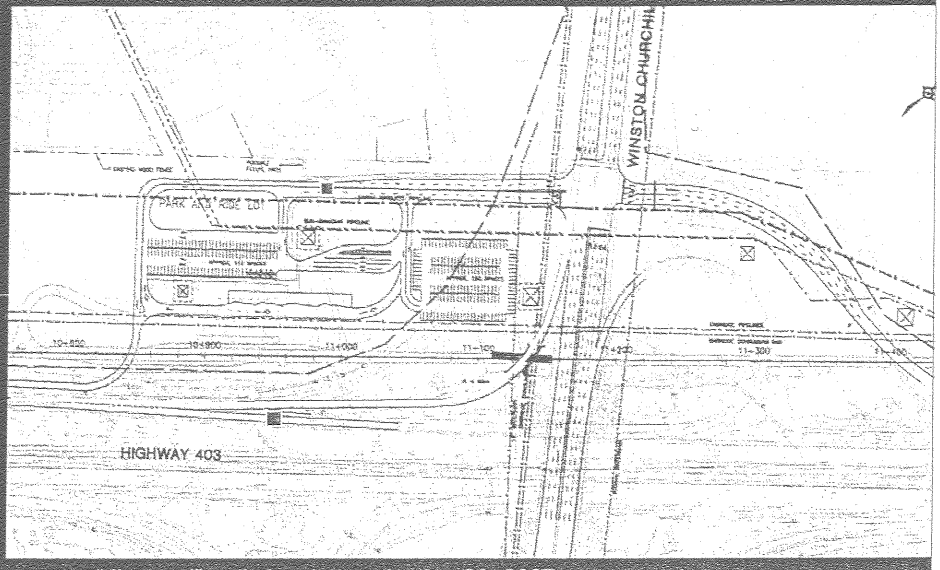
August 20, 2007

Alternatives – Grade Separation / Existing N-W Ramp Alignment



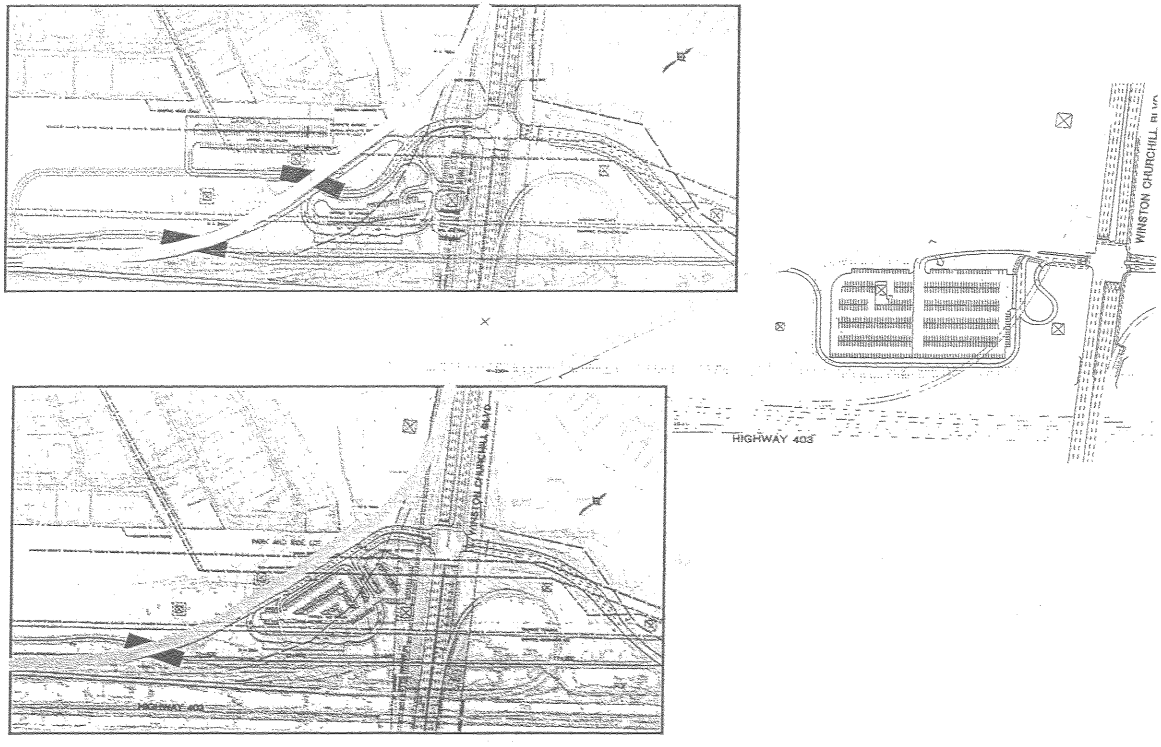
August 20, 2007

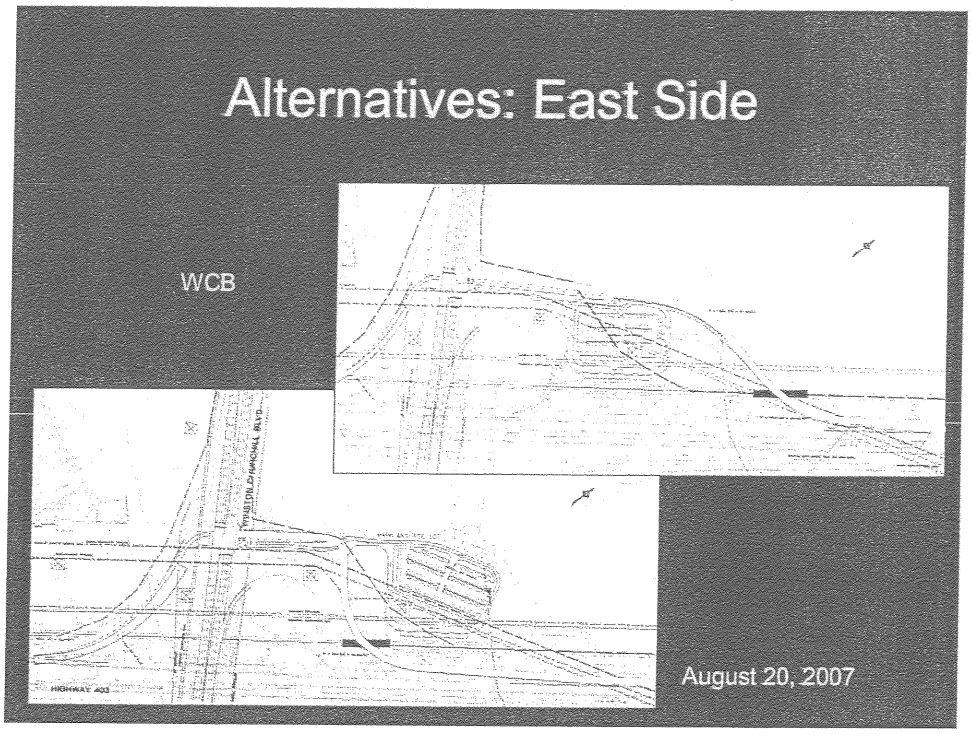
Alternatives: Tighten Radius

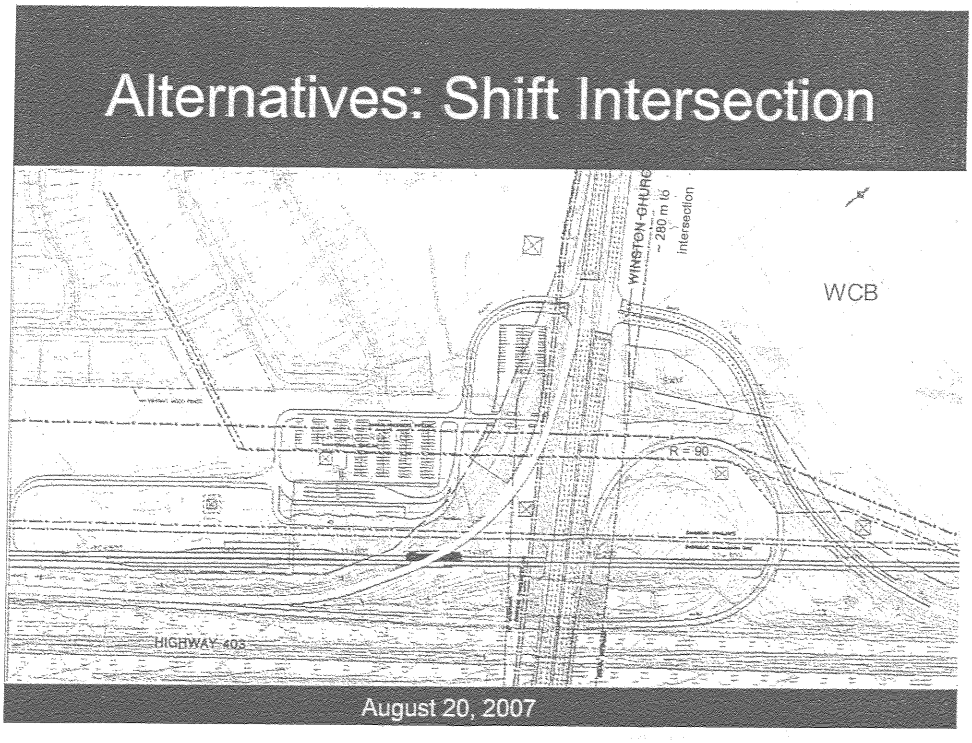


"diamond" variation August 20, 2007

Alternatives: Skirt to West




Alternatives: East Side
WCB
August 20, 2007


Alternatives: Shift Intersection
WINSTON CHURC
~ 280 m to
intersection
WCB
R = 90
HIGHWAY 403
August 20, 2007

3. Traffic Analysis

Note – traffic analysis confirms requirement to introduce third northbound lane at intersection

August 20, 2007

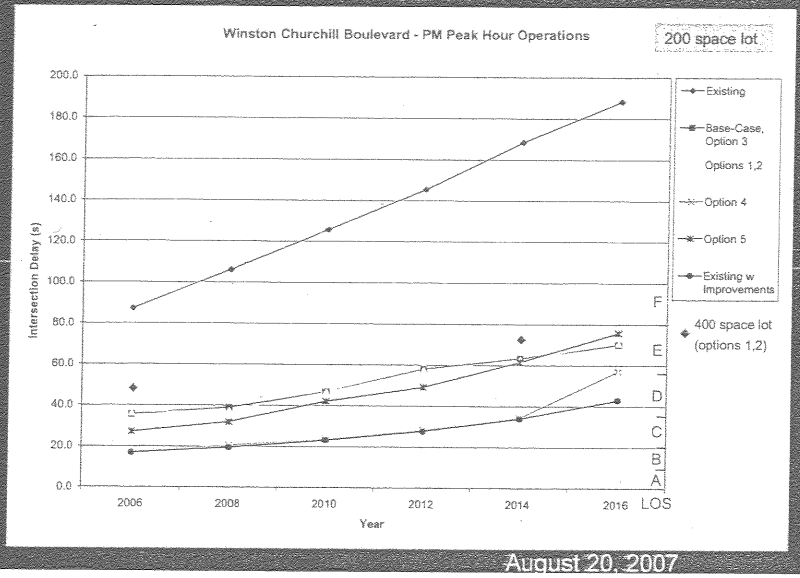
Winston Churchill Ramp Terminal

- Existing volumes exceed capacity in PM Peak Hour
  - LOS = B/F (AM/PM)
- Requires intersection improvements
  - 2nd westbound right-turn lane
- With improvements:
  - LOS = B/B (AM/PM)
  - Avg. Delay = 15.8s/16.9s (AM/PM)

*based on 2004 traffic counts increased to 2006 per Region of Peel EMME/2 model growth factors

August 20, 2007 12

Future Traffic Analysis
Winston Churchill Boulevard Ramp Terminal

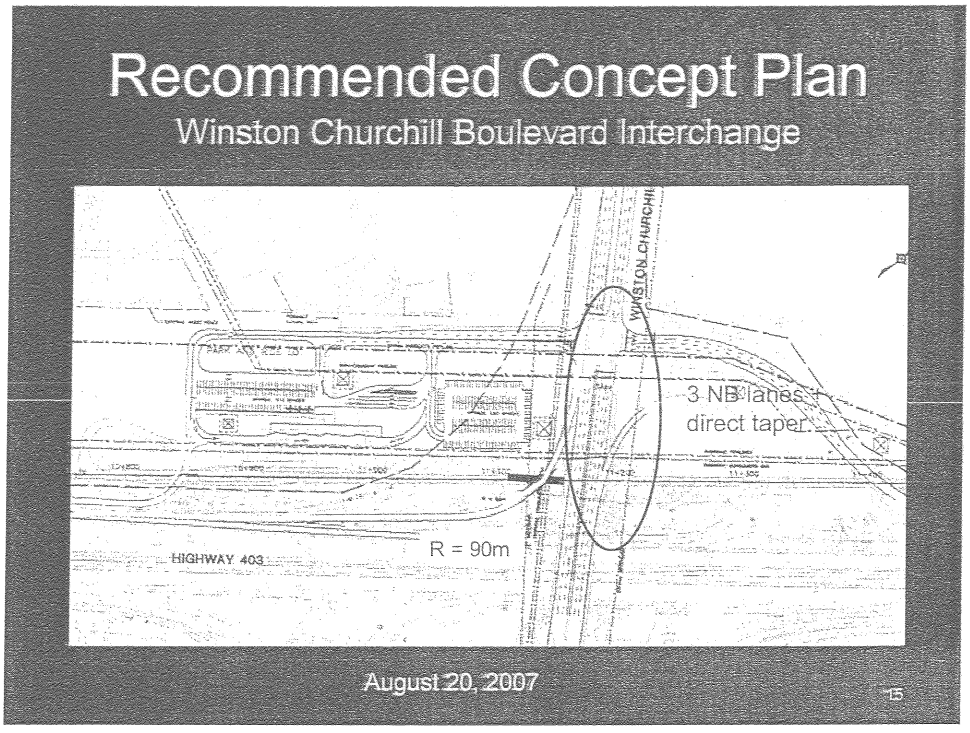


August 20, 2007

Conclusions and Recommendations

Note – Recommended layout at Winston Churchill shows three through lanes + direct taper

August 20, 2007


Recommended Concept Plan
Winston Churchill Boulevard Interchange
WINSTON CHURCHILL
3 NB lanes + direct taper
R = 90m
HIGHWAY 403
August 20, 2007
15

Willy Ing

From: Willy Ing
Sent: 2009/01/09 3:46 PM
To: 'Tupaz, Aimee Rose (MTO)'
Cc: White, Jason (MTO); Geoff Wright; Scott W Anderson; 'stephanie.davies@gotransit.com'; 'Schijns, Steve'
Subject: FW: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Again Aimee,

Please see response with respect to the Hwy 403 Ramps at Cawthra Road. If the MTO has concerns with the way this is being addressed through the EA Addendum and discussions with the MOE, please advise. However, Mississauga and our consultants will endeavour to work with the MTO through the various stages of the detailed design to ensure your requirements are met.

Willy

From: Schijns, Steve [mailto:SSchijns@mrc.ca]
Sent: 2009/01/09 9:26 AM
To: Willy Ing
Cc: Geoff Wright; Scott W Anderson; stephanie.davies@gotransit.com
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy – The original Transitway EA states: "Their (stations) actual layout is subject to detail design and any variation from that shown in the report, unless it results in a more severe environmental impact, which cannot be accommodated within the committed mitigation measures, does not require a change to the approved plan." Also, "Design shifts within the identified property envelope of the Transitway do not require changes to the EA approval."

Since it was agreed by the Project Team (and by Jeffrey Dea at MOE) that the shift at Cawthra Road did not result in a more severe environmental impact than the approved plan, and the design shift did not involve any property impact, it was not included in the EA Addendum. This position was based on the fact that the ramp is shifted farther away from noise sensitive receivers, the ramp is relatively distant from noise sensitive receivers, ramp traffic volume does not change, the busway remains at or below grade, the busway alignment does not change significantly, and there is no change in visual impact (since the new ramp is immediately adjacent to an existing ramp and the busway remains below the existing berm). The potential to increase the size of the existing berm is noted in the Preliminary Design. Note that the changes to the highway ramp are covered under the Transitway EA, and are not subject to a separate MTO Class EA process.

Upon reflection, the change to the Cawthra ramp should have been listed in the EA Addendum (Section 2.1, page 2-1) as follows:

> "An EA Addendum is not required for every change to the approved plan. Minor changes, revisions which would have no net difference in impact on the environment, and changes that affect only specific (noted) stakeholders (and where those stakeholders have agreed with the changes) are incorporated in the Preliminary Design and are not documented further. Changes of this nature are relate to:
>
> - Winston Churchill Station layout (MTO, Hydro One)
> - Erin Mills Station layout (MTO, Hydro One)
> - *Highway 403 exit ramp to Cawthra Road / Eastgate Parkway (MTO)*

- Cawthra Station layout (City of Mississauga, Toronto Region Conservation Authority)
- Little Etobicoke Creek crossing (Toronto Region Conservation Authority)
- Etobicoke Creek crossing (Toronto Region Conservation Authority)

The plans and impacts associated with these design changes are documented in their respective Preliminary Design Reports."

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From: Willy Ing [mailto:Willy.Ing@mississauga.ca]
Sent: January 9, 2009 9:04 AM
To: Willy Ing; Schijns, Steve
Cc: Geoff Wright; Scott W Anderson; stephanie.davies@gotransit.com
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Steve,

I was looking through the memo dated December 8, 2008 responding to various MTO issues. I did not see a response to the last bullet concerning the changes to the Hwy 403 ramps at Cawthra Road other than a stopping sight distance issue. Aimee Tupaz Rose requires a response to the last bullet asap.

Willy

From: Willy Ing
Sent: 2008/11/03 3:32 PM
To: 'Schijns, Steve'; 'Shea, Andrew'
Cc: Andrea McLeod; Geoff Wright
Subject: FW: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Hi Steve and Andrew,

See below from MTO.

Willy

From: Tupaz, Aimee Rose (MTO) [mailto:AimeeRose.Tupaz@ontario.ca]
Sent: 2008/11/03 3:12 PM
To: Willy Ing
Cc: White, Jason (MTO); Geoff Wright; Scott W Anderson
Subject: RE: Mississauga Bus Rapid Transit Project - Draft Environmental Assessment Addendum

Willy,