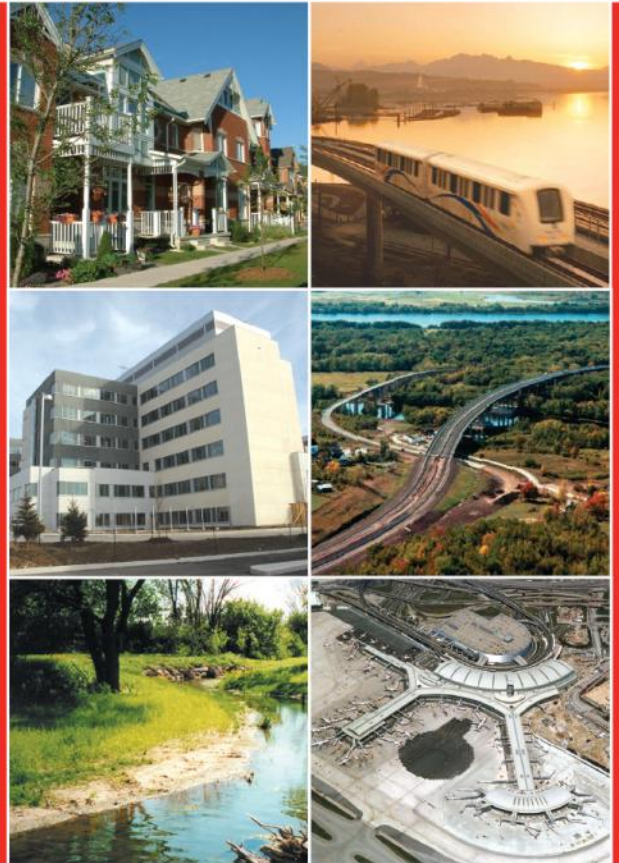


MMM Group Limited



Highway 7 New Kitchener to Guelph, 18 km

G.W.P 408-88-00

Transportation Environmental Study Report to Amend the Individual Environmental Assessment
(approved 2007)

Class Environmental Assessment for Provincial Transportation Facilities
Group 'A' Project

Prepared for the Ministry of Transportation

COMMUNITIES
TRANSPORTATION
BUILDINGS
INFRASTRUCTURE



May 2012

**Highway 7 New
Kitchener to Guelph, 18 km
GWP 408-88-00**

**Transportation Environmental Study Report to Amend the Individual
Environmental Assessment (approved 2007)**

Class Environmental Assessment
for Provincial Transportation Facilities
Group 'A' Project

May 2012

Prepared for the Ministry of Transportation



Prepared and Reviewed by:

A handwritten signature in blue ink, appearing to read "Jeff Warren".

Jeff Warren, B.Sc.

Environmental Planner/Biologist
MMM Group Limited

A handwritten signature in blue ink, appearing to read "Alla Dinerman".

Alla Dinerman, P.Eng.

Senior Project Manager
MMM Group Limited

Ce document hautement spécialisé n'est disponible qu'en anglais en vertu du règlement 411/97, qui en exempte l'application de la Loi sur les services en français. Pour de l'aide en français veuillez communiquer avec le ministère des Transports, Bureau des services en français au: (905) 704-2045 ou (905) 704-2046.

Review Locations

Ministry of the Environment
Environmental Assessment &
Approvals Branch
2 St. Clair Avenue West, Floor
12 A
Toronto, Ontario

**Regional Municipality of
Waterloo**
Clerk's Department
150 Frederick Street
Kitchener, Ontario

Township of Woolwich
69 Arthur Street South
Elmira, Ontario

**Township of
Guelph/Eramosa**
Clerk's Department
8348 Wellington Road 124
Rockwood, Ontario

Marden Branch Library
7368 Wellington Road 30
(RR5)
Marden, Ontario

Dana Porter Library
University of Waterloo
200 University Avenue West
Waterloo, Ontario

Ministry of the Environment
West Central Regional Office
119 King St. West
12th Floor
Hamilton, Ontario

County of Wellington
Clerk's Department
74 Woolwich Street
Guelph, Ontario

City of Guelph
Clerk's Department, City Hall
1 Carden Street
Guelph, Ontario

Kitchener Public Library
85 Queen Street North
Kitchener, Ontario

**Bloomingdale Branch
Library**
860 Sawmill Road
Bloomingdale, Ontario

McLaughlin Library
University of Guelph
50 Stone Road East
Guelph, Ontario

Ministry of the Environment
Guelph District Office
1 Stone Road West
Guelph, Ontario

Ministry of Transportation
West Region
Front Lobby
659 Exeter Road
London, Ontario

City of Kitchener
Clerk's Department
200 King Street West
Kitchener, Ontario

Waterloo Public Library
35 Albert Street
Waterloo, Ontario

Guelph Public Library
100 Norfolk Street
Guelph, Ontario

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Library**
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Executive Summary

Highway 7 New is a proposed 18 km four-lane divided freeway extending from the Kitchener-Waterloo Expressway (Highway 85) in Kitchener easterly to the Hanlon Expressway (Highway 6) in Guelph. The planning of the project was conducted under the Individual EA process and was approved by the Minister of the Environment in March 2007. The study is documented in the 2004 Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report, 1997. A Value Engineering (VE) Study was carried out by the Ministry of Transportation (MTO) in 2007 to identify opportunities to improve the design, provide updates and improve the overall value of the project. The Ministry of Transportation (MTO) has retained MMM Group Limited (MMM) to undertake the Initial Phase of Design and the further assessment of VE recommendations proposed for incorporation into the EA approved design.

This Transportation Environmental Study Report (TESR) has been prepared to amend the approved Individual EA to reflect proposed VE changes to the project. This report documents the further evaluation of VE recommendations and the resulting proposed changes to the approved EA, identifies the anticipated environmental effects and proposed mitigation measures, and summarizes the consultation undertaken. Following the 30-day public review period for the TESR and resolution of any concerns or Part II Order requests, the MTO will finalize the current phase of design for Highway 7 New.

Under the Class Environmental Assessment (EA) for Provincial Transportation Facilities (2000), this study followed an approved planning process for a Group 'A' project with the opportunity for public input. Consultations were held with external agencies, interested stakeholders, and First Nation communities to ensure that regulatory requirements were met and concerns raised by these groups were considered. This included two Public Information Centres. Direct consultation and engagement with the Six Nations of the Grand River Territory; local municipalities, counties, townships, recreational trail groups and local stakeholder groups were held during this study.

The existing environmental conditions within the Highway 7 New study area were documented through field investigations. The existing aquatic and terrestrial ecosystems, including species at risk and significant natural areas; archaeological and built heritage resources; socio-economic environment, groundwater conditions; contaminant and waste management; and, hydrology were assessed to identify potential impacts so that mitigation measures and strategies could be developed.

The VE Study recommendations were evaluated and presented to the public for comment. Improvements were recommended in Five Target Areas, including: (1) Kitchener-Waterloo freeway to freeway interchange, (2) Grand River Bridge and Bridge Street, (3) Regional Road 17 (Ebycrest Road) interchange, (4) Woolwich Road (Spitzig Road) interchange and the (5) Regional Road 30 (Shantz Station Road) interchange. The VE recommendations were evaluated to identify potential impacts to traffic and transportation, the socio-economic environment, natural environment and the construction costs in comparison to the approved EA design. Based on the evaluation of potential impacts recommendations were made and mitigation measures were proposed to minimize potentially negative impacts. Nine of the ten VE recommendations were recommended for incorporation into the design for Highway 7 New, with one recommendation in Target Area 3 to be modified to address public concerns. One VE

recommendation in Target Area 1 was rejected in favour of the EA approved design at this location. This was based on feedback from stakeholders.

The following changes to the approved EA are proposed:

- Shift new ramps at the Highway 85 (Kitchener-Waterloo Expressway) and Highway 7 New freeway to freeway interchange to north of Wellington Street North
- Eliminate Riverbend Drive to Highway 7 New west on-ramp
- Shift Highway 7 New westbound off-ramp to Riverbend Drive further west
- Provide direct access to Shirley Avenue from Highway 7 New eastbound
- Move on-ramp at Bridge Street to Highway 7 New westbound
- Realign Bridge Street at Ebycrest Road
- Close Ebycrest Road at Victoria Street
- Maintain existing alignment of Spitzig Road at existing Highway 7
- Reconfigure north-west access at new Shantz Station Road interchange
- Combine service road and private residential access at Shantz Station Road

In addition, municipal road improvements have been identified to improve traffic operations, including a left turn lane to Highway 7 New westbound from Silvercreek Parkway northbound, and four lanes plus a turning lane as required where Shirley Ave. is currently 2 lanes.

Subject to the environmental clearance of this TESR, the approved EA design will be amended to incorporate the VE recommendations. Only the changes noted in this TESR are eligible for the Part II Order. The balance of the concept of the undertaking as outlined in the approved EA is not subject to change.. The Initial Phase of Design, including the VE recommendations approved through this study will be documented in a separate Initial Design Report, which will be filed for public review.

With the exception of personal information, all comments will become part of the public record in accordance with the *Freedom of Information and Protection of Privacy Act*.

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1 Introduction

The MTO is proposing some site-specific improvements to the approved design documented in the Individual Environmental Assessment (EA) for Highway New, an 18 km four-lane divided highway extending from Highway 85 (Kitchener Waterloo Expressway) in Kitchener easterly to Highway 6 (Hanlon Expressway) in Guelph. The Individual EA for this new route was approved with conditions in March 2007. A Value Engineering (VE) study was subsequently undertaken to identify opportunities to enhance the design and improve the overall value of the project. An evaluation of VE recommendations resulting from this study was completed by MTO and presented at two Public Information Centres held on May 3, 2011 (Kitchener) and May 5, 2011 (Guelph). Based on the evaluation and comments received from stakeholders, the ministry recommends design improvements for access at five interchanges in the approved EA alignment, listed below:

- Kitchener-Waterloo Freeway to Freeway Interchange
- Grand River Bridge and Bridge Street
- Regional Road 17 (Ebycrest Road) interchange
- Woolwich Road (Spitzig Road) interchange
- Regional Road 30 (Shantz Station Road) interchange

1.1 Environmental Assessment Planning Process

Background - Individual Environmental Assessment

On December 23, 1997, the Ministry of Transportation (MTO) submitted the environmental assessment report (EA Report 1997), seeking approval to construct a new 4-lane controlled access freeway between Kitchener and Guelph. The EA was conducted to address service, capacity and safety issues along this section of existing Highway 7. The Ministry of the Environment's (MOE) government review of the project was completed on September 18, 1998 and MOE concluded that the proponent had met the requirements of the Environmental Assessment Act (EAA). However, in response to concerns raised by local municipalities and local environmental groups, MTO requested that the decision on the EA be deferred.

MTO subsequently completed additional studies and submitted an amendment to the EA Report 1997 for review and approval. The EA amendment was formally submitted to MOE on October 29, 2004 which was followed by a government agency and public review period. A team of technical experts were brought together to form the Government Review Team (GRT). The GRT reviewed the EA for its technical merits and to ensure that the data presented was accurate and the conclusions valid, based on the mandate of each member agency. The public also had the opportunity to review the EA and submit comments to the MOE.

The GRT review concluded that the MTO had carried out a complete and thorough EA planning process, and that the requirements of the EA had been satisfied. The undertaking was given approval to proceed subject to a number of Conditions of Approval, through an Order in Council dated March 21, 2007.

On August 22, 2007 the new route was designated as a controlled access highway under the Provincial Transportation and Highway Improvement Act to protect the corridor from development.

Value Engineering Study

In 2007, the MTO carried out a Value Engineering (VE) Study to:

- Improve the value of the project – identify opportunities to achieve the objectives in a more effective manner; and,
- Provide updates to the design – review the design to ensure it was effectively meeting the functional objectives of the project

This study resulted in a number of VE ideas that were recommended for incorporation into the approved EA design. Through the current study process and public consultation, design changes related to access but not identified in the VE study have also been recommended and will be included in the design. These are not included as part of this TESR Addendum as they do not represent a change to property and do not cause any environmental impacts.

The evaluation of VE options was carried out in accordance with the Class EA for Provincial Transportation Facilities (2000).

1.2 Transportation Engineering and Environmental Protection Principles and Processes

As identified in Chapter 10 of the MTO Class EA for Provincial Transportation Facilities (2000), the process to amend the Individual EA will follow the Class EA process and the corresponding principles including transportation engineering, environmental protection, consultation, documentation, bump-up, and environmental clearance. These principles were applied during the decision-making process for this project. These are summarized in section 6 of this document.

Purpose of this Transportation Environmental Study Report (TESR)

This TESR has been prepared to amend the approved Individual EA. The report documents the evaluation of proposed changes to the approved Individual EA design, identifies the anticipated environmental effects of these changes and proposed mitigation measures, and summarizes the consultation undertaken. The TESR will constitute an addendum to the original Individual EA and will be made available for a 30 day public review period.

If interested persons feel there are significant outstanding issues that have not been adequately addressed and could be addressed through an individual environmental assessment, the EA process provides an opportunity to request a Part II Order under the *Environmental Assessment Act*. Only the changes noted in the TESR will be eligible for the Part II Order. The concept of the undertaking as outlined in the original EA may not be challenged. In the event that a Part II Order is granted, the MTO has the option of withdrawing the TESR and implementing the project as documented in the approved Individual EA.

Next Steps

Following the public review period for the TESR and resolution of any concerns, MTO will finalize the 'Initial Phase of Design' for the new highway. The Initial Phase of Design provides a more definitive configuration and footprint of the 2007 approved plan and incorporates accepted improvements recommended by the VE study. A separate document, identified as the Initial Design Report, will be published for a 30-day public review after the review period for this TESR. Notices will be published in local newspapers and sent to those on the project mailing list when the Initial Phase of Design report is available.

2 Value Engineering Evaluation in Initial Phase of Design

A Value Engineering (VE) study is a systematic and function based approach to improving the value of products, projects, or processes. VE involves a team of experts that generate solutions that will improve the value of the product, project, or process. VE helps to achieve balance between required functions, performance, quality, safety, and scope with the cost and other resources necessary to accomplish those requirements. The proper balance results in the maximum value for the project

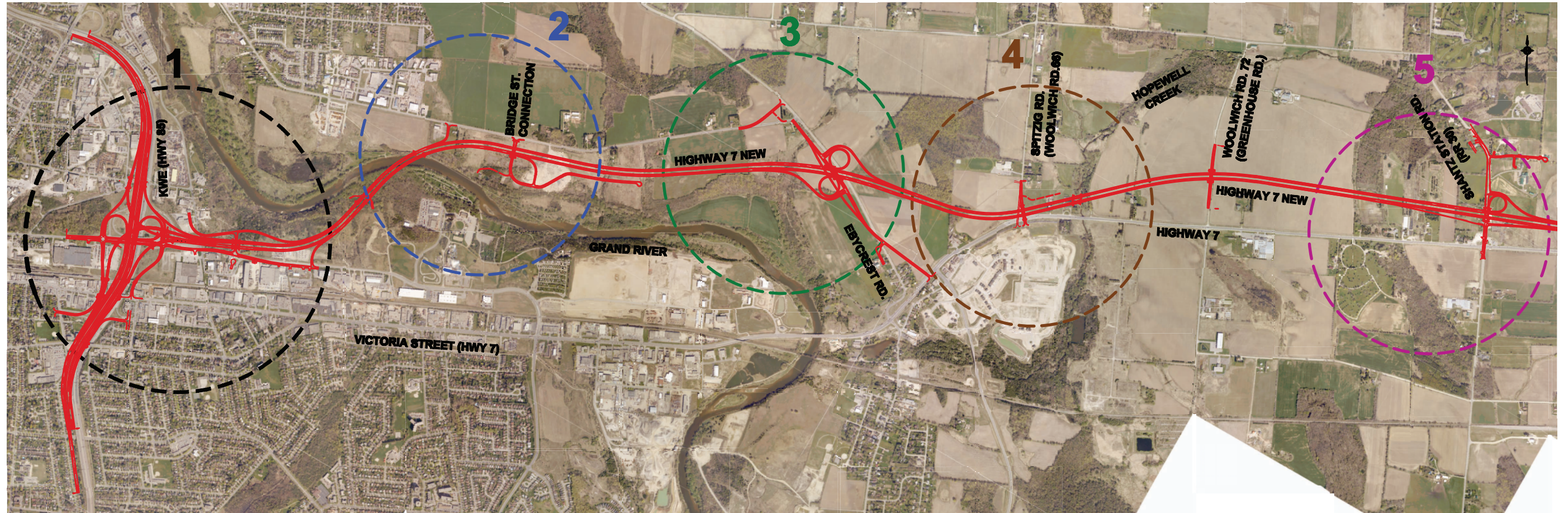
In 2007 a VE study was completed for the Highway 7 New project to further assess the EA approved plan and identify improvements. For that study the team developed and evaluated feasible VE alternatives. The VE study was undertaken within a number of accepted constraints as a result of the 2007 approved EA. These included:

- The alignment of the mainline could not be significantly altered;
- Highway 7 would ultimately be no less than a four-lane divided controlled access highway;
- The interchange access points would remain the same in the ultimate configuration; and
- A rural cross section (shoulders and ditches) would be used east of the Kitchener Waterloo Expressway (KWE)

In this current study VE alternatives recommended to be brought into the overall design (VE recommendations) were assessed further before incorporation into the EA approved design. Overall, the VE recommendations are not substantial changes to the approved plan; they enhance the safety and function of the highway, reduce property and environmental impacts as well as costs. VE recommendations result in improvements at 5 site specific locations (Value Target Areas) with respect to:

- Overall function and constructability;
- Operation;
- Reduced environmental impacts;
- Safety;
- Reduced property impact; and,
- Reduced costs.

For this current VE study review, as part of the Initial Phase of Design, ten (10) VE recommendations within five value target areas were developed and carried forward. The



Target Area 1: VE Recommendations - 1, 2, 3, 4

Target Area 2: VE Recommendations - 5

Target Area 3: VE Recommendations - 6, 7

Target Area 4: VE Recommendations - 8

Target Area 5: VE Recommendations - 9, 10

Client:



Title:

VALUE ENGINEERING (VE) TARGET AREAS

Prepared By:



Reviewer: SR

MMM: 16.08027.001.EN1

MTO: 408.88.00

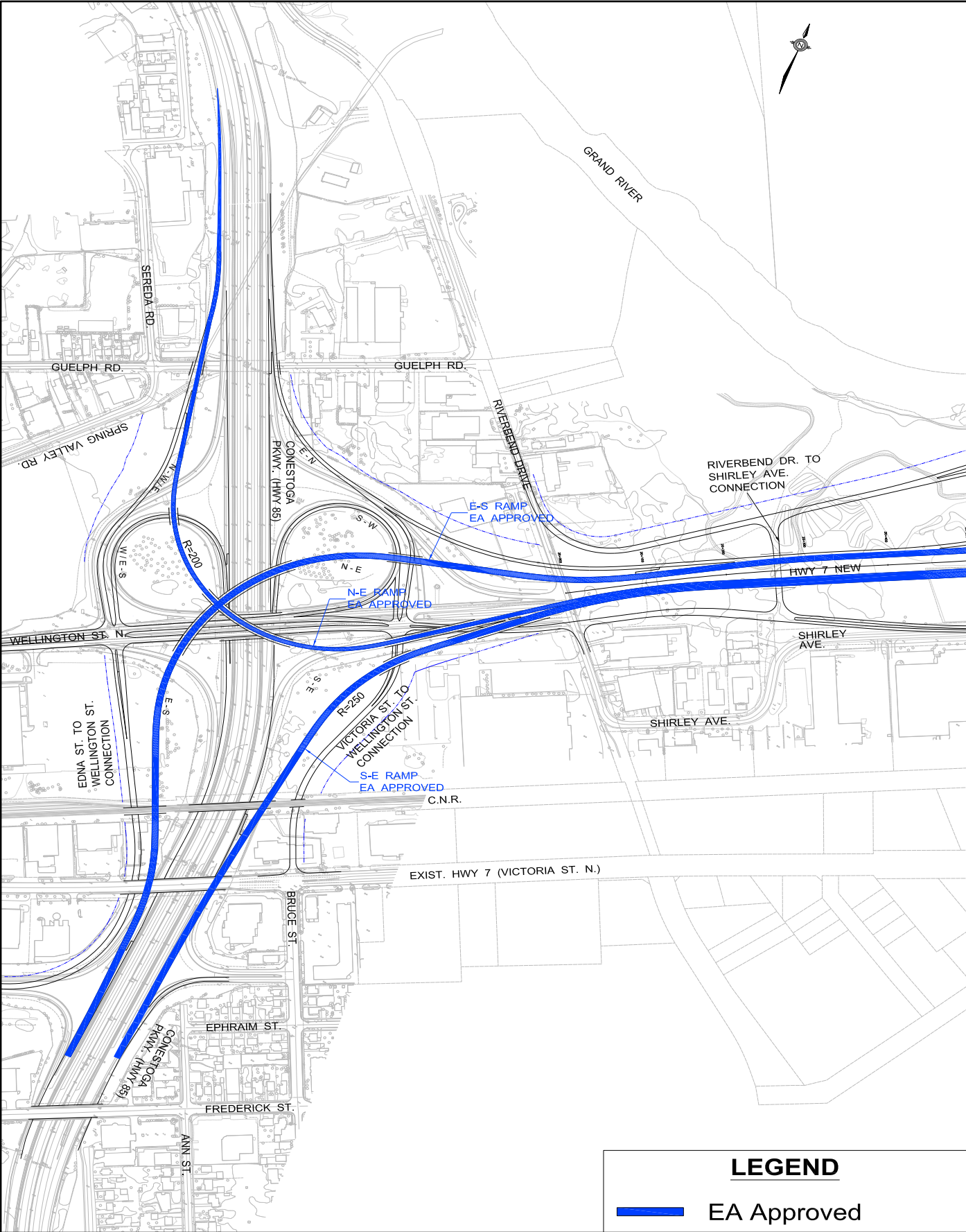
Figure:

1

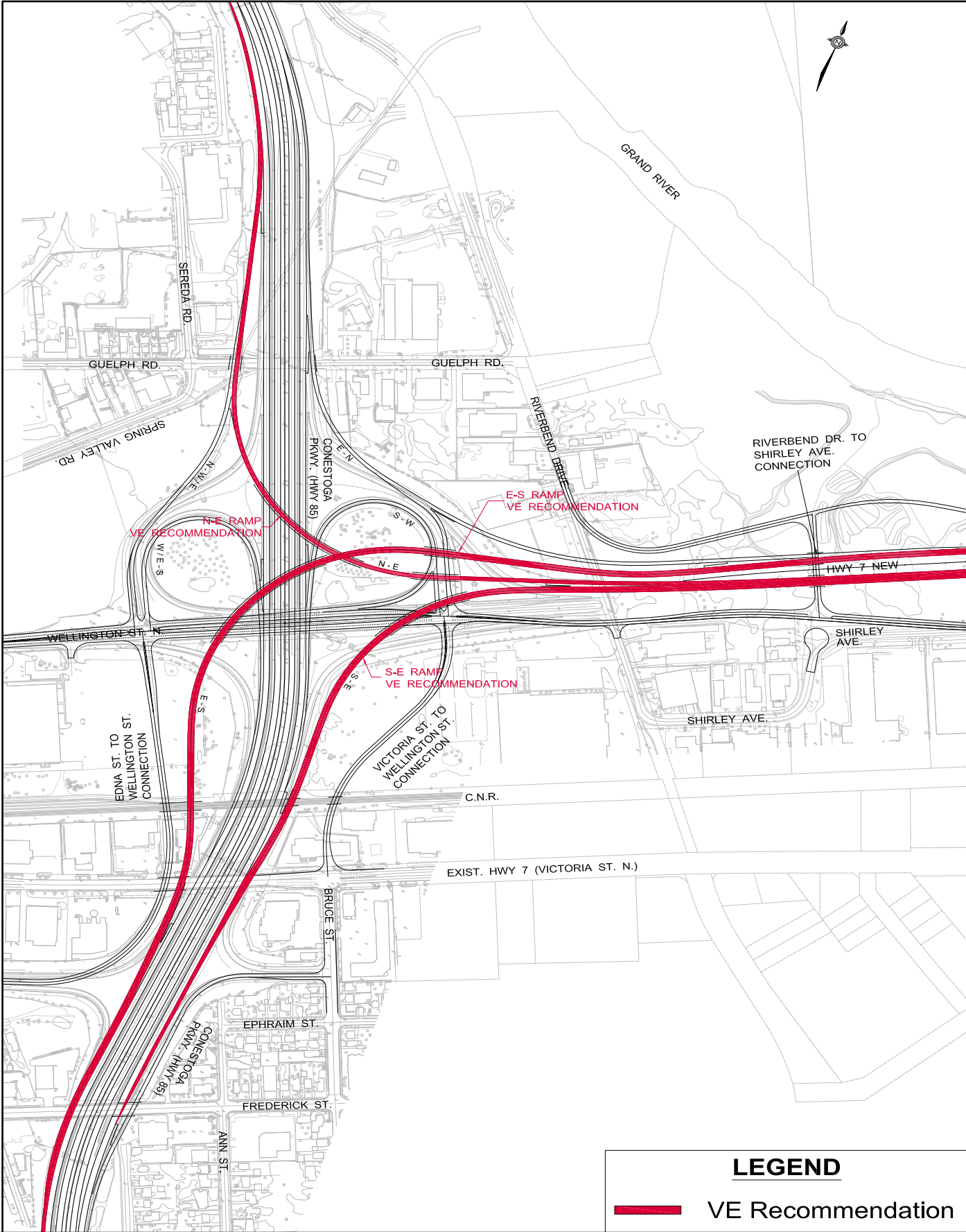
Date:

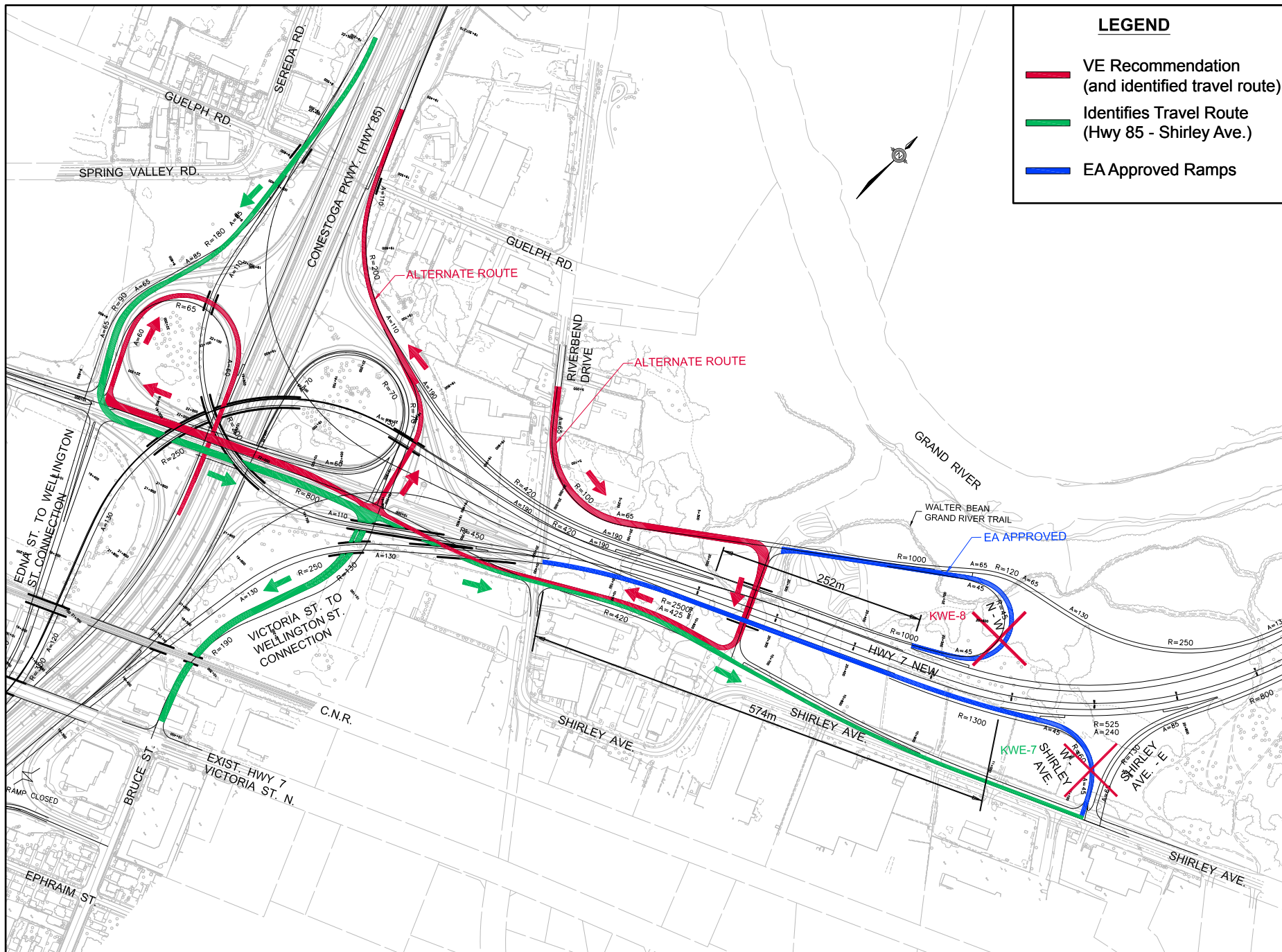
MAY 2012

EA Approved



VE Recommendation

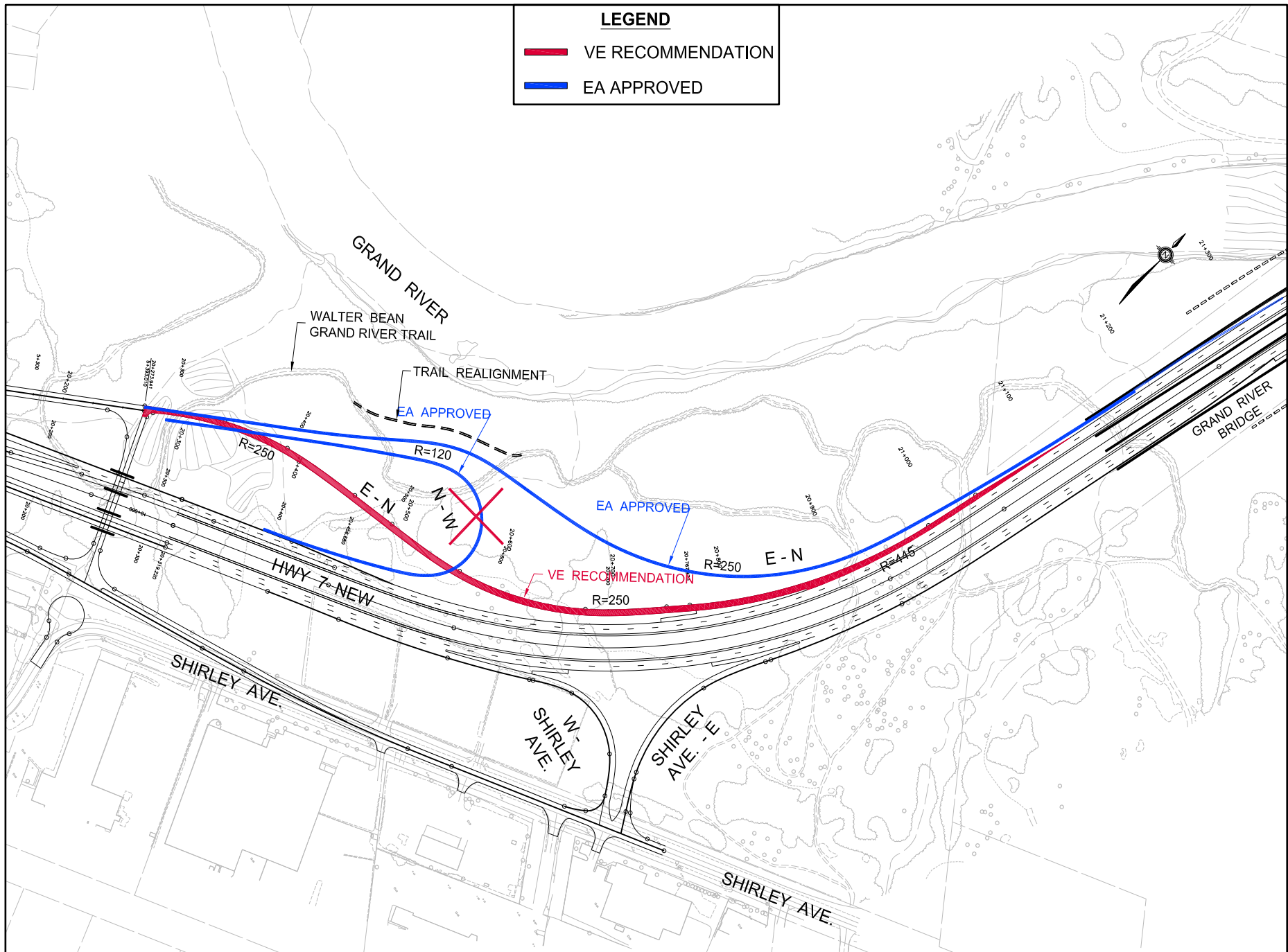




LEGEND

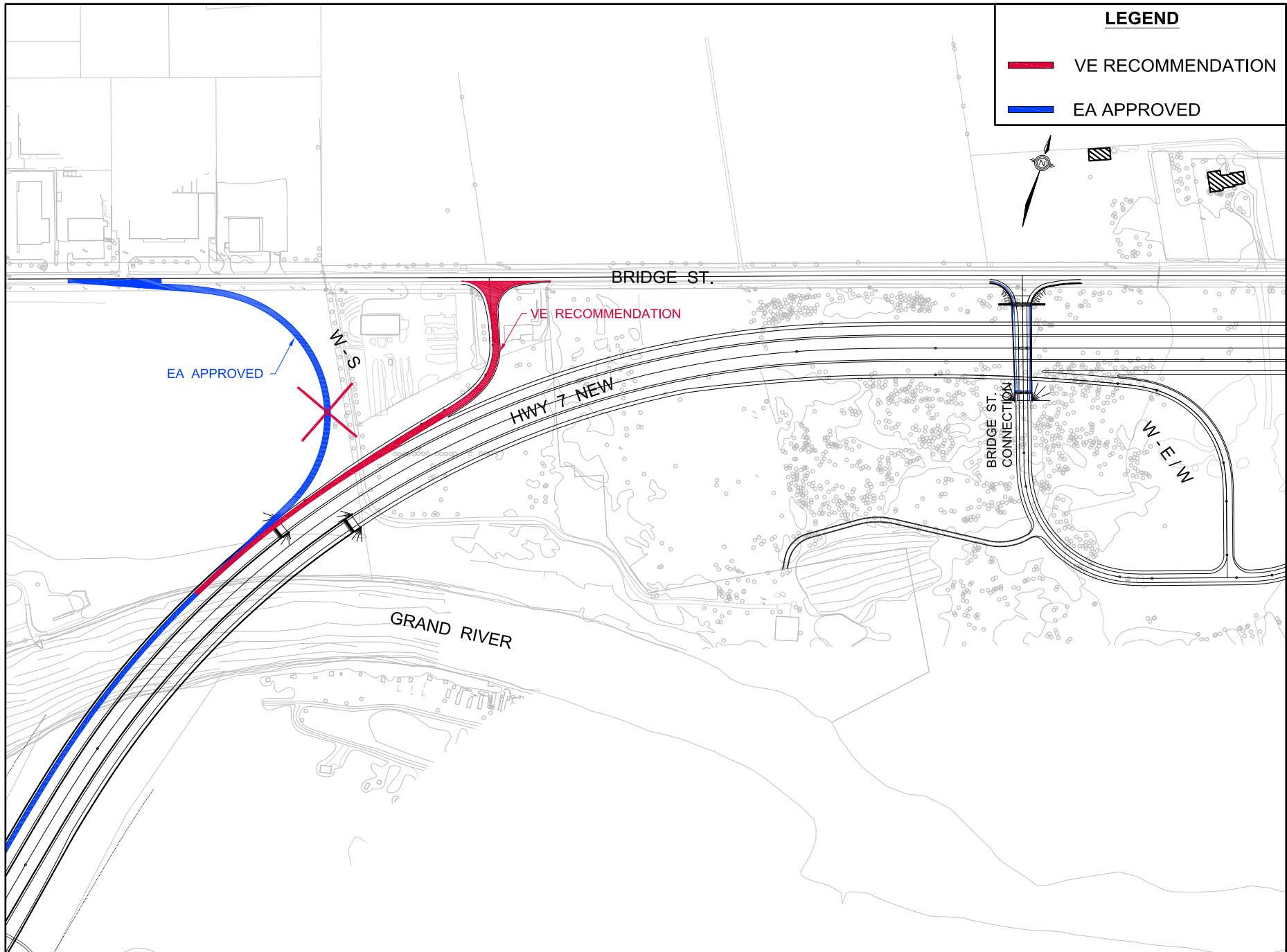
- VE Recommendation
(and identified travel route)
- Identifies Travel Route
(Hwy 85 - Shirley Ave.)
- EA Approved Ramps

Client:	Title:	Prepared By:	Reviewer:	Figure:
	TARGET AREA 1 - KITCHENER-WATERLOO EXPRESSWAY FREEWAY TO FREEWAY INTERCHANGE		SR	3
	VE Option (2 & 3) - Eliminate Riverbend Dr. to Hwy 7 On-Ramp and W-Shirley Ave. Off-Ramp		MMM: 16.08027.001.EN1	Date:
			MTO: 408.88.00	MAY 2012



LEGEND

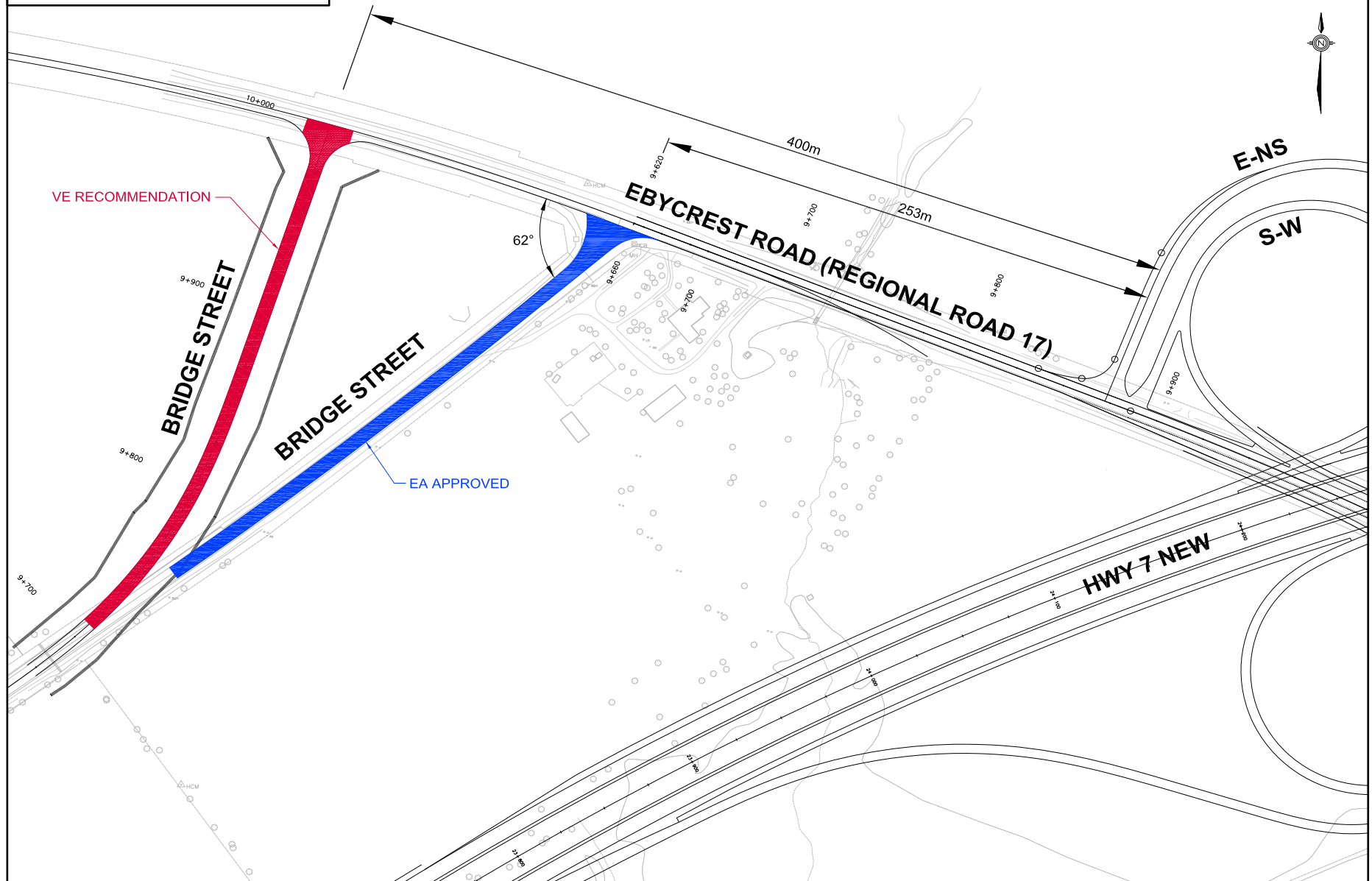
- VE RECOMMENDATION
- EA APPROVED



Client: 	Title: TARGET AREA 2 - GRAND RIVER BRIDGE AND BRIDGE STREET VE Option (5) - Move and Reconfigure Direct W-S On-Ramp into Buttonhook	Prepared By: 	Reviewer: SR MMM: 16.08027.001.EN1 MTO: 408.88.00	Figure: 5 Date: MAY 2012
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LEGEND

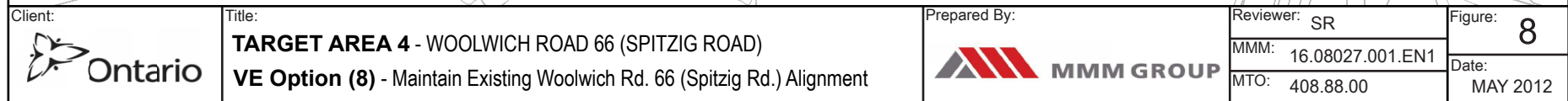
- VE RECOMMENDATION
- EA APPROVED

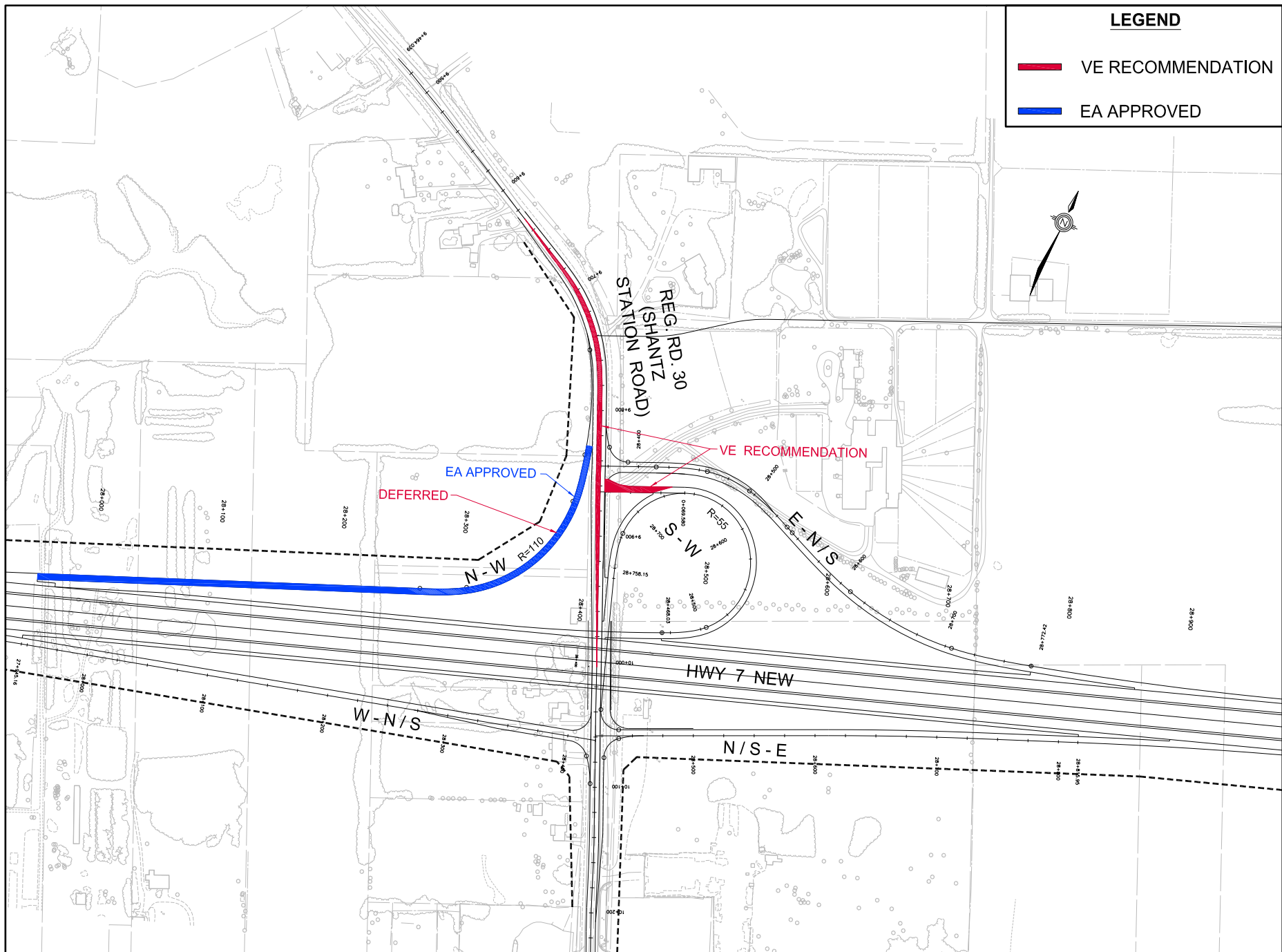


Client:	Title:	Prepared By:	Reviewer:	Figure:
	TARGET AREA 3 - REGIONAL ROAD 17 (EBYCREST RD.) INTERCHANGE		SR	6
	VE Option (6) - Realign Bridge Street at RR17 to Provide Greater Spacing		MMM: 16.08027.001.EN1	Date:
			MTO: 408.88.00	MAY 2012



Client: 	Title: TARGET AREA 3 - REGIONAL ROAD 17 (EBYCREST RD.) INTERCHANGE VE Option (7) - Close Existing Ebycrest Rd. North of Existing Hwy 7 and Provide Cul-de-Sac	Prepared By: 	Reviewer: SR MMM: 16.08027.001.EN1 MTO: 408.88.00	Figure: 7 Date: MAY 2012
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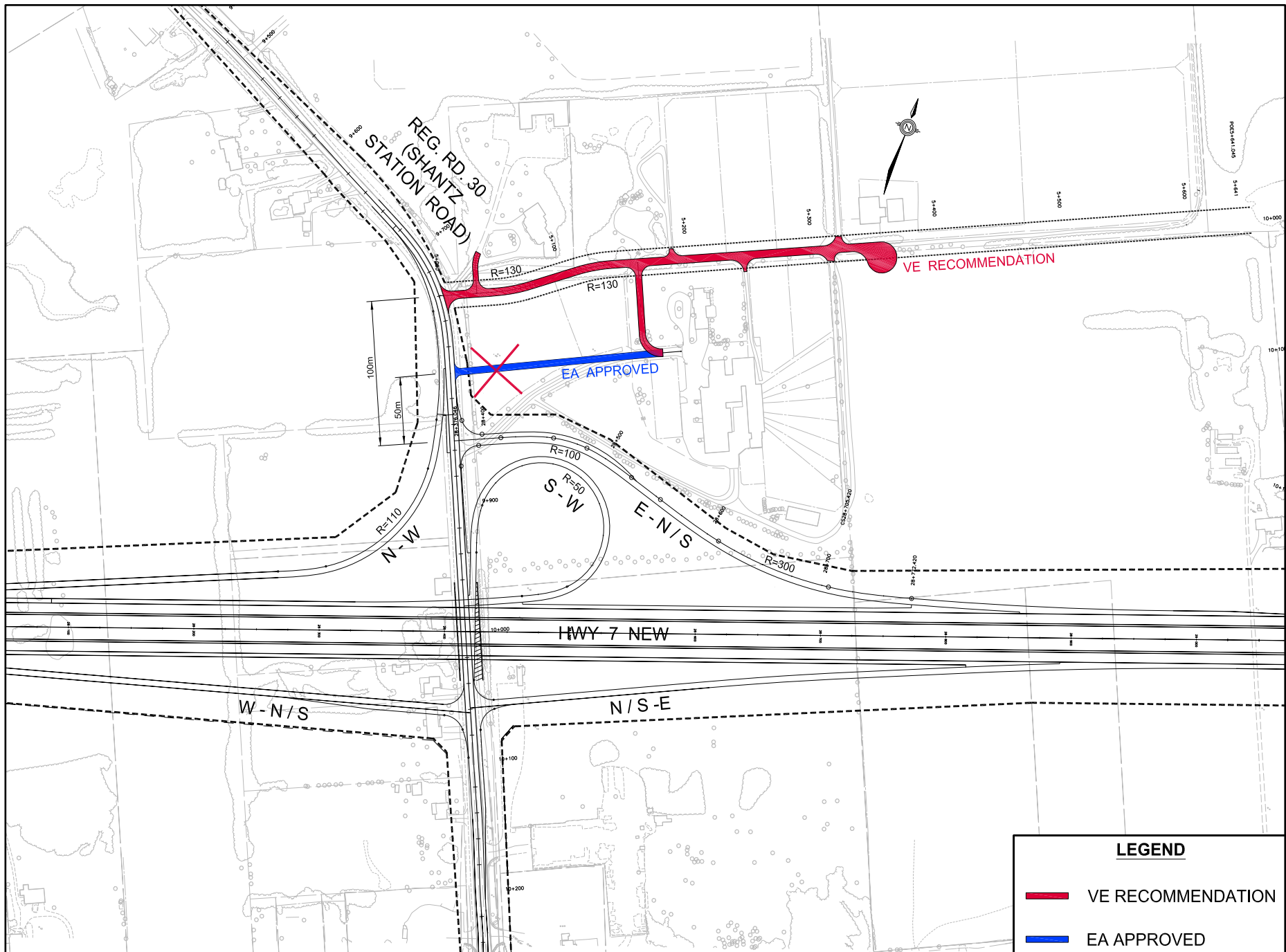


LEGEND

— VE RECOMMENDATION

— EA APPROVED

Client: 	Title: TARGET AREA 5 - REGIONAL ROAD 30 (SHANTZ STATION RD.) VE Option (9) - Convert North Interchange Configuration to Parclo A2 (Protect for A-4)	Prepared By: 	Reviewer: SR MMM: 16.08027.001.EN1 MTO: 408.88.00	Figure: 9 Date: MAY 2012
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These recommendations were presented to the public, municipalities and agencies, providing an opportunity to review the VE recommendations and provide feedback.

Table 1: Value Target Areas and Summary of EA Approved Design and Corresponding VE Recommendation

Value Target Area	Number of VE Recommendations in Each Target Area Presented to the Public	EA Approved Design	VE Recommendation
Kitchener Waterloo Expressway (KWE) Target Area 1 (Figures 2, 3 & 4)	4	Ramps N-E & S-E merge south of Wellington Street (bridge over Highway 7 not constructible)	Move ramps N-E & S-E merge to the north of Wellington Street (bridge over Highway 7 constructible). <i>This is a design recommendation that has been accepted without the need for evaluation.</i>
		Highway 7 S-E off ramp to Shirley Avenue	Eliminate Highway 7 Eastbound off-ramp to Shirley Avenue. Maintain existing access routes through local roads
		Riverbend Drive on-ramp to Highway 7 westbound	Eliminate Riverbend Drive to Highway 7 westbound on-ramp
		Highway 7 westbound off-ramp to Riverbend Drive is partially on Grand River structure	Shift Highway 7 Westbound off-ramp to Riverbend Drive further west and off the Grand River structure (Works only with Option 1/3 above)
Grand River Bridge and Bridge Street (GR) Target Area 2 (Figure 5)	1	Bridge Street eastbound direct on-ramp to Highway 7 westbound	Move and reconfigure direct W-S on-ramp into buttonhook
Regional Road 17 Interchange (RR17) Target Area 3 (Figure 6 & 7)	2	Bridge Street to retain current alignment at intersection with Regional Road 17	Realign Bridge Street at Regional Road 17 to provide greater spacing and improve angle of the intersection
		Ebycrest Road connection to Fountain Street Extension for access to Highway 7 New	Close existing Ebycrest Road at Fountain Street Extension (maintain emergency access) Provide a cul-de-sac at the north end and maintain access to Victoria Street

Value Target Area	Number of VE Recommendations in Each Target Area Presented to the Public	EA Approved Design	VE Recommendation
Sideroads (SR) Target Area 4 Figure (8)	1	Woolwich Road 66 realigned to the west to connect with Highway 7	Maintain existing Woolwich Road 66 alignment. Realign close to existing at the approach to Highway 7
Regional Road 30 Interchange (RR30) Target Area 5 (Figure 9 & 10)	2	Direct N-W ramp from Regional Road 30 to Highway 7 New	Convert north interchange configuration to Parclo A2 (replace a direct free flow N-W ramp with a left turn onto S-W loop ramp) Defers N-W direct ramp until warranted
		New residential access in close proximity to the interchange	Combine Service Road and private access
Total	10		

2.1 Consultation Process

The amending process provided by the Class EA requires the ministry to consult with affected parties on the proposed changes, anticipated environmental effects, and proposed mitigation. Consultation is an integral component of the Class EA process and is carried out in conjunction with transportation engineering and environmental protection principles. It involves contact with external agencies (provincial, federal, municipal); First Nations and Aboriginal communities; the public and interested stakeholders at the earliest stages to ensure decisions are made after considering environmental impacts. Public consultation is then carried out at critical design stages to provide updates and an opportunity to provide comments on the project.

External agencies and interested stakeholders were contacted and informed of the proposed changes and had an opportunity to comment on pertinent environmental issues, during the Individual Environmental Assessment (EA) Study, the Initial Phase of Design and continued through to the preparation of the TESR to amend the Individual EA.

The public consultation program for the VE Study and Initial Phase of Design included the following elements:

- Newspaper notification of the Initial Design study commencement;
- Newspaper notification for the Public Information Centre (2 venues);
- Newspaper notification for the publishing of the TESR to Amend the Individual EA outlining the VE study recommendations, to be available for a 30-day public review period;
- Mailings to the public, stakeholder groups, businesses, review agencies, provincial members of parliament and First Nation communities; and,

- Meetings with affected private property owners, businesses and stakeholder groups.

Newspaper notification for the completion of the Initial Phase of Design Report for the Highway 7 New project between Kitchener and Guelph will be prepared and made available for a 30-day public review period.

2.1.1 Initial Notification

A Notice of Study Commencement was published in the Kitchener-Waterloo Record and Guelph Mercury on June 14 and June 18, 2008, and the Tekawennake News and Turtle Island News on June 18 and June 25, 2008. This notice informed the public of the commencement of the Initial Design and VE Study review, identified the MTO and Consultant project managers with contact information and explained how the public could participate in the process. A copy of the Notice is provided in Appendix A.

2.1.2 Consultation and Engagement with First Nations and First Nations Organizations

First Nations Communities that may have interest in the study area were advised of the initiation of this study and the PIC. Individual letters were mailed to the following and included a copy of the Notice of Study Commencement and the Notice of PIC:

- Huron-Wendat;
- Hiawatha;
- Alderville;
- Beausoleil;
- Chippewas of Georgina Island;
- Chippewas of Mnjikaning;
- Mississaugas of Scugog Island;
- Kawartha Nishnawbe;
- Curve Lake;
- Mississaugas of the New Credit;
- Six Nations of the Grand River Territory;
- United Anishnabaag Councils;
- Association of Iroquois and Allied Indians; and,
- Union of Ontario Indians – Nipissing First Nations.

The Notice of Study Commencement was published in the Turtle Island News and Tekawennake on June 18 and June 25, 2008, and the Notice of Public Information Centre was published on April 20 and April 27, 2011.

Direct consultation and engagement with the Six Nations of the Grand River Territory was undertaken by the MTO. On January 19, 2011, the MTO project team presented a project update to the Six Nations Director, Lands and Resources Department and Six Nations Eco-Centre manager and staff. Six Nations confirmed their request to monitor any further archaeological field investigations.

MTO is committed to further meetings and discussions with First Nations as the project progresses, and will continue to develop and update a work plan in consultation with Six Nations of the Grand River to address their concerns.

2.2.3 External Agencies and Municipalities

Provincial and federal government agencies were contacted and informed of the proposed changes. Letters inviting input and comment on the study were mailed on June 13, 2008. Examples are provided in Appendix B. A Notice of Study Commencement accompanied each letter. The following is a list of agencies that received the notice:

- Provincial Ministries/Agencies:
 - Environment;
 - Tourism and Culture (now; Tourism, Culture and Sport);
 - Natural Resources;
 - Municipal Affairs and Housing;
 - Agriculture, Food and Rural Affairs;
 - Aboriginal Affairs;
 - Community, Family and Children's Services;
 - Ontario Provincial Police – Western Region; and,
 - Ontario Realty Corporation
- Federal Departments
 - Canadian Environmental Assessment Agency;
 - Environment Canada – Ontario Region;
 - Department of Fisheries and Oceans Canada; and,
 - Indian and Northern Affairs Canada.

Similar letters to those prepared for provincial and federal agencies were sent to the local municipalities, agencies and conservation authority in June, 2008. A Notice of Commencement accompanied each letter. The list of municipalities included the following:

- Municipalities/Agencies
 - Region of Waterloo
 - County of Wellington
 - Cities of Kitchener and Guelph
 - Township of Guelph/Eramosa
 - Township of Woolwich
 - Grand River Conservation Authority
 - Waterloo Regional Police Service

2.2.4 Public Consultation

Letters and the Notice of Study Commencement were also mailed to a number of stakeholders in June 2008, who may have an interest in the project.

In 2011 the MTO presented information on the results of the VE study and the initial phase of design to the public. MMM and MTO staff made presentations to the councils of the Township of Woolwich, City of Kitchener, County of Wellington and the Regional Municipality of Waterloo, met with businesses and landowners and held two stakeholder group meetings in advance of

the two Public Information Centres (PIC). The stakeholder meetings were held with the informally named Shirley Avenue business group for matters related to VE recommendations in Target Area 1 and with property owners along Ebycrest Road for matters related to VE recommendation 7, to close Ebycrest Road at its intersection with future Fountain Street Extension.

A Notice of Public Information Centre was published one and two weeks in advance of the PICs in the Kitchener-Waterloo Record, Guelph Mercury on April 23 and April 30, 2011. The notice also appeared in the Tekawennake News and Turtle Island News on April 20 and April 27, 2011. This notice informed the public of the date and location of the PICs, including a brief summary of information to be presented, identified the MTO and Consultant project managers with contact information and explained how the public could participate in the process. A copy of the Notice is provided in Appendix A.

The PICs were held at two locations. The first was held on Tuesday May 3, 2011 at Bingemans, located at 425 Bingemans Centre Drive in Kitchener, ON. The second was held on Thursday May 5, 2011 at the Guelph Place Banquet Hall, located at 492 Michener Road in Guelph, ON. The PICs were an open-house drop-in style between 4:00 pm and 8:00 pm. Brief presentations were made at the PIC's.

The following information was presented on display boards at the PIC:

- Welcome;
- Project Background;
- Freedom Of Information And Protection Of Privacy;
- Environmental Assessment (EA) Process;
- What Have We Been Doing Since The EA Was Approved In 2007?;
- Value Engineering (VE) Study;
- Summary Of VE Evaluation And Conclusion;
- 2007 EA Approved Design Features;
- Natural, Physical And Social Environment Existing Conditions, Impact Assessment And Mitigation;
 - Water Crossings And Fish Habitat
 - Vegetation
 - Wetlands
 - Wildlife
 - Contaminated Waste Management
 - Groundwater And Wells
 - Archaeology
 - Cultural Heritage
 - Recreational Trails
- Plans of VE recommendations;
- Initial Phase of Design Plan;
- Project Status; and,
- Where Do We Go From Here?

The detailed PIC board information is found in Appendix C.

Several project team members from the MTO and Consultant were available to answer questions related to the highway design, property, the environment and the Environmental Assessment (EA) process.

Table 2 summarizes the input received from interested stakeholders from the two Public Information Centres and 2 stakeholder meetings held for the VE study and Initial Phase of Design. It is noted that several comments provided at the PIC related to the EA approved design and were not specifically related to the VE recommendations. These comments are presented in Appendix D at the back of this document. The comments and response from MTO will also be documented in the Initial Stage of Design report that documents the design for the full length of Highway 7 New.

Table 2: Summary of Stakeholders Issues and PIC Comments

Issue/Concern	Action Taken / Recommendations
<p>Request for additional information:</p> <p>Several comments were received, requesting copies of segments of the Highway 7 New alignment and/or copies of the PIC presentation material.</p>	<p>The MTO/MMM provided the requested information to the interested stakeholders.</p>
<p>Concerns re: removing Shirley Avenue & Riverbend Drive ramps</p> <ul style="list-style-type: none"> • Traffic issues (congestion & increase traffic volumes) are anticipated to occur as a result of the removal of the eastbound off- ramp (S-E ramp) to Shirley Avenue. The access routes seem to be more cumbersome and awkward as recommended under the VE recommendation, compared to the original EA access configuration. The preference was for the EA approved ramp to remain (VE recommendation 2). • Almost all attendees agreed that removing the on-ramp from Riverbend Drive onto Highway 7 westbound will still provide a convenient access via existing local access route; therefore, the VE configuration was accepted (VE recommendation 3). 	<p>The plans were revised to re-instate the direct off-ramp to Shirley Avenue as originally approved in the EA.</p> <p>No further action required.</p>
<p>Concerns re: traffic issues for vehicles entering/leaving the highway in the area of the Kitchener-Waterloo Expressway interchange (KWE). These included:</p> <ul style="list-style-type: none"> • Requests for more traffic studies (traffic counts) or information to be provided on the data obtained and used for the design of the KWE interchange. • A traffic model (video) would be helpful to show the traffic route options. (VE recommendations 1,2 and 3) 	<p>Limited traffic analysis was completed to determine mainline and ramp link volumes as part of the original EA. This was supplemented by traffic microsimulation modeling in the area of the new Highway 7 and Highway 85 interchange during the VE Study.</p>
<p>Concern with the proposed 2-lane cross section on Shirley Avenue</p> <ul style="list-style-type: none"> • Design identifies a 2-lane section between four lane sections 	<p>Shirley Avenue plan is revised to 4-lanes wide plus a turning lane as required to maintain traffic operations and uniformity in service through this route.</p>

Issue/Concern	Action Taken / Recommendations
<p>Inquiries for additional access</p> <ul style="list-style-type: none"> Inquiries were made to provide additional points of access to lands adjacent to the “Combined Service Road and Private Residential” laneway that is proposed for construction at Shantz Station Road (VE recommendation 10). 	<p>Following further review, the VE recommendation that is recommended for incorporation into the design is a private laneway. As such, the laneway will not be modified to include new access to adjacent lands.</p>
<p>Local residents on Ebycrest Road indicated that they would prefer to have the cul-de-sac constructed at the south end of the road, rather than at the north end as proposed in VE recommendation 7. Local residents would prefer to eliminate the Ebycrest Road/Highway 7(Victoria Street) intersection and maintain access to the future Fountain Street extension, the Highway 7 New interchange and agricultural lands.</p>	<p>MTO has adjusted the location of the cul-de-sac as requested.</p>
<p>Timing of Highway Construction</p> <ul style="list-style-type: none"> When will the highway be constructed? 	<p>There are several factors that will determine when the highway can be built. These include receiving all environmental approvals, acquiring all property and receiving funding for construction. This project is currently on the Southern Highways Program 2011 to 2015 under “Planning for the Future”. On an annual basis this project will be considered for construction as part of the future Southern Highways program based on the provincial priorities and the availability of funding.</p>
<p>Support for Highway 7 New</p> <ul style="list-style-type: none"> Several stakeholders showed their support of the new highway, considering it to be safer and less disruptive than widening the existing Highway 7. 	<p>Comment noted.</p>

Issue/Concern	Action Taken / Recommendations
<p>Impacts to Property and Access</p> <p>Concern raised regarding impacts to property in the area of the Bridge Street on-ramp to Highway 7 New that result from the VE recommendations (changes from the EA approved design) (VE recommendation 5). Concerns include:</p> <ul style="list-style-type: none">• Removal of lands for stormwater management pond• Constraint to operations in industrial portion of property.	<p>Stormwater management facilities were relocated to outside of the property to eliminate issues and reduce impacts to useable land.</p> <p>The Bridge Street on-ramp was shifted to the east to eliminate impact to the property.</p>
<p>Request to be Added to Mailing List</p> <ul style="list-style-type: none">• A number of attendees to the PIC requested that they be added to the project contact list or to have contact information updated.	<p>The individuals were added to the project stakeholder list and existing contacts were updated to reflect a change in information.</p>

3 Existing Environmental Conditions

This section provides an overview of existing environmental conditions within the full length of Highway 7 New followed by a brief review of those conditions found at the location of the VE recommendations. A detailed description of existing environmental conditions is found in the technical study reports that are referenced in the sub-sections of this chapter and identified in the reference section (Section 8) at the back of this document. Figures 2-10 show the existing conditions at the location of each of the VE recommendations and Table 4; provides a description of the existing conditions that were considered for the evaluation of VE recommendations.

3.1 Fisheries and Aquatic Habitat

Highway 7 New is anticipated to require ten (10) watercourse crossings. These watercourses provide coldwater/coolwater and warmwater fish habitat. The Grand River is the major watercourse in the corridor. The river provides warmwater fish habitat to a diverse fish community consisting of baitfish and top predator species, including recreational sport fish. The remaining watercourses include:

- two drainage features on the south bank of the Grand River that discharge surface flow to the River in the vicinity of the crossing;
- Rosendale Creek;
- Ebycrest Tributary, an informally named tributary to the Grand River that crosses Ebycrest Road;
- Hopewell Creek;
- Tillich Drain, an informally named watercourse that discharges to Hopewell Creek in the vicinity of the former Tillich Nursery;
- West Tributary of Ellis Creek;
- Ellis Creek;
- Marden Drain, an agricultural drain associated with the Marden South woodland; and,
- Guelph Drain, an agricultural drain at the east end of the project.

A detailed description of aquatic and fish habitat is found in the Fish and Fish Habitat Impact Assessment Report (MMM 2012) on file with the MTO.

Three significant aquatic species are known, or are assumed, to inhabit the Grand River and may occur within the vicinity of the proposed crossing Highway 7 New crossing. These include the wavyrayed lampmussel (*Lampsilis fasciola*), silver shiner (*Notropis photogenis*) and greenside darter (*Etheostoma blennioides*). Wavyrayed lampmussel is designated as endangered under both the Ontario Endangered Species Act (ESA) and Federal Species at Risk Act (SARA); silver shiner is designated as threatened under ESA and SARA; and greenside darter is identified as Special Concern under SARA. These species are discussed further in Section 3.4.

VE Recommendations

The only aquatic habitat associated with a VE recommendation is the Grand River. The Grand River at the crossing is characterized as run habitat with sedimentation evident on the left (upstream) bank on the inside of the meander and erosion on the right (upstream) bank on the outside of the meander. We noted that there is a riffle area upstream of the assessment area

(more than 50 m upstream of the crossing), which would become more pronounced as water levels drop.

The Grand River in the ROW is approximately 1.8 m deep in the mid-channel area. The substrate in the ROW is dominated by cobble/gravel over sand with scattered boulders that are covered with a layer of silt. The substrate material is evenly distributed throughout the channel, with the finer materials more abundant along the south bank (left), on the inside of the meander bend. Very sparse in-stream vegetation provides limited cover for juveniles or minnows (1% of the area). There is a general lack of woody vegetation within the river, which is likely a function of the large volume of flow transporting this material downstream.

VE recommendation 4 would see a reduction in the footprint of the in-water pier and fill in the Grand River valley.

3.2 Vegetation

Vegetation in the corridor consists of large isolated woodlands and riparian areas of watercourses. The majority of these woodlands are swamp wetlands. The remaining lands are agricultural. Eight (8) woodlands and the forest valley at the Grand River crossing provide forest interior habitat. The natural environment features within the corridor that contain woodlands and other vegetation cover include:

- Grand River Crossing (valleyland slope deciduous forest and cultural communities);
- Bloomingdale-Rosendale;
- Weiland Tract (upland deciduous forest);
- Hopewell Creek, (riparian mesic woodland);
- Regional Road 30 Complex;
- Townline West Woodland/Wetland;
- Townline East;
- Ellis Creek Wetland Complex (meadow marsh/deciduous swamp); and,
- Marden South Wetland (deciduous swamp).

A detailed description of the vegetation communities associated with the natural area features is found in the Terrestrial Ecosystem Impact Assessment Report (MMM 2012) on file with the MTO.

VE Recommendations

Vegetation is found in the area of VE recommendations 2, 3, 4 and 5. The vegetation communities in these areas are common in the province and region and do not contain any significant species. The VE recommendations represent a reduction in the amount of vegetation removed or impacted compared to the approved EA design at these locations.

3.3 Wildlife

Wildlife habitat and populations are strongly associated with the large, isolated woodland/wetland natural areas and along the valleyland features associated with watercourses as described in section 3.2. A detailed description of the wildlife communities and habitat associated with the natural area features is found in the Terrestrial Ecosystem Impact Assessment Report (MMM 2012) on file with the MTO.

VE Recommendations

The majority of wildlife habitat areas identified above are not associated with the location of VE recommendations. The exceptions are the VE recommendations associated with Grand River valley crossing that includes the floodplain, slope and tableland forests. Habitat provided in the Grand River valley includes a travel corridor for wildlife, forest interior habitat for birds and an area where deer concentrate. There were no significant wildlife species identified in the area of the Grand River crossing.

The VE recommendations result in a reduced impact to wildlife primarily through a reduced construction footprint.

3.4 Species at Risk

All of the Species at Risk are aquatic species found in the Grand River. Therefore VE recommendation 4 could potentially affect these species.

Wavyrayed Lampmussel

Wavyrayed Lampmussel (*Lampsilis fasciola*) is designated as Endangered both provincially and federally. It is afforded protection under the Ontario Endangered Species Act (ESA, 2007) and the Species at Risk Act (SARA) as a Schedule 1 species. It is assumed to occupy the Grand River in the vicinity of the bridge crossing. Although not required at this Initial Phase of Design, a permit under the Endangered Species Act and specimen relocation will be required in future design and construction phases.

Silver Shiner

Silver shiner is designated as Threatened under the Endangered Species Act. It tends to occupy medium or large streams in deep riffles or pools adjacent to riffles. It is known to inhabit the Grand River and has been recorded in the Conestogo River. These habitat conditions are not present directly at the crossing of the Grand River and therefore it is less likely that it will be affected by any in-stream works.

Greenside Darter

Greenside darter is designated as Special Concern under COSEWIC. Since 2005 this species has greatly expanded its distribution in the Grand River system. It occurs upstream to the limits of barriers at the Elora Gorge and the dam at the Conestogo River. It prefers to inhabit creeks and small to medium sized rivers. It requires areas of abundant gravel and rubble riffles for spawning.

Suitable spawning habitat for this species is not found at the crossing site at the Grand River.

VE Recommendations

Only VE recommendation 4 would have the potential to affect Species at Risk. Wavyrayed lampmussel is expected to occur within or adjacent to the footprint of the Grand River bridge

piers. Greenside darter is not anticipated to be affected as preferred habitat is not present at the Grand River crossing. Silver shiner is unlikely to be present directly at the crossing location.

3.5 Natural Areas

Natural areas that occur in the study area include the large tracts of woodland and valleylands as identified in section 3.2. Designated natural areas include the following Provincially Significant Wetlands (PSW):

- Townline West Wetland;
- Ellis Creek Wetland; and,
- Marden South Wetland.

Designated Locally significant wetlands include:

- Bloomingdale-Rosendale Wetland; and,
- Hopewell Creek Riparian Wetland.

VE Recommendations

There are no designated natural areas that are associated with the VE recommendations. The Grand River valleyland is a natural area that is associated with VE recommendations 2, 3, 4 and 5. As discussed in the preceding sub-sections the effects to the valleyland also relate to the components of aquatic habitat, vegetation and wildlife.

3.6 Archaeology

Archaeological assessments were carried out based on the recommendations from the 2004 approved EA. Stage 2 and 3 archaeological investigations were completed for several sites within study area. The majority of the sites that were investigated were not related to the VE recommendations and will be discussed in the Initial Design Report. The results of the archaeological assessments can found in the technical report prepared by Archeoworks.(2010).

VE Recommendations

Artifacts were found immediately east of VE recommendation 8. A stage 3 assessment has been recommended however, permission to access the property to conduct the work was not granted. Therefore, this work is outstanding and will be completed in the detail design stage.

In the vicinity of VE recommendation 4 there are a cluster of archaeological sites located in the floodplain/lower slope of the Grand River Valley. The EA approved alignment crossing of the Grand River provides the primary effect to these sites. The VE recommendation represents but a small change to the potential effect on the resource with the exception of the Nicholas H site where the VE recommendation does not contact the area. These sites are identified as:

- Nicholas H Site: - no artifacts found;
- Jonas Bingeman Site (AiHc-200): Late Archaic Woodland or Early Middle Woodland Period – majority of artifacts were lithics and some ceramic sherds;

- Lawrence Bingeman Site (AiHc-201): no artifacts found;
- TP 42A-F Site (AiHc-301): single piece of Haldimand chert found;
- TP45A-M (AiHc-302): Middle Woodland period – few potter sherds; and,
- TP 41A, 43A, 44A, 46A (AiHc-300): Early Middle Woodland period – pottery sherds found.

Of these, Nicholas H Site, Site AiHc-201 and Site AiHc-301 stage 3 assessments have been completed and have been cleared of further archaeological concern. Sites AiHc-200, AiHc-300 and AiHc-302 require stage 4 assessments which will be completed in the detail design stage.

3.7 Cultural Heritage

Throughout the Highway 7 New corridor fourteen (14) cultural heritage landscapes and three (3) built heritage resources were investigated.

A Cultural Heritage Evaluation Report (CHER) was prepared, which documents the cultural heritage significance of the cultural landscapes, resources and buildings within the study area (Unterman McPhail Associates 2009). Additional documentation of the interiors of built heritage resources (buildings) will be undertaken in the next stage of detail design.

VE Recommendations

The only cultural heritage resource is associated with VE recommendation 7.

Ebycrest Road is considered to be of local cultural heritage. In Waterloo Township, road allowances were not surveyed between the lots, which resulted in an irregular road pattern particularly when compared with the regular grid layout of much of southern Ontario. Dating to the first part of the 1800s, Ebycrest Road is an early road within the township connecting the historic settlements of Breslau and Bloomingdale.

The cul-de-sac will help preserve the aesthetic and cultural appearance of Ebycrest Road.

3.8 Socio-economic

Socio-economic features of the study area can generally be described as an urban environment consisting of residential areas and businesses at the east and west ends of the corridor with rural properties and farms in between. Scattered businesses and services are located along existing Highway 7. Highway 7 New provides access to the local communities and businesses through the several interchanges that are approved.

VE Recommendations

VE recommendations 2, 3 and 4 occur at the west end of the corridor where Highway 7 New approaches Highway 85. These recommendations relate to providing access from Highway 7 New to local business areas including existing Highway 7 (Victoria Street) and environs and also along Shirley Avenue.

The Walter Bean Grand Valley Recreational Trail and the Grand Valley Trail traverses the corridor with the former occurring in the area of the Grand River crossing. VE recommendations 3 and 4 cross the Walter Bean Grand River Trail as it navigates the tableland on the south side of the Grand River.

3.9 Groundwater/Wells

According to the Surficial Geology of Southern Ontario (OGS 2003), soils present in the vicinity of the Study Area typically consist of sandy silt glacial till that are expected to have low to medium permeability. Soils in the vicinity of the Grand River consist of fluvial materials that are expected to have a variable to high permeability. Shallow and deep water wells are found throughout the corridor according to MOE Water Well Records. Most are associated with the rural properties, although some occur within the developed urban area.

VE Recommendations

Shallow wells would be expected to be most vulnerable to construction of the VE recommendations. A shallow well (0-5 m depth) occurs within the vicinity of VE recommendation 5 and another shallow well (5-10 m depth) is found in the vicinity of VE recommendation 8.

3.10 Contaminant and Waste Management

A Contamination Overview Study (COS) was undertaken to identify properties/areas with the potential for site contamination within the Study Area (MMM Group 2009).

No active or closed landfills or former coal tar manufacturing or handling facilities were listed in the inventory within the Study Area. Based on the results of the windshield-level assessment, actual areas of soil and ground water contamination within the Study Area were not identified; however, land uses with the potential for oil and ground water contamination were identified at several locations. Ten locations were considered to pose high potential for contamination along the proposed highway route.

VE Recommendations

VE recommendation 1 occurs partially in an area of high and moderate risk potential. This is associated with the Highway 85 corridor. VE recommendation 3 occurs at the outside edge of an area of moderate risk potential that parallels Shirley Avenue. Closer to the rail line the risk increases to high potential.

3.11 Hydrology

The drainage along the project corridor is characterized by several watercourses, agricultural swales and wetlands, which provide flood storage. The Grand River is the largest drainage feature in the corridor. The approved alignment of Highway 7 New includes a crossing of the Grand River.

VE Recommendations

VE recommendation 4 is related to the Grand River crossing and represents a reduction in the footprint of the bridge pier. The location of the bridge piers remain the same from the approved EA.

4 Review and Assessment of VE Recommendations

4.1 Evaluation Methodology

The VE recommendations that were considered for incorporation into the Initial Phase of Design represent improvements to the specific elements of the approved EA design. For each VE recommendation there is a corresponding EA approved configuration. First, the project team identified evaluation criteria and indicators from the following evaluation factor groups: socio-economic; natural environment; transportation; and cost. Then each factor grouping was assigned a weighting that was used in the evaluation process. The weight for each grouping, shown in Table 3, was selected by the project team based on a review of the importance and presence of the conditions within the local study area for each VE recommendation. For example, the weight given to natural environment was 15% overall because there were limited overall potential effects to natural environment features within the localized study areas of the VE recommendations and therefore the project team determined that the natural environment factor should not provide a significant influence in the evaluation process. The factor groupings, criteria and indicators are shown in Table 3.

The numeric evaluation is provided in Appendix E and the advantages/disadvantages are summarized in Table 4. The project team conducted a numeric evaluation of each VE recommendation compared to the approved EA design by applying a score to each indicator/criterion based on a scale of 0 to 10 where 0 was the least desirable and 10 was the most desirable, with scoring in intervals of 2. The scoring given to each indicator/criterion was based on a qualitative review of the effect of the option on the indicator. From the evaluation the overall score for each VE recommendation was compared to the score for the EA configuration and the higher score option was selected as preferred and then taken forward as the recommended design.

Ten VE recommendations were carried forward following the numeric evaluation. These were presented to the public at the Public Information Centres held on May 3, 2011 in Kitchener and on May 5, 2011 in Guelph. Two stakeholder meetings were held to present the VE recommendations specific to the local areas of concern. This included a meeting of the Ebycrest Road residents and the business operators in the KWE/Shirley Avenue area. Of the ten options, nine (9) were further recommended to be carried forward to the detail design stage, including one modified version. The VE recommendation to eliminate the eastbound off-ramp to Shirley Avenue was rejected in favour of retaining the approved EA version and was modified from the VE recommendation following the review by the project team in order to address public and stakeholder comments. The comprehensive evaluation that was carried out is provided in Appendix E. A summary of the evaluation and analysis of the ten VE recommendations is presented in Table 4.

4.2 VE Recommendation Modified Following Public Input During the Initial Phase of Design

Ebycrest Road – VE Recommendation 7

VE recommendation 7 (Table 4; Figure 7) was modified as a result of public input received during the 2011 PIC and Ebycrest Road stakeholders meeting. The original VE recommendation to close existing Ebycrest Road at the Fountain Street extension was not selected. Comments received from the Ebycrest Road stakeholders meeting identified that with the through traffic from Victoria Street (existing Highway 7) is considerable and impacts the local community and would also create out of the way travel to access farmland east of the Fountain Street extension. The group indicated that overall the preference was to close access to Highway 7, provide a cul-de-sac at the south end of Ebycrest Road at Victoria Street, and maintain access to Fountain Street as identified in the EA. This would facilitate the access of farm machinery to the adjacent fields. This proposal was reviewed and found to be feasible by the project team. It provides additional benefit in eliminating the existing approach to the intersection on the very steep grade. Therefore, the design plans will reflect this modification.

Shirley Avenue – VE Recommendation 2

VE recommendation 2 (Table 4; Figure 2) was modified as a result of public input received during the Shirley Avenue business group stakeholders meeting and the PIC. The EA approved design included a direct Highway 7 New eastbound off-ramp to Shirley Avenue. The VE recommendation proposed removing the direct off-ramp to Shirley Avenue, and in combination with removal of the Riverbend Drive on-ramp to Highway 7 New westbound. The concerns raised included the introduction of awkward traffic movements, a preferred direct access to the growing businesses in the area (along Shirley Avenue) and maintaining the EA approved design. The project team reviewed this and found it to be acceptable. Therefore, the design plans will reflect this modification.

4.3 Additional Changes to the EA Approved Design

Shirley Avenue Widening

Although not a specific VE recommendation, the consideration of the widening of Shirley Avenue was related to the configuration changes at the KWE interchange and access to Shirley Avenue. Comments were provided from the Shirley Avenue business group stakeholder meeting and from the PIC regarding the 2-lane cross section of Shirley Avenue. The concern related to having a 2-lane section between 4-lane sections to the east and west. The project team reviewed this concern and determined that it should be addressed. Therefore, the design plans will reflect a 4-lane section (plus a turning lane) where Shirley Avenue is currently 2 lanes and this will be formally documented in the Initial Design Report.

Silvercreek Parkway

Although not associated with a specific VE recommendation, a comment made at the PIC requested a left turn lane from Silvercreek northbound to Highway 7 westbound. This design change does not impact the social or natural environment and is contained within the MTO right-

of-way. The MTO will incorporate this recommendation in the design and will be formally documented in the Initial Design report.

4.4 Comparison of Impacts for VE Recommendations and EA Approved Design

Table 4 summarizes the results of the VE evaluation for the ten (10) options considered and presented to the public during the Initial Phase of Design including assessment of impacts. In all cases, except where identified, the information presented for the VE is a comparison to the approved EA. A brief description of the EA design is included in the table.

5 Assessment of Impacts of Recommended Design

The recommended design includes improvements to each VE location. The improvements are considered to be limited in scope, have a changed but lesser footprint compared to the EA and reduces impacts to the natural environment due to the lack of natural environment features at the VE locations. The impacts that are identified are mostly associated with farm and commercial properties and the Walter Bean Grand River Trail. The following provides a summary of the impact assessment based on features and conditions found at each VE location.

5.1 Natural and Physical Environment

5.1.1 Fish and Aquatic Habitat

VE recommendation 4 will result in a decreased footprint of the Grand River bridge in the river and on the shoreline compared to the approved EA. There will be an impact as there is anticipated to be in-water construction of the pier that will result in the loss of fish habitat. The footprint is considered to be small and it is anticipated that mitigation at the piers can be incorporated to reduce the impact such that there is not a HADD (Harmful Alteration, Disruption or Destruction of fish habitat). This will be discussed further or confirmed with DFO during detail design.

5.1.2 Vegetation

The Grand River valleyland and tableland is the only natural environment feature that is associated with the VE recommendations presented in this study. In all cases the VE recommendations, compared to the EA approved design result in a lesser footprint in terms of encroachment into the vegetated tableland/valleyland and therefore removal of less vegetation. There are no significant species or communities that are affected where vegetation removal is required.

5.1.3 Wildlife

Impacts to wildlife and wildlife habitat are associated with the VE recommendations in the area of the Grand River valley crossing. Wildlife habitat is strongly, but not exclusively, associated with vegetation cover and structure. The removal of vegetation associated with the VE recommendations is less compared to the approved EA and therefore impacts to wildlife habitat are less.

The structure over the river floodplain and lower valley slope will maintain the opportunity for wildlife, including deer to move through the area and provide a local-regional movement corridor.

5.1.4 Species at Risk

Species at Risk (SAR) identified for the project are aquatic species found in the Grand River. The wavyrayed lampmussel is the only SAR that is likely to occur in the river at the crossing location and could be impacted by the in-water construction of the bridge piers. In the case of mitigating impacts to mussels, a protocol and methodology has been established for the documentation and removal of mussels from sites that may be impacted. It is expected that the governing approval agencies will accept removal mitigation for this site. This will be carried out in the detail design stage.

Greenside darter and silver shiner are the other two SAR species that occur in the Grand River and thus have the potential to be impacted by the same in-water works. Specific habitat requirements for these two species are not found directly at the crossing or in the adjacent upstream and downstream reaches that were investigated in this study. Therefore, it is anticipated that the habitat of these species will not be impacted and through construction mitigation, individuals can be protected from impact.

5.1.5 Natural Areas

The Grand River valley is the only natural area that has the potential to be affected by the VE recommendations. The Highway 7 New alignment over the valleyland is approved. Similar to the assessment provided in the sections above for vegetation and wildlife the VE recommendations in this area result in a reduced footprint of the alignment through the valleyland.

5.1.6 Archaeology

Archaeological sites are identified within and adjacent to the footprint of VE recommendations at the Grand River crossing and at Spitzig Road (VE recommendation 8). Further work is required to document these sites and this will be carried out in the detail design stage. The sites in the Grand River valley are affected by the EA approved alignment of Highway 7 New and the crossing location. The VE recommendations that occur in this area do not result in additional impact. Based on the investigations carried out on these sites thus far, further investigations and documentation are expected to be sufficient to mitigate the effects of removal/disturbance to these resources.

5.1.7 Cultural Heritage

Ebycrest Road is the cultural heritage feature that is affected by a VE recommendation (#7). The incorporation of this VE into the design will provide a benefit to this feature as the proposed cul-de-sac at Victoria Street will prevent this road being used as an alternate route for travel into and out of the area. The road will maintain its rural character and its structure will not be altered from the proposed design.

5.1.8 Socio-economic

The Walter Bean Grand River Trail intersects with the Highway 7 New alignment between Shirley Avenue and the Grand River. In this area the recommended VE recommendations result in a lesser impact compared to the EA. This occurs principally with VE recommendations 2 and 4. For these combined VE recommendations there are 4 less crossings of the trail system compared to the EA. This reduces the overall impact to the trails and allows for the Walter Bean Trail to retain its existing alignment in this area.

There are six VE recommendations (#'s 5,6,7,8,9 and 10) that interact with agricultural property. Of the six, VE recommendations 5, 8 and 10 have a lesser effect compared to the approved EA. VE recommendation 7 has the same effect but provides better access to agricultural fields east of the future Fountain Street extension and VE recommendation 9 occurs within the existing footprint of the interchange. VE recommendation 6 has an effect on agricultural land as there will be a disruption of agricultural production during construction and restoration of the decommissioned roadbed to match surrounding soil productivity may not occur immediately.

Impacts to commercial property occur where property is required for access. There are property requirements and access impacts associated with the EA approved design in the location of VE recommendation 1. However the recommended VE recommendation does not change the property requirements and therefore there is no change in impact to commercial property in this area.

Access to the Shirley Avenue businesses is maintained through VE recommendation 2/3 which retains the approved Highway 7 New eastbound off-ramp to Shirley Avenue. Access from Riverbend Drive (VE recommendation 3) is provided for by an underpass at Highway 7 New to connect with Shirley Avenue.

5.1.9 Groundwater/Wells

Groundwater in the Highway 7 corridor is identified in terms of shallow or deep wells. The locations of wells are identified based on background information provided by the MOE. A review of the information has identified that for some of the specific VE locations, shallow groundwater wells occur. Construction associated with Highway 7 New including interchanges and modifications to sideroads will have the overriding effect on shallow water wells due to the respective cut and fill and extent of disturbed highway ROW. The wells identified at the location of VE design recommendations have already been taken into consideration with the approved EA.

It has been identified in Table 4 that further review of these wells to address impacts to potable water supply at the detail design stage is required.

5.1.10 Site Contamination

Construction of VE recommendation 1 will involve physical works that may disturb and expose the ground surface in an area of high risk potential for contamination. In the detail design stage a Phase 1 site assessment should be carried out to further assess the risk related to construction and what may be required to mitigate/manage any contamination that may be discovered.

VE recommendation 3 has been rejected in favour of re-instating the EA approved design. This would see a direct off-ramp to Shirley Avenue from Highway 7 New eastbound (as from Highway 85 N-E and S-E). The ramp is in close proximity to an area of medium risk potential. With this recommended design it will be necessary to widen Shirley Avenue to four lanes plus a turning lane as required in the current two lane section. Widening may extend in to the high risk potential for contamination. This area will be investigated further in the detail design stage.

5.1.11 Hydrology

There is no impact to the hydrology of the Grand River from the VE recommendation (#4). The hydrological impact relates to the in-water piers which are being addressed through the initial phase of design. Incorporation of VE recommendation 4 into the design will result in a slightly reduced pier footprint which is expected not to change the impact to hydrology from the approved EA.

Table 3: Value Engineering Evaluation Criteria

Factor Grouping (Weighting)	Factor/Criterion	Indicator
Transportation (40%)	Traffic Operation	<ul style="list-style-type: none"> Distance between intersections/interchanges Possible delays to traffic on intersecting roads Impact on existing intersections
	Geometric Design	<ul style="list-style-type: none"> Conformance/enhancement to standards: <ul style="list-style-type: none"> Horizontal alignment Vertical alignment Cross-section
	Safety	<ul style="list-style-type: none"> Potential for conflicts/critical points along roadway Impacts on driver's expectations and comfort Impact on visibility conditions
	Constructability and Staging	<ul style="list-style-type: none"> Complexity of construction work Traffic management issues during construction
Socio-economic Environment (40%)	Community Effects	<ul style="list-style-type: none"> Community facilities affected Residential property displaced Business/properties affected
	Noise	<ul style="list-style-type: none"> Effect of Option proximity to noise sensitive area Effect of Option on sound levels Potential mitigation required for design
	Agriculture	<ul style="list-style-type: none"> Loss of productive agricultural land Dairy/livestock operations affected Effect on farm woodlots Farm property/operation severances Effect to ongoing viability of farm operations
Natural Environment (15%)	Fisheries and Aquatic Habitat	<ul style="list-style-type: none"> Watercrossings or encroachments (rivers/streams, wetlands) Areas of critical fish habitat Warmwater/coldwater communities Significant species (SAR, provincially rare) Degree of interaction with groundwater (supporting fish habitat)

Factor Grouping (Weighting)	Factor/Criterion	Indicator
	Wildlife	<ul style="list-style-type: none"> • Encroachment on or severance of forest vegetation or non-forested successional areas • Encroachment on or severance of greenways (wildlife corridors) and open space linkages • Encroachment on or severance of significant wildlife habitat <ul style="list-style-type: none"> ◦ Significant species (SAR, provincially rare)
	Wetlands	<ul style="list-style-type: none"> • Loss of wetland area • Loss of wetland function • Degree of interaction of wetlands with groundwater (groundwater support of wetlands)
	Vegetation	<ul style="list-style-type: none"> • Encroachment on or severance of high quality forest stands (not forested wetlands) • Encroachment on riparian vegetation • Significant species (SAR, provincially rare)
	Groundwater	<ul style="list-style-type: none"> • Implications of roadway grading on groundwater discharge • Effect on water wells • Presence of erodible soils
Cost (5%)	Construction	<ul style="list-style-type: none"> • Construction • Staging
	Property Purchase	<ul style="list-style-type: none"> • Residential • Commercial • Industrial • Agricultural • Other

Table 4: Summary of Evaluation of VE Recommendations and Impact Assessment

Location And Target Area	VE Recommendation #	2004 EA Approved Design	VE Recommendation	Evaluation and Potential Impacts				Conclusions/ Recommendations Step 3	Mitigation
				Traffic and Transportation	Socio-Economic	Natural Environment	Cost		
Kitchener-Waterloo Expressway (KWE) Interchange Target Area 1	1	Ramps N-E & S-E merge south of Wellington Street (bridge over Highway 7 not constructible)	Move ramps N-E & S-E merge to the north of Wellington Street (bridge over Highway 7 constructible)	<ul style="list-style-type: none"> Improves constructability Geometry of N-E ramp improved to 80 km/h NS-E terminal location results in further minor deficiency in weaving length on Highway 7 to Shirley Ave. off-ramp 	<ul style="list-style-type: none"> Commercial properties affected at Highway 85 N to E movement and along Edna Street to Wellington Street connection No change from EA 	<ul style="list-style-type: none"> No wetlands, vegetation, fisheries or aquatic habitat Disturbed interchange No change from EA 	<ul style="list-style-type: none"> No impact on cost Improvement is dictated by constructability only 	<ul style="list-style-type: none"> Ensures constructability, reduces bridge span and improves geometry of NE Ramp VE recommendation recommended for incorporation into design 	<ul style="list-style-type: none"> MTO to consult further with affected commercial property owners at detail design stage
	2	Highway 7 N-E & S-E off ramp to Shirley Avenue	Eliminate Highway N-E & S-E off-ramp to Shirley Avenue. Maintain existing access routes through local roads	<ul style="list-style-type: none"> Eliminates weaving deficiency on Highway 7 New; eastbound potential collisions reduced by 40% Eliminates redundant ramps Creates inconveniences of indirect travel, which is similar to the existing condition Increases traffic on Shirley Avenue and Wellington Street New Riverbend Drive to Shirley Avenue connection is available to accomplish this movement 	<ul style="list-style-type: none"> Reduces land and property acquisition requirements Substantial improvement from safety, operations and human factors point of view Alignment does not impact adjacent commercial property along Shirley Avenue 	<ul style="list-style-type: none"> No wetlands, fisheries or aquatic habitat Removal of vegetation has minor effect on wildlife habitat Removal of small amount of CUM/CUW vegetation from Highway 7 New to Shirley Avenue 	<ul style="list-style-type: none"> EA option is more costly compared to the VE recommendation Off-ramp is an additional cost 	<ul style="list-style-type: none"> VE recommendation not recommended for incorporation into design Although VE recommendation has many advantages, the EA approved design will be retained based on feedback from stakeholders EA option is recommended for incorporation into design. 	<ul style="list-style-type: none"> MTO to consult further with affected commercial property owners at detail design stage
	3	Riverbend Drive on-ramp to Highway 7 westbound	Eliminate Riverbend Drive to Highway 7 westbound on-ramp	<ul style="list-style-type: none"> Eliminates weaving deficiency on Highway 7 New; westbound for vehicles destined for Highway 85 south; potential collisions reduced by 40% Eliminates redundant ramps Creates inconveniences of indirect travel, which is similar to the existing condition 	<ul style="list-style-type: none"> Reduces impact on Walter Bean Grand River Trail Substantial improvement from safety, operations and human factors point of view 	<ul style="list-style-type: none"> Ramp moved away from valleyland Reduces the amount of fill required in the Grand River tableland/valleyland (fill, vegetation removal, loss of wildlife habitat) compared to EA 	<ul style="list-style-type: none"> Avoids the need for a retaining wall at the Grand River Decreases in construction costs 	<ul style="list-style-type: none"> VE recommendation recommended for incorporation into design Less impact compared to the EA 	<ul style="list-style-type: none"> Realignment of Walter Bean Grand River Trail required in this area

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Location And Target Area	VE Recommendation #	2004 EA Approved Design	VE Recommendation	Evaluation and Potential Impacts				Conclusions/ Recommendations Step 3	Mitigation
				Traffic and Transportation	Socio-Economic	Natural Environment	Cost		
Regional Road 17 (Ebycrest Road) Target Area 3	7	Ebycrest Road connection to Fountain Street Extension for access to Highway 7 New	Close existing Ebycrest Road at Fountain Street Extension (maintain emergency access) Provide a cul-de-sac at the north end and maintain access to Victoria Street (existing Highway 7)	<ul style="list-style-type: none"> Eliminates potential intra-regional traffic through residential area Addresses MTO access control concern in the vicinity of the interchange Reduces the number of access points in proximity to the interchange Reduces potential for vehicular conflicts Reduces the traffic load on the intersection with existing Highway 7 	<ul style="list-style-type: none"> No change to properties No effect on crop field Emergency response not affected Lessens noise associated with removal of higher volume local traffic <u>VE Modified</u> Farm equipment able to access lands east of Ebycrest Road via connection at Fountain Street extension Maintains cultural landscape attribute of Ebycrest Road 	<ul style="list-style-type: none"> No watercourses/fisheries No impact to wildlife, wetlands or vegetation 1 shallow well (5-10m deep) in overburden 	<ul style="list-style-type: none"> Minor decrease in construction costs 	<ul style="list-style-type: none"> EA recommendation with modification (cul-de-sac on Ebycrest Road at Victoria Street) recommended to address public concerns Design is an improvement to the approved EA 	<ul style="list-style-type: none"> Cul-de-sac at Victoria Street to have Emergency Gate
Woolwich Road 66 (Spitzig Road) Target Area 4	8	Woolwich Road 66 realigned to the west to connect with Highway 7	Maintain existing Woolwich Road 66 alignment. Realign close to existing at the approach to Highway 7	<ul style="list-style-type: none"> Eliminates major sideroad realignment and major property impacts Improves traffic operations Improves geometry to conform to standards of 80km/h Reduces sightlines along Highway 7 at current Woolwich Road 66 intersection is similar to existing (90 km/h design achieved on Highway 7, 10 km/h safety margin above posted speed). Bridge on a straight line improves visibility Requires a temporary road closure 	<ul style="list-style-type: none"> Minor additional property required from adjacent farm (access road) Reduces impact to school property Minor effect on crop field New construction costs 	<ul style="list-style-type: none"> No impact on watercourses/fisheries No impact to wildlife, wetlands and vegetation 1 shallow well (5-10m) deep in overburden 	<ul style="list-style-type: none"> Major cost savings in construction and property acquisition 	<ul style="list-style-type: none"> Design is an improvement compared to the approved EA VE recommendation recommended for incorporation into design Safer road High socio-economic impacts avoided (farm land, school property) 	<ul style="list-style-type: none"> Areas immediately to east requires Stage 3 archaeological assessment

Location And Target Area	VE Recommendation #	2004 EA Approved Design	VE Recommendation	Evaluation and Potential Impacts				Conclusions/ Recommendations Step 3	Mitigation
				Traffic and Transportation	Socio-Economic	Natural Environment	Cost		
Regional Road 30 (Shantz Station Road)	9	Direct N-W ramp from Regional Road 30 to Highway 7 New	Convert north interchange configuration to Parclo A2 (replace a direct free flow N-W ramp with a left turn onto S-W loop ramp) Defers N-W direct ramp until warranted	<ul style="list-style-type: none">Left turn access may contribute to traffic congestion, but traffic volumes are lowPotential for reduced visibility at ramp terminals. Best mitigated with signage and illumination	<ul style="list-style-type: none">Design revision contained within existing disturbed footprint of interchange	<ul style="list-style-type: none">No watercourses / fisheriesNo impact to wildlife and wetlandsMinimal impact on vegetation (deferred N-W ramp)No impact to wells	<ul style="list-style-type: none">Although new construction costs associated with the addition of a left turn lane there is an overall cost savingsFunds spent when warranted	<ul style="list-style-type: none">VE recommendation recommended for incorporation into designEA approved design is deferred until warrantedBuild parclo A-2 and add exclusive left turn laneProtect for Parclo A-4	<ul style="list-style-type: none">MTO to monitor traffic to identify when direct N-W on-ramp to Highway 7 is warrantedInstall traffic signals at the ramp terminals
Target Area 5	10	New residential access in close proximity to the interchange	Combine Service Road and private access	<ul style="list-style-type: none">Reduces number of access points on sideroadReduces potential for vehicular conflicts and traffic delays in proximity to the interchange	<ul style="list-style-type: none">Single farm property purchaseAccess shortened and maintained privateFarm property severed (equestrian)	<ul style="list-style-type: none">No watercourses/fisheriesNo impact to wildlife and wetlandsMinimal impact on vegetation east of Shantz Station RoadRemoval of fencerow adjacent to residence	<ul style="list-style-type: none">Additional construction and property costs	<ul style="list-style-type: none">VE recommendation accepted for incorporation into design	<ul style="list-style-type: none">MTO to consult further with affected property owner at detail design stage

6 Application of the Class Environmental Assessment Process

This Transportation Environmental Study Report to amend the approved Individual EA (TESR) was completed in compliance with the *Class Environmental Assessment (Class EA) for Provincial Transportation Facilities (2000)*. The study process involved ongoing data collection and assessment of alternatives carried out through the following stages of the planning process:

- **Initiation of the Project** involving notification of the public regarding the study, initial public consultation, assessment of the existing and future travel conditions, environmental and land use data collection and obtaining public input regarding environmental protection in the study area;
- **Generation and Evaluation of Alternatives** involving development, analysis and evaluation of alternatives (EA approved design/VE recommendations) to document the recommended changes to the approved Individual EA
- **Initial Design** involving the refinement of the preliminary design layout and development of the recommended design; and,
- **30-day public review period and opportunity to request a Part II Order (bump-up) for the changes noted in the TESR.**

6.1 Transportation Engineering and Environmental Protection Principles and Processes

The transportation engineering principles set forth in the Class EA were addressed throughout the course of this study. Throughout the project sound engineering judgment and consideration of environmental protection principles were used to develop the VE recommendations to improve specific locations of Highway 7 New. VE recommendations were evaluated and assessed based on potential impacts to transportation and traffic, socio-economic environmental, natural environment and cost. VE recommendations proposed for incorporation into the EA approved design were only recommended if features and conditions that were deemed important could be protected. This was reviewed with the public during stakeholder meetings and Public Information Centre's for their input and this contributed to the final VE recommendations.

6.2 Consultation Principles

The consultation principles outlined in the Class EA were addressed through the external and public consultation process described in Section 2.1. A Notice of Study Commencement and letter were sent to stakeholders, agencies, First Nations and MPP for the project area to notify them of the initiation of the study. Public notices were also published in local and First Nation newspapers to notify the public and external agencies of opportunities to provide input. A Notice of Public Information Centre (PIC) and letter were sent to stakeholders, agencies, First Nations and MPP to notify them of two opportunities where the MTO presented recommendations of the VE study and information related to the initial phase of detail design of the overall project. Specific stakeholder meetings were held in advance of the PIC. A letter was sent via e-mail or hand delivered to invite them to the individual meeting and response letters

were sent to those who provided comments during the PICs. Two public information centres were held for this project (one venue in Kitchener and one in Guelph). The MTO conducted consultation with the Six Nations of the Grand River throughout the study.

A public notice was published in the Kitchener-Waterloo Record, Guelph Mercury, Tekawennake and Turtle Island News upon submission of the TESR, appearing one and two weeks prior to publishing.

6.3 Evaluation Principles

The evaluation principles set forth in the Class EA were addressed through the evaluation of VE recommendations that are described in Section 4. The Evaluation process included the selection of evaluation criterion based on the conditions relevant to the conditions in the local study area of the VE locations, assignment of a weight or importance value for each criteria group, scoring of each EA and VE recommendation and selection of the EA approved design of VE recommendations with the highest score.

6.4 Documentation Principles

The documentation principles set forth in the Class EA were addressed through the preparation of this TESR. This document provides a summary of the recommended changes to the approved EA, identifies the significant features of the VE recommendations, identifies potential impacts and appropriate mitigation measures, and summarizes the public consultation process undertaken throughout this study.

A 30-day public review period following publication of the TESR provides an opportunity for the public and external agencies to review the document and provide comments. Additional details regarding the public review process are outlined in section 0.

6.5 Bump-up Principles

The bump-up principles identified in the Class EA will be addressed upon completion of the TESR. A Notice of Study Completion that explains the study process and the opportunity to request a Part II Order (bump-up opportunity) was published in local newspapers in advance of the submission of the TESR for public review. The TESR will be available for public review for a period of 30 (thirty) days. Only the changes identified in the TESR are eligible for bump-up. The balance of the concept of the undertaking as outlined in the approved EA is not subject to change.

6.6 Environmental Clearance Principles to Proceed

This project follows the study principles and processes set forth in the Class Environmental Assessment for Provincial Transportation Facilities (2000). The environmental clearance to incorporate the VE recommendations into the approved design will be issued following resolution of any Part II Order requests submitted during the 30-day TESR review period and consideration of all public and agency comments received during the 30-day review period.

The initial phase of design of the approved EA and incorporation of the VE recommendations will be documented in the Initial Design Report, which will be prepared prior to the Detail Design stage and will also be published for a 30-day public review period.

7 Summary of Environmental Concerns, Commitments and Mitigation

A summary of environmental concerns, commitments and mitigation are presented in Table 6. The information presented in this table is specific to the recommended VE recommendations identified to be incorporated into the EA approved design. Environmental concerns, commitments and mitigation for the remainder of the project will be provided in a separate document (Initial Design Report).

Table 5: Summary of Environmental Concerns, Mitigation and Commitments Specific to VE Recommendations

I.D. #	Issues/Concerns Potential Effects	Concerned Agencies	I.D. #	Mitigation / Protection / Monitoring
1	Sediment and Erosion Effects to Property and Adjacent Natural Habitats	MNR DFO GRCA	1.1	<ul style="list-style-type: none"> Standard Erosion and Sediment Control measures shall be installed prior to construction, including silt fencing
2	Access to Property	Local Landowners MTO	2.1	<ul style="list-style-type: none"> Permanent access to property will be provided as identified in the VE recommendations or approved EA. Access to property during construction will be maintained
3	Access to Walter Bean Grand River Trail and Grand Valley Trail	City of Kitchener Grand Valley Trail Association		<ul style="list-style-type: none"> MTO to consult with City of Kitchener on realigning a section of the Walter Bean Grand River Valley Trail that is impacted from proposed construction At detail design investigate providing access across a gully/slope in the area of the trail near Riverbend Drive for maintenance vehicles At detail design investigate providing a trail access from the Shirley Avenue cul-de-sac to Riverbend Drive at the crossing of Highway 7 New in this area
4	Archaeology	MTC	4.1	<ul style="list-style-type: none"> Stage 4 Mitigation will be required at three sites associated with the Grand River Valley crossing: Jonas Bingeman site, AiHc-300 site and AiHc-302 site. Stage 3 archaeological assessment is required for property to the east of VE recommendation 8

I.D. #	Issues/Concerns Potential Effects	Concerned Agencies	I.D. #	Mitigation / Protection / Monitoring
		Six Nations of the Grand River	4.2	<ul style="list-style-type: none"> Should deeply buried archaeological remains be found on the property during construction activities, the Ministry of Culture and Six Nations of the Grand River should be notified immediately
			4.3	<ul style="list-style-type: none"> In the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Culture, and the Registrar or Deputy Registrar of the Cemeteries Regulations Unit of the Ministry of Consumer and Commercial Relations, (416) 326-8392
			4.4	<ul style="list-style-type: none"> Six Nations of the Grand River to be contacted prior to archaeological investigations in order to monitor activities within 6 miles (10 km) of the Grand River
5	Farm Operations	Local Farm Operators MTO	5.1	<ul style="list-style-type: none"> During detail design consult with farm operators where appropriate to develop mitigation measures for active farm operations and operator access through the lands
6	Noise	Municipalities MOE MTO Local Farm Operators	6.1	<ul style="list-style-type: none"> Construction to be carried out in accordance with local municipal by-laws. Duration of any work outside of the time period identified in the by-law will require, as necessary, an exemption to the by-law
7	Groundwater / Wells	MOE	7.1	<ul style="list-style-type: none"> Any wells that must be closed or removed as part of construction will be decommissioned according to MOE standards

8 Conclusions

In this study, ten (10) recommended VE recommendations from the 2007 VE study were evaluated and compared to the approved EA. From the evaluation, eight (8) were recommended to be carried forward for incorporation into the detail design stage; one (1) VE (#2) was rejected in favour of the EA approved design and one VE (#7) was modified. Table 4 identifies the VE recommendations that were recommended to proceed to further detail design and those that were not recommended and the supporting technical reasons. The final recommendation to carry forward or reject the VE recommendations was based on the results of the comparative evaluation, input from stakeholders and the public and further consideration among the project study team.

The following changes to the approved EA are proposed:

- Shift new ramps at the Highway 85 (Kitchener-Waterloo Expressway) and Highway 7 New freeway to freeway interchange to north of Wellington Street North
- Eliminate Riverbend Drive to Highway 7 New west on-ramp
- Shift Highway 7 New westbound off-ramp to Riverbend Drive further west
- Provide direct access to Shirley Avenue from Highway 7 New eastbound
- Move on-ramp at Bridge Street to Highway 7 New westbound
- Realign Bridge Street at Ebycrest Road
- Close Ebycrest Road at Victoria Street
- Maintain existing alignment of Spitzig Road at existing Highway 7
- Reconfigure north-west access at new Shantz Station Road interchange
- Combine service road and private residential access at Shantz Station Road

In addition, municipal road improvements have been identified to improve traffic operations, including a left turn lane to Highway 7 New westbound from Silvercreek Parkway northbound, and four lanes plus a turning lane as required where Shirley Ave. is currently 2 lanes.

Subject to the environmental clearance of this TESR, the approved EA will be amended to incorporate the VE recommendations into the Initial Phase of Design.

9 References

- Archeoworks Inc. Stage 2 Archaeological Assessment of Proposed Highway 7 New From Kitchener to Guelph Class EA and Stage 3 Archaeological Assessment of Ten Aboriginal Sites within the Proposed Highway 7 New, Ontario Ministry of Transportation GWP 408-88-08.
- MMM Group 2012. Highway 7 New Alignment Kitchener to Guelph, G.W.P. 408-88-00. Fish and Fish Habitat Impact Assessment Report Report
- MMM Group 2012. Highway 7 New Alignment Kitchener to Guelph, G.W.P. 408-88-00. Terrestrial Ecosystem Impact Assessment Report
- MMM Group. 2008. Contaminant Overview Study.

McCormick Rankin Corporation. 2004. Highway 7 Kitchener to Guelph. Amendment to the Environmental Assessment Report 1997, WP 408-88-00

Unterman McPhail Associates 2009. Cultural Heritage Resource Documentation Report: Direct Impacts Cultural Heritage Landscapes and Built Heritage Resources Preliminary Design and Detail Design Service Highway 7 New Alignment Kitchener to Guelph GWP 408-88-00

Unterman McPhail Associates 2009. Cultural Heritage Resource Documentation Report: InDirect Impacts Cultural Heritage Landscapes and Built Heritage Resources Preliminary Design and Detail Design Service Highway 7 New Alignment Kitchener to Guelph GWP 408-88-00

APPENDIX A: STUDY NOTICES

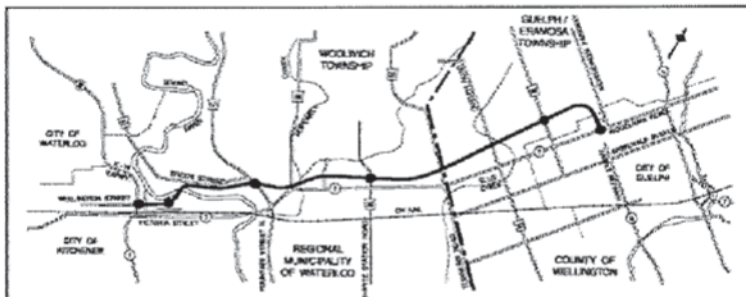
ONTARIO GOVERNMENT NOTICE NOTICE OF DETAIL DESIGN STUDY COMMENCEMENT

**Highway 7 New Alignment – Kitchener to Guelph, 18 km
G.W.P. 408-88-00**

THE STUDY

The Ministry of Transportation, Ontario (MTO) has retained MMM Group to commence the Detail Design and Class Environmental Assessment Study for a new alignment of Highway 7 along an 18 km four-lane divided freeway between the Kitchener-Waterloo Expressway (Highway 85) in Kitchener easterly to the Hanlon Expressway (Highway 6) in Guelph as shown on the **Key Plan** below. The study documented in the 2004 *Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report, 1997* was conducted under the Individual EA process and was approved by the Minister of the Environment in March 2007.

This study will develop the design to approximately 30% Detail Design completion in order to define the project configuration, and will provide the scope and direction for the completion of Detail Design. Detail Design alternatives will be generated to capitalize on transportation opportunities and to minimize design and construction-related environmental impacts. Future separate follow-up study(s) will be undertaken to complete Detail Design.



THE PROCESS

This study is following an approved planning process for a Group "A" project under the *Class Environmental Assessment for Provincial Transportation Facilities (MTO 2000)* with the opportunity for public input. A Public Information Centre (PIC) will be scheduled to present for public review and comment details of the Detail Design 30% completion. The MTO and Consultant staff will be available to answer questions and receive your input at that time.

A Detail Design Report will be prepared to document the Detail Design 30% completion, including: the results of investigations, consultation and mitigation measures. The Detail Design Report will be made available for a 30-day public review period with public notice advising of the start of the review period. There will be no opportunity for a 'Bump-Up' (Part II Order) of the Detail Design Report. In accordance with the *Class Environmental Assessment for Provincial Transportation Facilities (MTO 2000)*, as part of future separate follow-up study(s), Design and Construction Report(s) will be filed at completion of Detail Design.

COMMENTS

We are interested in hearing any comments you may have about this study. Comments and information regarding this project are being collected to assist the study team in meeting the requirements of the *Environmental Assessment Act*. This information will be maintained on file for use during the project and may be included in project documentation. With the exception of personal information, all comments will become part of the public record in accordance with the *Freedom of Information and Protection of Privacy Act, R.S.O., 1990, c.F.31*.

If you wish to have your name added to the mailing list or provide comments please contact either:

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NOTICE OF PUBLIC INFORMATION CENTRE

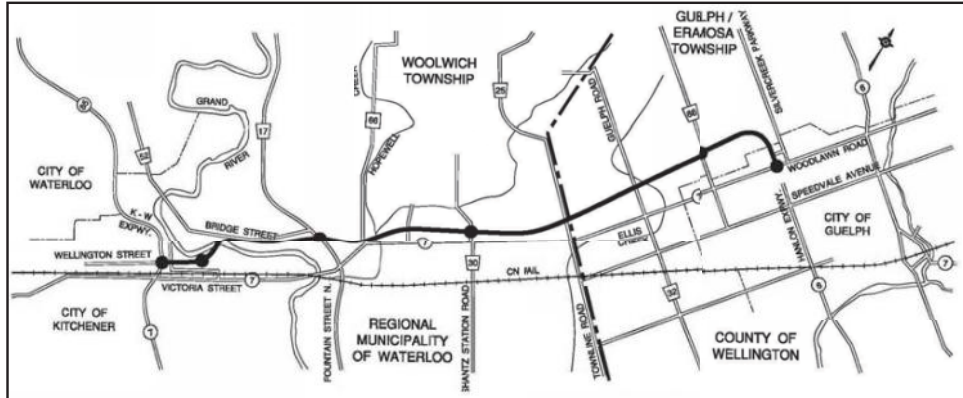
Highway 7 New – Kitchener to Guelph, 18 km
G.W.P. 408-88-00

THE STUDY

The **Ministry Of Transportation, Ontario (MTO)** has retained **MMM Group** to complete the initial phase of design for Highway 7 New, an 18 km four-lane divided freeway between Highway 85 (Kitchener-Waterloo Expressway) in Kitchener easterly to Highway 6 (Hanlon Expressway) in Guelph as shown on the **Key Plan** below. The Individual Environmental Assessment (EA) for this new route was documented in the 2004 *Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report, 1997* and was approved by the Minister of the Environment in March 2007.

As part of the initial phase of design for the project, the MTO has undertaken a Value Engineering (VE) study to assess design alternatives at site-specific locations to enhance the safety and function of the highway and minimize design and construction-related environmental impacts for the approved EA Alignment (2007). The VE study resulted in design improvements for access at five interchanges in the approved EA alignment, listed below:

- Kitchener-Waterloo Freeway to Freeway interchange
- Grand River Bridge and Bridge Street
- Regional Road 17 (Ebycrest Road) interchange
- Woolwich Road (Spitzig Road) interchange
- Regional Road 30 (Shantz Station Road) interchange



PUBLIC INFORMATION CENTRE

Public Information Centres (PICs) have been scheduled to present the recommendations of the VE study and information related to the initial phase of detail design of the overall project. The PICs will be held at the following two locations:

Date: **Tuesday, May 3, 2011**
Location: **Bingemans Ballroom A/B**
425 Bingemans Centre Drive
Kitchener, ON N2B 3X7

Open House: **4 p.m. to 8 p.m.**

Date: **Thursday, May 5, 2011**
Location: **Guelph Place Banquet Hall**
492 Michener Road
Guelph, ON N1K 1C6

Open House: **4 p.m. to 8 p.m.**

The PICs will be a drop-in style open house format with brief presentations made at 5:30 p.m. and 7 p.m. The MTO and Consultant staff will be available to answer questions and receive your input at that time. The same material will be presented at both PICs.

THE PROCESS

This study is following an approved planning process for a Group 'A' project under the *Class Environmental Assessment for Provincial Transportation Facilities (2000)* with the opportunity for public input.

A Transportation Environmental Study Report (TESR) to amend the Individual EA will be prepared to document the VE recommendations and a Design Report will be prepared to document the initial phase of the 2007 EA Approved Design. The two reports will be made available for a 30-day public review period with public notice advising of the start of each review period.

COMMENTS

We are interested in hearing any comments you may have about this study. Comments and information regarding this project are being collected to assist the study team in meeting the requirements of the Environmental Assessment Act. This information will be maintained on file for use during the project and may be included in project documentation. With the exception of personal information, all comments will become part of the public record in accordance with the Freedom of Information and Protection of Privacy Act R.S.O., 1990, c.F.31.

If you wish to have your name added to the mailing list or provide comments, please contact either:

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fax: 519-873-4600
e-mail: Robert.Bakalarczyk@ontario.ca

APPENDIX B: AGENCY MAILING LIST AND CORRESPONDENCE

June 13, 2008
16.08027.E2.2

Ms. Louise Knox
Ontario Regional Director
Canadian Environmental Assessment Agency (CEAA)
55 St. Clair Avenue East
9th Floor
Toronto, ON M4T 1M2

Example Letter

Dear Ms. Knox,

**Subject: Project Commencement for Detail Design – Highway 7 New Alignment
Kitchener to Guelph, 18 km, G.W.P. 408-88-00**

The Ministry Of Transportation has retained MMM Group to commence the Detail Design and Class Environmental Assessment for a new alignment of Highway 7 along an 18 km four-lane divided freeway between Kitchener-Waterloo Expressway (Highway 85) in Kitchener easterly to the Hanlon Expressway (Highway 6) in Guelph. The study documented in the 2004 *Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report, 1997* was conducted under the Individual EA process and was approved by the Minister of the Environment in March 2007.

This study will develop the design to approximately 30% Detail Design completion in order to define the project configuration, and will provide the scope and direction for the completion of Detail Design. Detail Design alternatives will be generated to capitalize on transportation opportunities and to minimize design and construction-related environmental impacts. Future separate follow-up study(s) will be undertaken to complete Detail Design.

This study is following an approved planning process for a Group 'A' project under the Class Environmental Assessment for Provincial Transportation Facilities (MTO 2000) with the opportunity for public input. A Public Information Centre (PIC) will be scheduled to present details for public review and comment on the 30% Detail Design. The MTO and Consultant staff will be available to answer questions and receive your input at that time.

A Detail Design Report will be prepared to document the Detail Design 30% completion, including: the results of investigations, consultation and mitigation measures. The Detail Design Report will be made available for a 30-day public review period with public notice advising of the start of the review period. There will be no opportunity for a 'Bump-Up' (Part II Order) of the Detail Design Report. In accordance with the *Class Environmental Assessment for Provincial Transportation Facilities (MTO 2000)*, as part of future separate follow-up study(s), Design and Construction Report(s) will be filed at completion of Detail Design.

We look forward to receiving your comments on this project. If you would like additional information, please contact the undersigned at (905) 882-4211 x276, toll free 1-866-311-2266 or by email at DinermanA@mmm.ca.

Yours very truly,
MMM GROUP LIMITED



Alla Dinerman, P.Eng.
Senior Project Manager
Transportation Engineering

BUILDINGS
C. CASTRO, D. Regan, MTO
R. Elijah, MTO
J. Warren, MMM

MMM Group Limited
100 Commerce Valley Drive West,
Thornhill, Ontario, L3T 0A1
t: 905.882.1100 | f: 905.882.0055

www.mmm.ca

April 15, 2011
1608027.001 E2.2

Example Letter

Environmental Assessment Coordinator
Ministry of the Environment – Guelph District Office
1 Stone Road West
Guelph, ON N1G 4Y2

**Subject: Initial Phase of Design - Highway 7 New from Kitchener to Guelph, GWP 408-88-00
Public Information Centre**

Dear Sir or Madam,

The Ministry Of Transportation, Ontario (MTO) has retained MMM Group to complete the initial phase of design for Highway 7 New, an 18 km four-lane divided freeway between Highway 85 (Kitchener-Waterloo Expressway) in Kitchener easterly to Highway 6 (Hanlon Expressway) in Guelph. As part of the initial phase of design for the project, the Ministry has undertaken a Value Engineering (VE) study to assess design alternatives at site specific locations to minimize design and construction-related environmental impacts for the approved EA Alignment (2007). The VE study resulted in design improvements for access at five interchanges in the approved EA alignment, as listed in the attached notice.

We invite you to attend an advance viewing of Public Information (PIC) displays for review ministries and agencies prior to the opening of the PIC for the general public

Date: Tuesday May 3, 2011
Location: Bingemans Park – Ballroom A/B
425 Bingemans Centre Drive
Kitchener, Ontario
N2B 3X7
Time: 2:00pm to 3:00pm

Please refer to the attached public notice for additional information. We look forward to your attendance at this session of the PIC and to receiving your comments on this project. If you would like additional information, please contact the undersigned by phone (905) 882-7212 or by email at dinermana@mmm.ca.

Yours very truly,

MMM GROUP LIMITED

A handwritten signature in black ink, appearing to read "Alla Dinerman", enclosed within a circular scribble.

Alla Dinerman, P. Eng.
Senior Project Manager
Transportation Engineering

cc: Rob Bakalarczyk (MTO), Susan Wagter (MTO), Jeff Warren (MMM)

Table B-1: Agency Contact List

First Name	Last Name	Job Title / Position		Company/Organization Name	
Heather	Ducharme	Program Officer		Canadian Environmental Assessment Agency (CEAA)	
Louise	Knox	Ontario Regional Director		Canadian Environmental Assessment Agency (CEAA)	
Rob	Dobos	Head - Environmental Assessment Section	Great Lakes and Corporate Affairs	Environment Canada	Ontario Region
David	Gibson	Fish Habitat Biologist		Fisheries and Oceans Canada	
Don	Boswell	Senior Claims Analyst, Specific Claims Branch		Indian and Northern Affairs Canada	
Franklin	Roy	Director	Litigation Management and Resolution Branch	Indian and Northern Affairs Canada	
Louise	Trepanier	Director	Claims East of Manitoba Comprehensive Claims Branch	Indian and Northern Affairs Canada	
Cathy	Wilson-Pinkney	Manager	Marketing and Communications	Ministry of Agriculture, Food and Rural Affairs	
Lorena	Weesit	Correspondence Unit		Ministry of Aboriginal Affairs	Aboriginal and Ministry Relationships
Ria	Tzimas	Counsel - Crown Law Office		Ministry of the Attorney General	
		Regional Director – Central Office		Ministry of Community, Family and Children's Services	
Ragini	Dayal	Heritage Advisor		Ministry of Culture	
Michael	Harrison	Supervisor, Project Review Unit		Ministry of the Environment	
		Environmental Assessment Coordinator		Ministry of the Environment – Guelph District Office	
		Regional Director, West Central Office		Ministry of Municipal Affairs and Housing	
Al	Murray	Area Supervisor		Ministry of Natural Resources	
Bill	Dennis	Chief Superintendent		Ontario Provincial Police, Western Region Headquarters	
Alan	Sawyer	Environmental Assessment Facilitator		Ontario Realty Corporation	
John	Hammer	Manager		Region of Waterloo	Transportation & Environmental Services, Transportation Division
Rob	Wells	Area Planner		Region of Waterloo	Planning /Development
Gary	Cousins	Senior Planner		County of Wellington	Planning Department
Gordon	Ough, P.Eng.	Manager		County of Wellington	Engineering Services Department
Jim	Riddell	Director		City of Guelph	Community and Development Services
Grant	Murphy	Director		City of Kitchener	Engineering Services
Jeff	Willmer	Director		City of Kitchener	Planning Department
Larry Van Wyck	Manager	Public Works		Township of Guelph/Eramosa	
Dan	Kennaley	Director of Engineering & Planning Services		Township of Woolwich	Planning and Development
Joe	Farwell	Manager Engineering	Planning and Watershed Restoration	Grand River Conservation Authority	

Table B-2: MPP Contact List

MPP Riding	Title	Name	Local Riding Office		
Guelph	Ms.	Liz Sandals	173 Woolwich Street		Guelph
Kitchener Centre	Hon.	John Milloy	1770 King Street East	Unit 6C	Kitchener
Kitchener-Conestoga	Mr.	Michael Harris	4281 King Street East	Unit 4	Kitchener
Wellington-Halton Hills	Mr.	Ted Arnott	181 St. Andrew Street East	2nd Floor	Fergus

Table B-3: First Nation Contact List

Title	First	Last	Position Details	Nation / Community Name
Chief	Jeff R.	Marsden		Alderville First Nation
Chief	Roland	Monague		Beausoleil First Nation (Christian Island)
Chief	Donna	Big Canoe		Chippewas of Georgina Island
Chief	Sharon	Stinson-Henry		Chippewas of Mnjikaning (Rama)
Chief	Keith	Knott		Curve Lake First Nation
Chief	Sandra	Moore		Hiawatha First Nation
Councillor	Luc	Laine	Chief in Charge of Land Claims	Wendake Meeting Ground of Nations
Chief	Kris	Nahrgang		Kawartha Nishnawbe First Nation
Chief	Tracy	Gauthier		Mississaugas of Scugog Island
Chief	Bryan	LaForme		Mississaugas of the New Credit First Nation
Chief	William K.	Montour		Six Nations of the Grand River Territory
			Executive Director	United Anishnabeg Councils
Mr.	Isadore	Day	Chief of Intergovernmental Affairs Director	Union of Ontario Indians - Nippising First Nation
Ms.	Victoria	Hill	Policy Analyst - Provincial	Association of Iroquois and Allied Indians

APPENDIX C: PIC DISPLAY AND TEXT BOARDS

**Highway 7 New
Kitchener to Guelph, 18 km**

WELCOME!

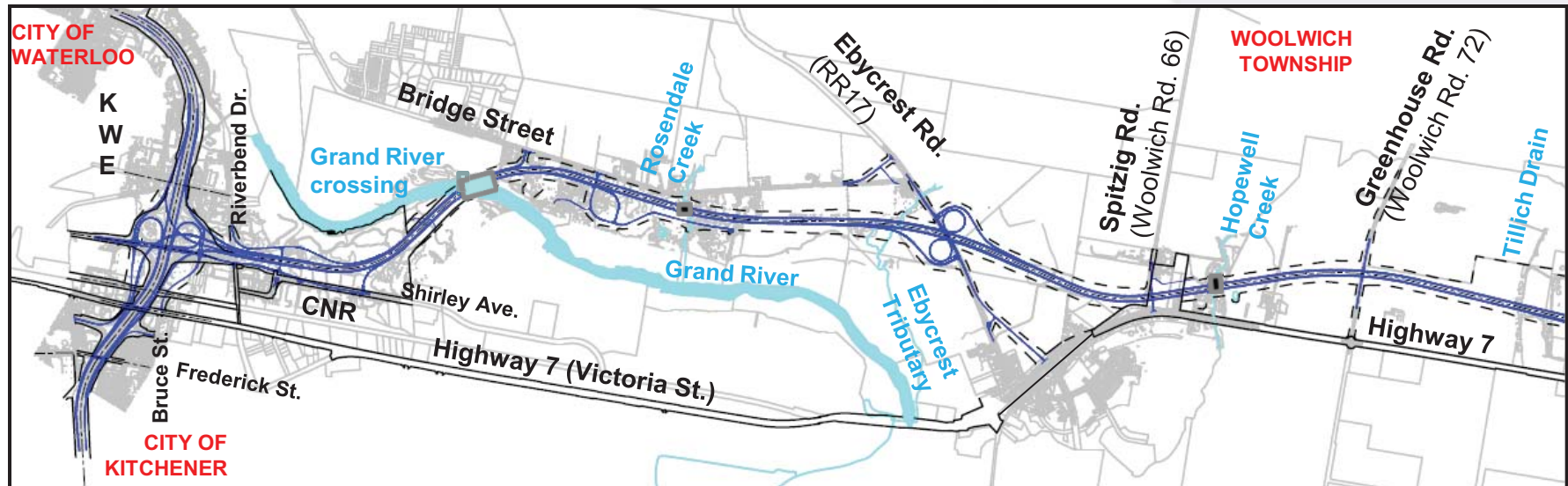
- ❖ Welcome to the Public Information Centre for the approved Highway 7 New between Highway 85 (Kitchener-Waterloo Expressway) in Kitchener easterly to Highway 6 (Hanlon Expressway) in Guelph
- ❖ This Public Information Centre (PIC) presents the recommendations from the Value Engineering (VE) study, and the initial phase of design for the overall project
- ❖ The Project Team, comprised of staff from the Ministry of Transportation and their Consultant, MMM Group, are available to provide information, answer your questions and listen to your ideas and concerns
- ❖ Presentations will be made at 5:30 and 7:00
- ❖ Subject to public input we are seeking EA approval for the recommended VE options
- ❖ Your comments are welcome and can be submitted on comment sheets, which are provided for your use

**Highway 7 New
Kitchener to Guelph, 18 km**

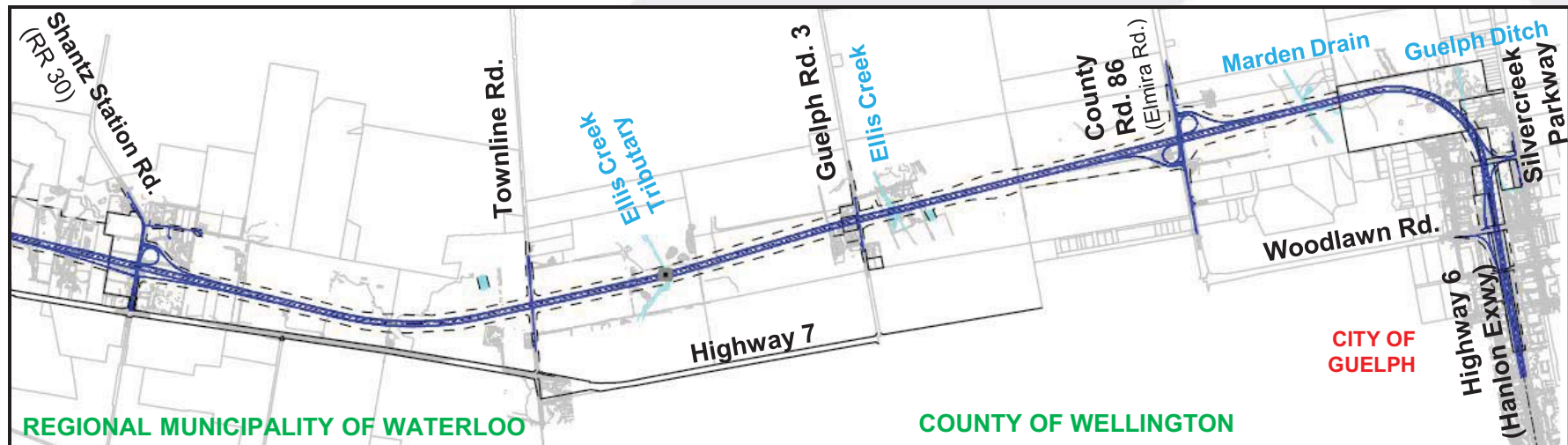
PROJECT BACKGROUND

- ❖ This project received approval under the Environmental Assessment Act in 2007
- ❖ MTO has protected the corridor from development through designation in the land registry office
- ❖ A Value Engineering (VE) Study was initiated in 2007 to further evaluate some site specific design features of the approved EA
- ❖ This Public Information Centre (PIC) is being held to present the recommendations from the VE study and the initial phase of design of the overall project
- ❖ The initial phase of design provides a more definitive configuration and footprint of the 2007 EA approved plan and incorporates improvements recommended by the VE study

New Highway 7 - Kitchener to Guelph, Recommended Plan



Region of Waterloo, County of Wellington, City of Kitchener, City of Guelph, Township of Woolwich, Township of Guelph-Eramosa



**Highway 7 New
Kitchener to Guelph, 18 km**

**FREEDOM OF INFORMATION AND
PROTECTION OF PRIVACY**

- ❖ Comments and information regarding the project are being collected to assist the Ministry of Transportation (MTO) in meeting the requirements of the *Environmental Assessment Act*
- ❖ This material will be maintained on file for use during the project and may be included in project documentation
- ❖ With the exception of personal information, all comments will become part of the public record in accordance with the *Freedom of Information and Protection of Privacy Act R.S.O., 1990, c.F.31*.
- ❖ You are encouraged to contact the Project Team if you have any questions regarding the above information

**Highway 7 New
Kitchener to Guelph, 18 km**

**ENVIRONMENTAL ASSESSMENT
(EA) PROCESS**

- ❖ The Highway 7 New EA was approved in 2007 by the Minister of the Environment
- ❖ The design for this project is now being conducted in accordance with the requirements of the *Class Environmental Assessment for Provincial Transportation Facilities* (2000)
- ❖ Consultation carried out by MTO for the Initial Phase of Design has included meetings with regulatory agencies, municipalities and local stakeholders
- ❖ Meetings were held with stakeholders directly affected by the VE recommendations
- ❖ A Transportation Environmental Study Report (TESR) to amend the Individual EA will be prepared and submitted for a 30-day public review period with opportunity to request a Part II order ('bump-up') on the VE recommendations documented in the TESR. The TESR will address only the VE recommendations as these represent a change to the approved design

Highway 7 New

Kitchener to Guelph, 18 km

- ❖ Next, an Initial Design Report to document the initial phase of design of the entire project will be prepared and filed for a 30-day public review. There is no opportunity to request a Part II order ('bump-up') of this report
- ❖ If there are issues regarding the VE recommendations that cannot be resolved the MTO can proceed with the detail design and construction as per the approved 2007 EA design

**Highway 7 New
Kitchener to Guelph, 18 km**

**WHAT HAVE WE BEEN DOING
SINCE THE EA WAS APPROVED IN
2007?**

- ❖ Horizontal and vertical design of the new highway
- ❖ Extensive foundation investigation for the structures
- ❖ Preliminary design of 41 structures
- ❖ Environmental inventory and impact assessment of design on aquatic and terrestrial habitat and species, archaeological and built heritage resources
- ❖ The Overall property requirements identified
- ❖ Consultation with First Nations, municipalities and agencies with respect to the project and specifically the recommended VE Options

**Highway 7 New
Kitchener to Guelph, 18 km**

VALUE ENGINEERING (VE) STUDY

What is Value Engineering?

- ❖ Value Engineering is an organized review of a project by a group of specialists that:
 - Identifies the functions of the project
 - Establishes a cost for the functions
 - Generates alternative ways of performing the functions at a lower cost or to otherwise improve the design
- ❖ The Study Team developed and evaluated feasible VE alternatives and are presenting our recommendations for their implementation into the overall plan
- ❖ Overall, the VE recommendations are not substantial changes to the approved plan
- ❖ They enhance the safety and function of the highway, reduce property and environmental impacts as well as costs
- ❖ Following the 30 day review period for the Transportation Environmental Study Report and resolution of any Part II orders, VE recommendations will be incorporated into the initial phase of design

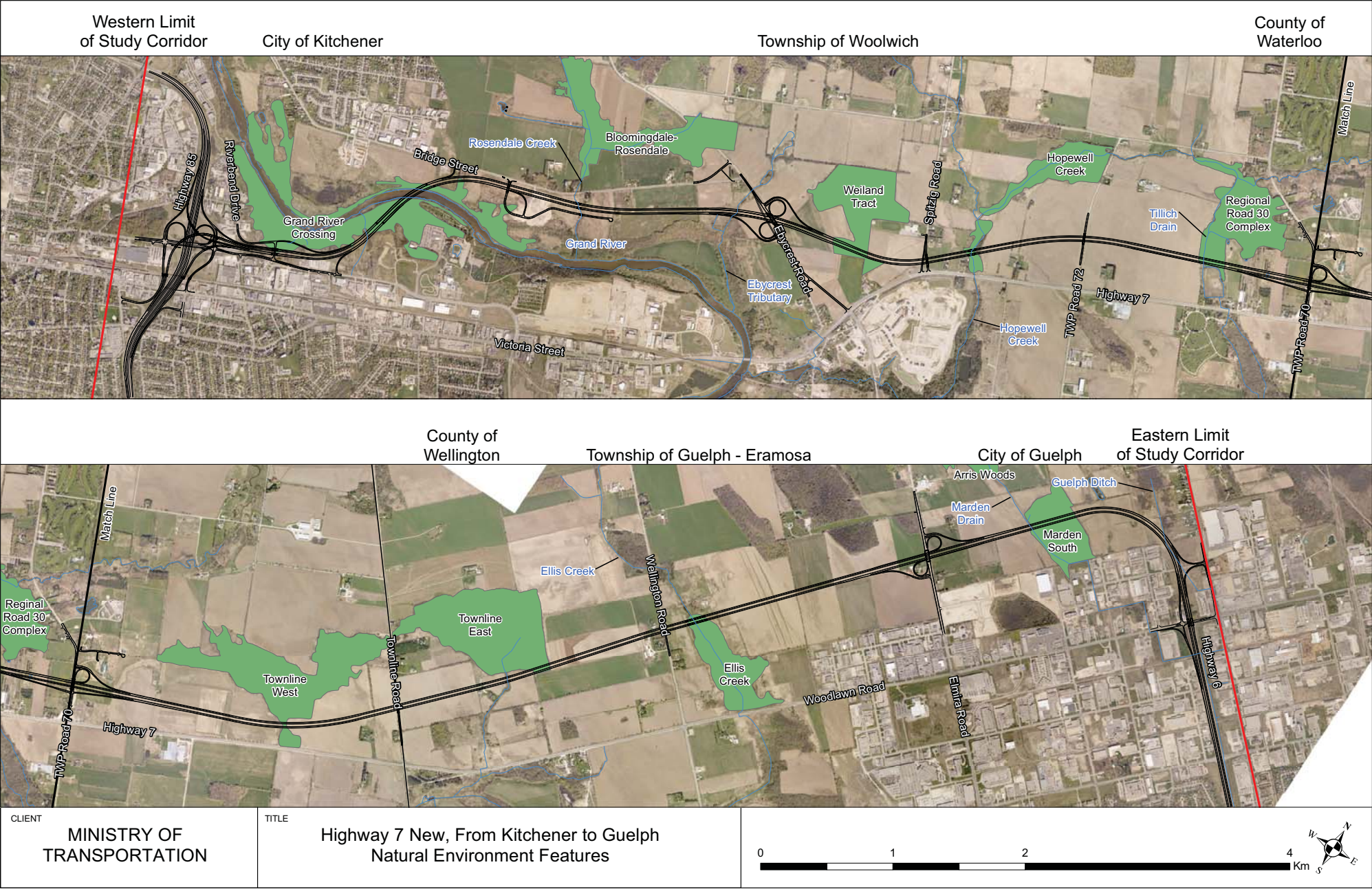
**Highway 7 New
Kitchener to Guelph, 18 km
SUMMARY OF VE EVALUATION
AND CONCLUSION**

- ❖ VE recommendations result in improvements at 5 site specific locations with respect to:
 - Overall function and constructability
 - Operation
 - Reduced environmental impacts
 - Safety
 - Reduced property impact
 - Reduced costs
- ❖ We appreciate your feedback and comments
- ❖ After your feedback is received/addressed we are planning to publish a Transportation Environmental Study Report (TESR) to amend the 2007 approved EA with the recommendations from the Value Engineering Study

Highway 7 New
Kitchener to Guelph, 18 km

2007 EA APPROVED DESIGN
FEATURES

- ❖ Four-lane median divided highway from Highway 85 (K-W Expressway) in Kitchener to Highway 6 (Hanlon Expressway) in Guelph, approximately 18 km
- ❖ A freeway to freeway interchange at the K-W Expressway, with local access to Wellington Street and the municipal road network;
- ❖ Interchanges at Bridge Street (partial), Ebycrest Road, Shantz Station Road, Elmira Road North and Woodlawn Road;
- ❖ Grade separated crossings at Spitzig Road, Greenhouse Road, Townline Road and Guelph Road
- ❖ Crossings of the Grand River, Rosendale Creek, Hopewell Creek and Ellis Creek



Highway 7 New

Kitchener to Guelph, 18 km

NATURAL, PHYSICAL AND SOCIAL ENVIRONMENT EXISTING CONDITIONS, IMPACT ASSESSMENT AND MITIGATION

The features of the natural, cultural and social environment that have been assessed during development of the initial phase of design include:

Feature / Resource	Potential Impact	Mitigation Measures
<u>Water Crossings and Fish Habitat</u> <ul style="list-style-type: none"> • Coldwater/coolwater and warmwater fish habitat provided in 10 watercourse crossings • Species at Risk <ul style="list-style-type: none"> ○ <i>Wavy-rayed Lampmussel</i> occurs in Grand River at crossing 	<ul style="list-style-type: none"> • Alteration of fish migration and movement through the new crossings • Loss of in-stream vegetation and habitat resulting from the footprint of new crossings • Introduction of sediments to watercourses during construction may affect water quality 	<ul style="list-style-type: none"> • Construct bridges over major watercourses to maintain fish passage • Create a low flow channel in culvert crossings • Minimize vegetation removal within the highway Right-of-Way • Timing of construction during permissible in-water window • Relocate mussels and monitor where required • Erosion and sediment controls during construction

Highway 7 New Kitchener to Guelph, 18 km

Feature / Resource	Potential Impact	Mitigation Measures
<p><u>Vegetation</u></p> <ul style="list-style-type: none"> • Forest Interior Habitat in 8 woodlands in highway corridor • Large sugar maple trees in area of Grand River crossing • Species at Risk <ul style="list-style-type: none"> ○ Butternut tree adjacent to Grand River crossing 	<ul style="list-style-type: none"> • Vegetation removal • No impact to butternut or large maple trees at Grand River crossing 	<ul style="list-style-type: none"> • Alignment selected during planning stage to minimize the amount of vegetation removed • Implement “edge management” to reduce impacts associated with new forest edge • Re-plant/seed areas of fish/wildlife habitat to promote cover • Removals to occur outside migratory bird nesting period

Highway 7 New Kitchener to Guelph, 18 km

Feature / Resource	Potential Impact	Mitigation Measures
<p>Wetlands</p> <ul style="list-style-type: none"> • Provincially Significant Wetlands Include: <ul style="list-style-type: none"> ○ Townline West Wetland ○ Ellis Creek Wetland ○ Marden South Wetland • Locally significant wetlands include: <ul style="list-style-type: none"> ○ Bloomingdale-Rosendale Wetland ○ Hopewell Creek Riparian Wetland 	<p>Removal of vegetation and drainage alteration at Marden South wetland</p> <p>Bridge piers placed in Ellis Creek wetland</p>	<ul style="list-style-type: none"> • Alignment selected during planning stage to minimize impact to wetlands <p>Marden South Wetland</p> <ul style="list-style-type: none"> • Provide culverts through the crossing to equalize water levels to maintain vegetation communities <p>Ellis Creek Wetland</p> <ul style="list-style-type: none"> • Construct bridge piers outside of the open water portion of the wetland (Ellis Creek and adjacent riparian area) • Maintain seasonal water levels

Highway 7 New

Kitchener to Guelph, 18 km

Feature / Resource	Potential Impact	Mitigation Measures
<u>Wildlife</u> <ul style="list-style-type: none"> • Deer overwintering areas at Hopewell Creek forest (west of Greenhouse Road) • forest wetland in Regional Road 30 Complex (west of Shantz Station Road) • Marden South swamp forest west of Silver Creek Parkway 	<ul style="list-style-type: none"> • Wildlife movement may be impacted by highway • Highway will cross several watercourse/valleyland features that provide wildlife movement corridors 	<ul style="list-style-type: none"> • Bridges over major watercourses and some wetlands have been designed to allow wildlife to move beneath <ul style="list-style-type: none"> ◦ Deer used as the target size • Wildlife passage incorporated into the designs for: <ul style="list-style-type: none"> ◦ Grand River ◦ Hopewell Creek ◦ Ellis Creek • Fencing to be installed on the north side of the highway at the Marden South Wetland crossing to prevent deer moving onto the highway
<u>Contaminant and Waste Management</u>	<ul style="list-style-type: none"> • Several potential sources of soil and groundwater contamination were identified 	<ul style="list-style-type: none"> • Preliminary site screening and/or Phase 1 Environmental Site Assessment is recommended for properties with a High potential for contamination within 100 m of the final highway alignment

Highway 7 New Kitchener to Guelph, 18 km

Feature / Resource	Potential Impact	Mitigation Measures
<u>Groundwater and Wells</u> <ul style="list-style-type: none"> • Some wells in shallow aquifer (< 10 m deep) • majority of wells in deeper aquifer in bedrock (> 25 m deep) 	<ul style="list-style-type: none"> • Deep wells (> 25 m deep) in bedrock <ul style="list-style-type: none"> ◦ Impacts to deep wells are not anticipated • Shallow wells (< 10 m deep) within 100 m of the alignment <ul style="list-style-type: none"> ◦ Potential impacts to shallow wells 	<ul style="list-style-type: none"> • Location of wells identified in the field and updated • Identify well and water supply for those properties for which there is no well record • Confirm properties where water is provided through municipal supply • Further assessment and protection mitigation will be developed in the next stage of design
<u>Archaeology</u> <ul style="list-style-type: none"> • Several Aboriginal archaeological sites identified and documented according to provincial protocol and standards 	<ul style="list-style-type: none"> • Stage 2 investigations completed where permission to enter received • 7 of 10 Stage 3 sites cleared of archaeological concern 	<ul style="list-style-type: none"> • Stage 4 mitigation recommended for 3 sites • Stage 2 investigations required for some properties • Further archaeological investigations to be carried out in the next stage of design

Highway 7 New Kitchener to Guelph, 18 km

Feature / Resource	Potential Impact	Mitigation Measures
<u>Cultural Heritage</u> <ul style="list-style-type: none"> • 14 cultural heritage landscapes <ul style="list-style-type: none"> ○ farm complexes ○ rural road settings • 3 built heritage resources <ul style="list-style-type: none"> ○ buildings 	<ul style="list-style-type: none"> • Indirect impacts anticipated for <ul style="list-style-type: none"> ○ 11 cultural heritage landscapes ○ 2 built heritage resources ○ 5 additional sites • Direct impacts anticipated for <ul style="list-style-type: none"> ○ 3 cultural heritage landscapes ○ 1 built heritage resource 	<ul style="list-style-type: none"> • Cultural Heritage Evaluation Report (CHER) has been prepared to document the cultural heritage significance of each cultural landscape, resource and building • Additional documentation of the interiors, including floor plans of buildings will be needed in later stages of design • Access to 5 unassessed sites will be required to complete documentation
<u>Recreational Trails</u> <ul style="list-style-type: none"> • Walter Bean Grand Valley Recreational Trail • Grand Valley Trail 	<ul style="list-style-type: none"> • Impacts to the alignment of the trails where they cross the highway alignment 	<ul style="list-style-type: none"> • Realignment of the trails to maintain access through the area

**Highway 7 New
Kitchener to Guelph, 18 km**

PROJECT STATUS

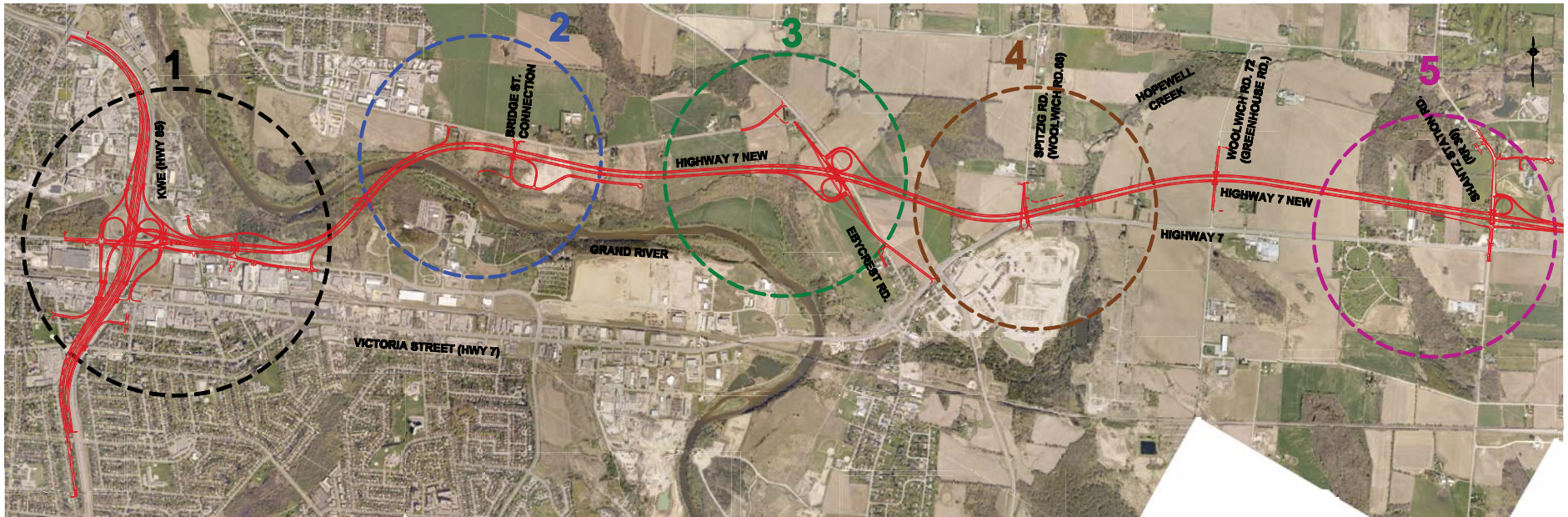
- ❖ The project is currently not on the Ministry's Southern Highways Program but will be considered as part of the future plan based on provincial priorities and available funding
- ❖ The Ministry will continue to take steps such as property acquisition to advance the project so we can proceed to construction once funding becomes available
- ❖ This fall, the Ministry will begin to purchase the remaining required properties for the project
- ❖ Property acquisition is expected to take at least 30 months given the number of properties
- ❖ Once started, we estimate that it will take a minimum of 5 years to construct

**Highway 7 New
Kitchener to Guelph, 18 km**

WHERE DO WE GO FROM HERE?

- ❖ Consider comments received about the VE recommendations.
- ❖ Prepare a Transportation Environmental Study Report (TESR) to amend the Individual EA for the VE recommendations. TESSR will be available for a 30-day public review period with opportunity to request a Part II order ('bump-up')
- ❖ Next, prepare an Initial Design Report to document the initial phase of design and submit for a 30-day public review with no opportunity to request a Part II order ('bump-up')
- ❖ Following the 30 day review periods and resolution of any Part II order requests, the project may proceed to the final stages of the Detail Design
- ❖ The final stages of the Detail Design process will further develop measures to mitigate impacts and secure all applicable permits and approvals from regulatory agencies.

Value Engineering Target Areas



Target Area 1: Kitchener-Waterloo Expressway Freeway to Freeway Interchange (VE Recommendations: 1, 2, 3, 4)

Target Area 2: Grand River Bridge and Bridge Street (VE Recommendations: 5)

Target Area 3: Regional Road 17 (Ebycrest Rd.) Interchange (VE Recommendations: 6, 7)

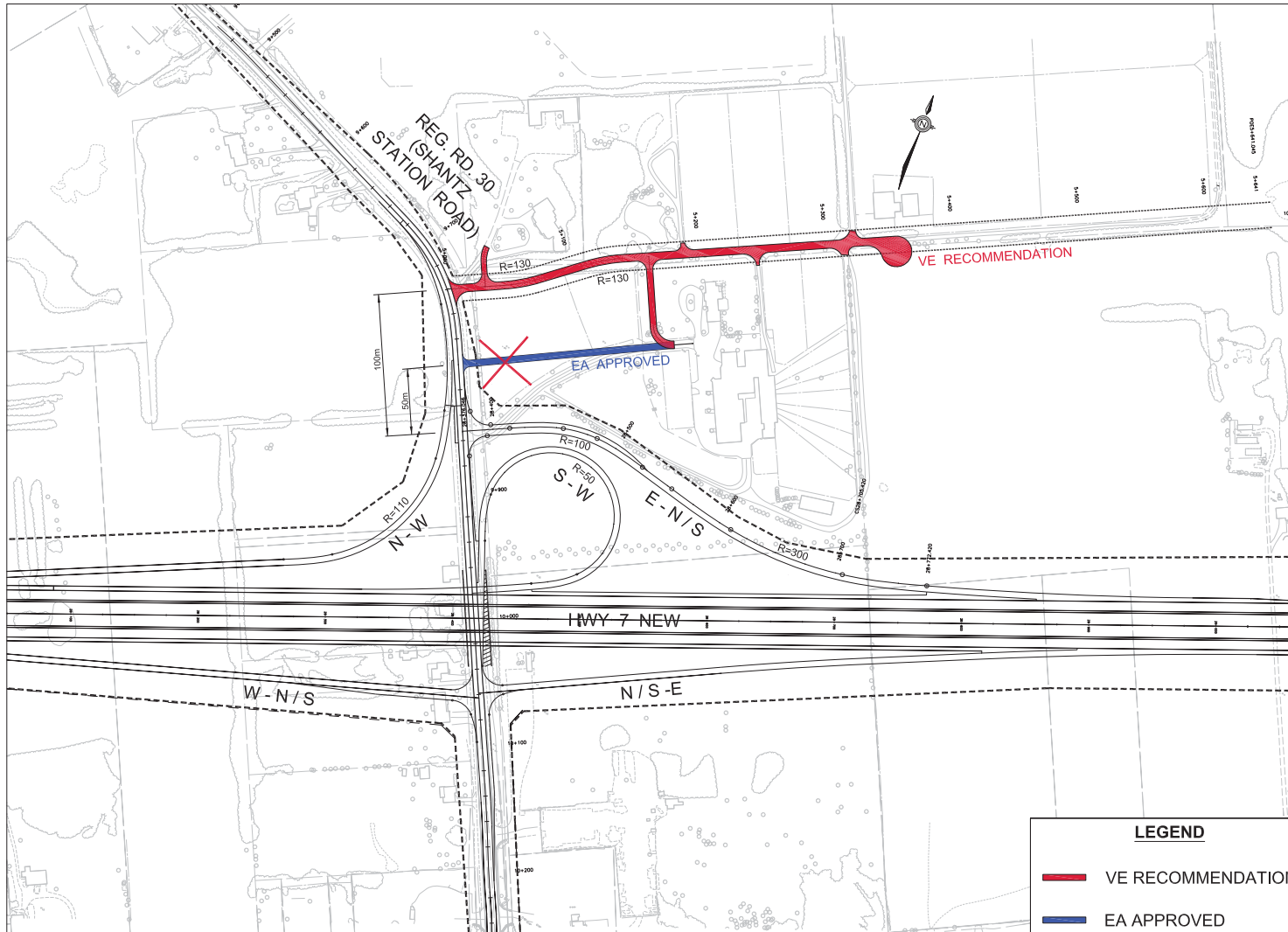
Target Area 4: Woolwich Road 66 (Spitzig Rd.) (VE Recommendations: 8)

Target Area 5: Regional Road 30 (Shantz Station Rd.) Interchange (VE Recommendations: 9, 10)

Value Engineering (VE) Recommendations

Target Area 5 - Regional Road 30 (Shantz Station Rd.) (10)

10 - Combine Service Road and Private Residential



EA Approved

- New residential access in close proximity to the interchange

VE Recommendation

- Combine this access with existing public service road to increase spacing to interchange

Advantages

- Reduces number of access points on sideroad
- Reduces potential for vehicular conflicts & traffic delays in proximity to the Interchange

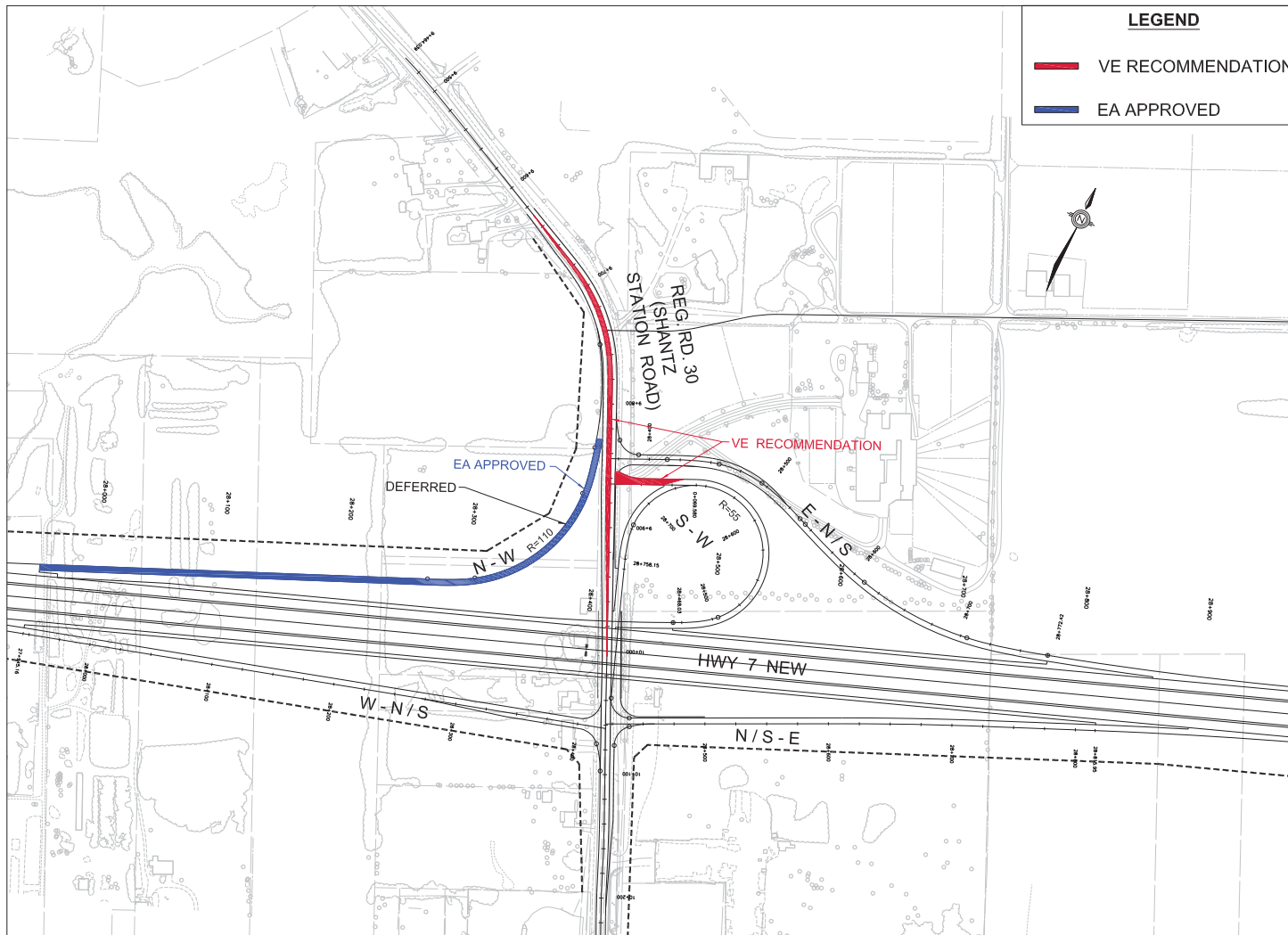
Disadvantages

- Very minor additional construction costs

Value Engineering (VE) Recommendations

Target Area 5 - Regional Road 30 (Shantz Station Rd.) (9)

9 - Convert North Interchange Configuration to Parclo A2 (Protect for A-4)



EA Approved

- Parclo A-4 configuration in the north quadrant of the interchange with a direct, i.e. free flow, N-W ramp movement

VE Recommendation

- Convert the north portion of the interchange to Parclo A2, i.e. replace a direct free flow N-W ramp movement with a left turn lane onto the S-W loop ramp
- Defer construction of the direct N-W Ramp (protect property for A-4), and associated costs until warranted by traffic volumes

Advantages

- Results in cost savings, funds spent when warranted

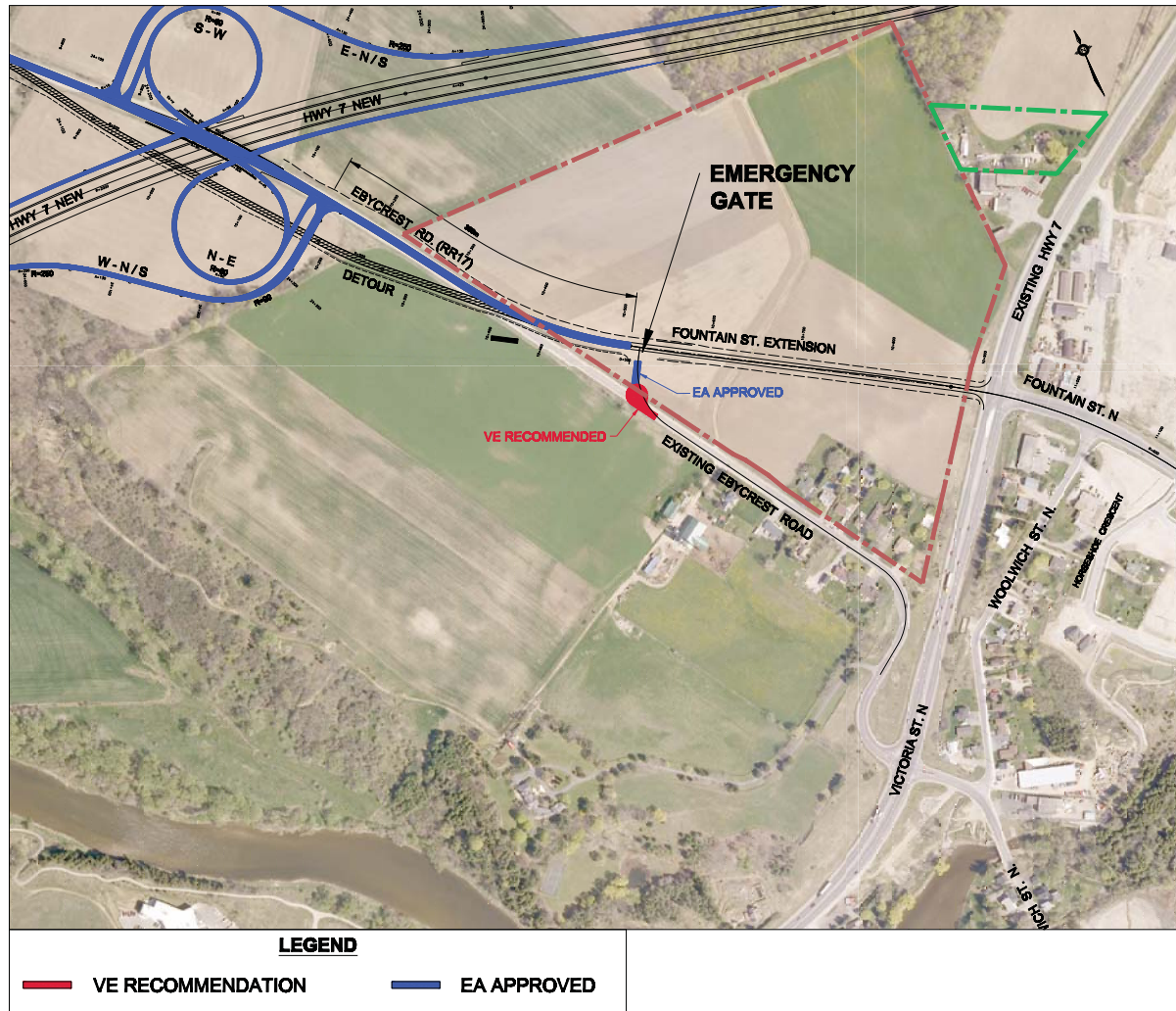
Disadvantages

- Left turn access may contribute to traffic congestion, but traffic volumes are low
- Potential for reduced visibility at ramp terminals, but mitigated with signage & illumination

Value Engineering (VE) Recommendations

Target Area 3 - Regional Road 17 (Ebycrest Rd.) Interchange (7)

7 - Close Existing Ebycrest Road North of Exist. Hwy 7 and Provide Cul-de-Sac



EA Approved

- Ebycrest Road is converted to local access when connected to the future extension of Fountain Street

VE Recommendation

- Close existing Ebycrest Road and remove the entrance from the future Fountain Street extension
- Add gated access to RR17 to facilitate emergency vehicles access

Advantages

- Reduces number of access points at interchange
- Eliminates potential intra-regional traffic through residential area
- Reduces traffic at existing Ebycrest Rd./Hwy 7 intersection with steep profile
- Maintains emergency response route as confirmed with RMW Emergency Medical Service

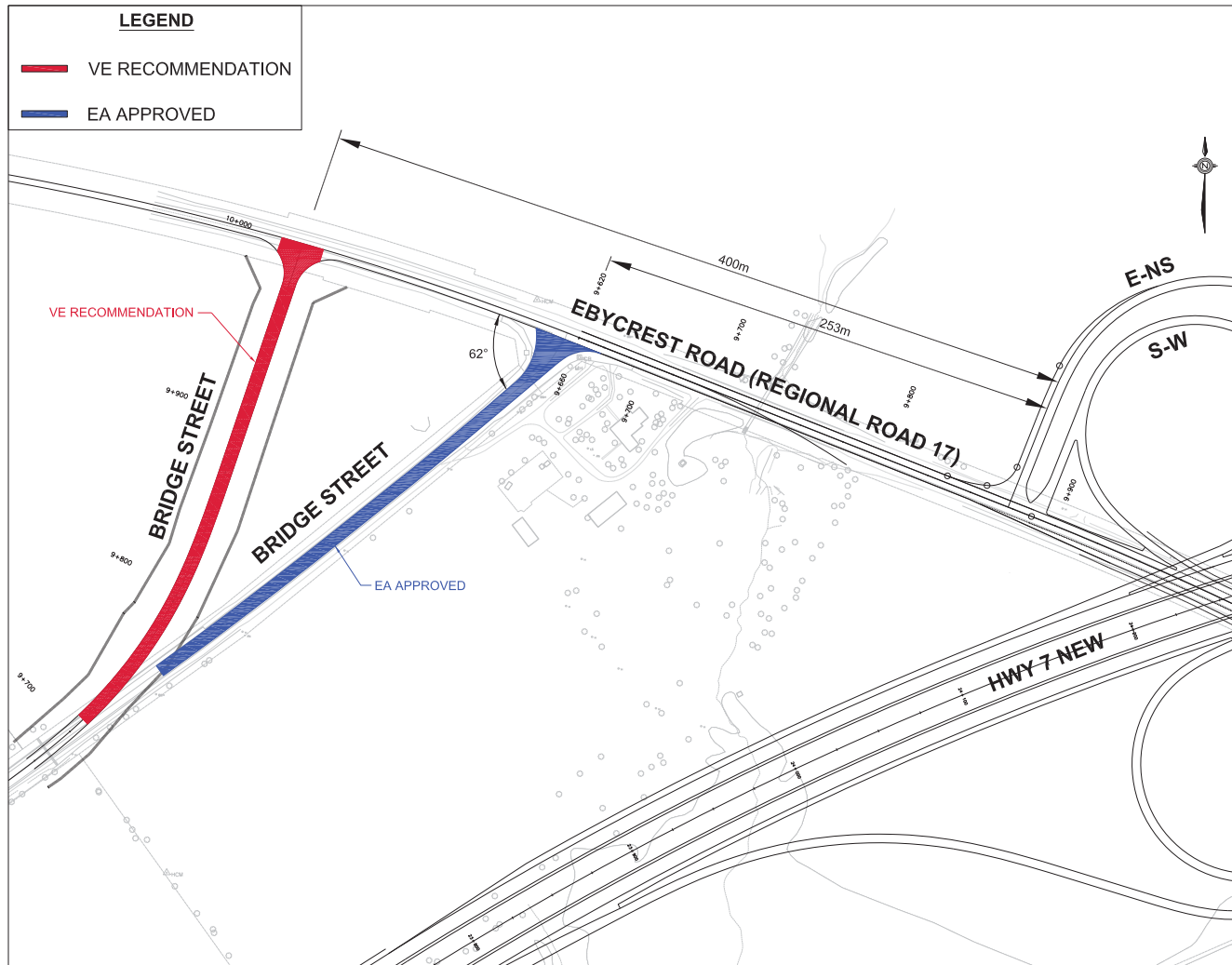
Disadvantages

- Loss of a direct access from/to interchange for 12 residences

Value Engineering (VE) Recommendations

Target Area 3 - Regional Road 17 (Ebycrest Rd.) Interchange (6)

6 - Realign Bridge Street at RR17 to Provide Greater Spacing



EA Approved

- The existing Bridge Street intersection at skew and in close proximity to the proposed interchange and will affect safety and traffic operations

VE Recommendation

- Move existing ramp further away from the interchange and improve the angle at the intersection from 60° to 90°

Advantages

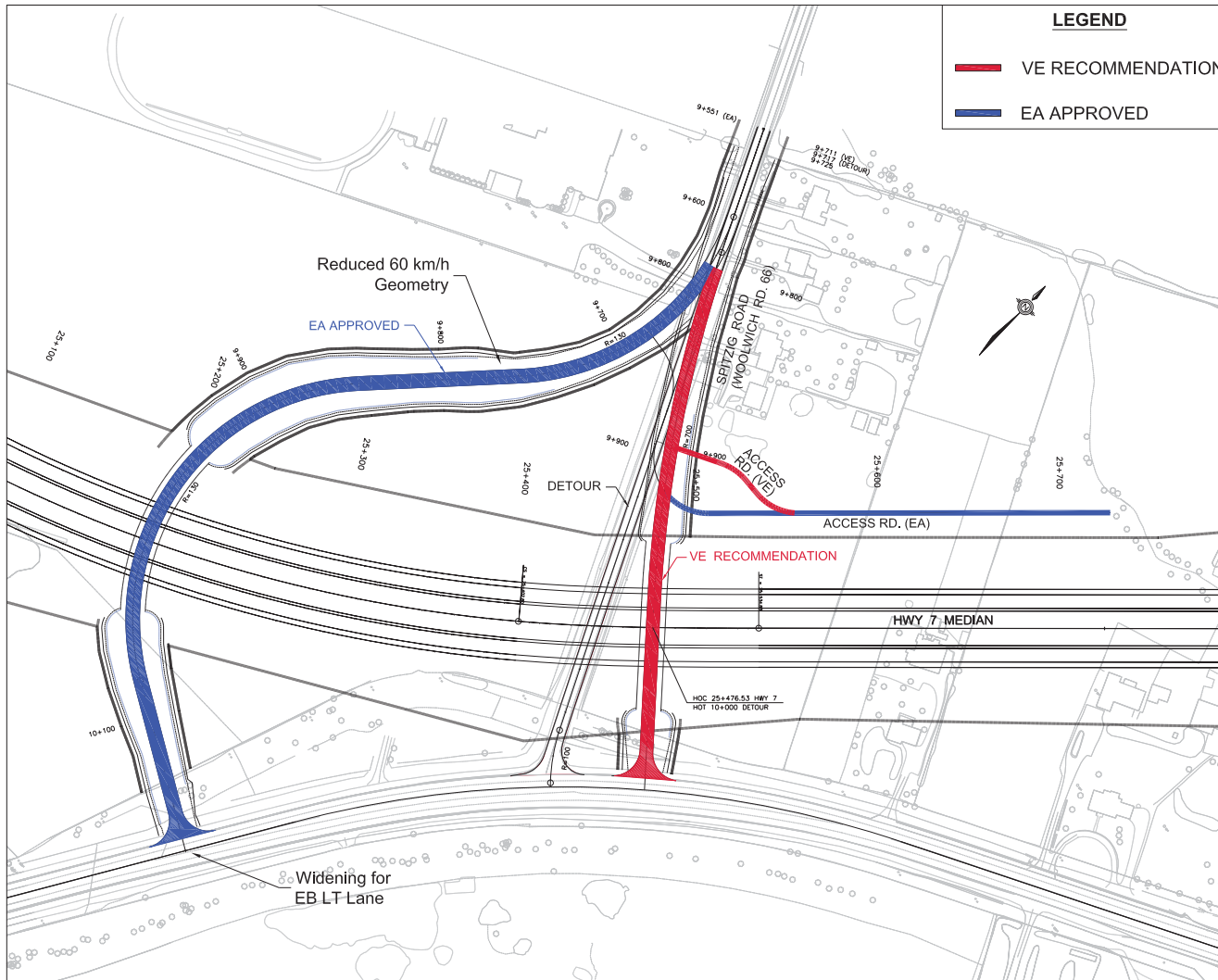
- Improves visibility and turning movements at intersection
- Improves spacing of intersection to the interchange
- Improves safety and operations along sideroad, potential for vehicular conflicts reduced at the interchange access
- Improvements consistent with MTO access management best practices

Disadvantages

- Property and environmental impact - loss of a portion of crops field
- Additional minor construction & property costs

Target Area 4 - Woolwich Road 66 (Spitzig Road) (8)

8 - Maintain Existing Woolwich Rd 66 (Spitzig Rd) Alignment



EA Approved

- Sideroad realigned due diminished sightlines at Hwy 7 intersection
- Inferior curved road and bridge geometry, and impacts to property

VE Recommendation

- Maintain existing road alignment

Advantages

- Eliminates major sideroad realignment
- Improves geometry from 60 km/h to 80km/h design speed
- Provides tangent structure instead of curved structure
- Improves visibility and avoids major property impacts
- Superior road & structure geometry - a safer road
- High socio-economic impacts to property avoided
- Major cost savings

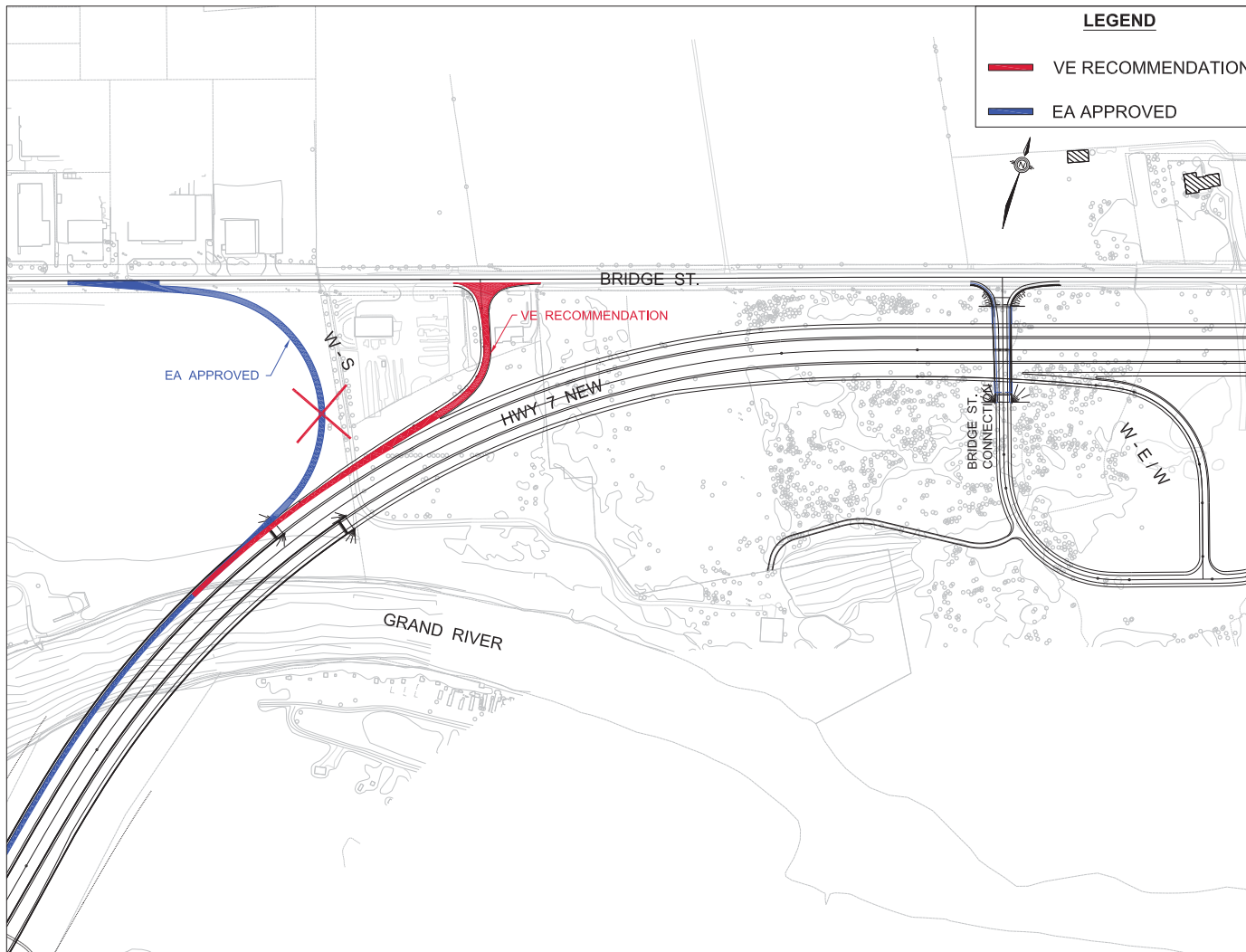
Disadvantages

- Requires detour or a temporary road closure
- Reduced sightlines, but same as existing condition (90 km/h design achieved on Hwy 7, 10 km/h above posted speed)

Value Engineering (VE) Recommendations

Target Area 2 - Grand River Bridge and Bridge Street (5)

5 - Move and Reconfigure Direct W-S On-Ramp into Buttonhook



EA Approved

- Direct Bridge St. W- Hwy 7 W on-ramp that ties with highway at the bridge
- Results in a flare and variable reversed pavement slopes due to opposite direction curves
- Poor visibility and potential for roll-over accidents at bridge approach
- Increases risks and potential additional costs during construction

VE Recommendation

- Shift ramp terminal to the east in a buttonhook configuration (intersection connection with Bridge St.)

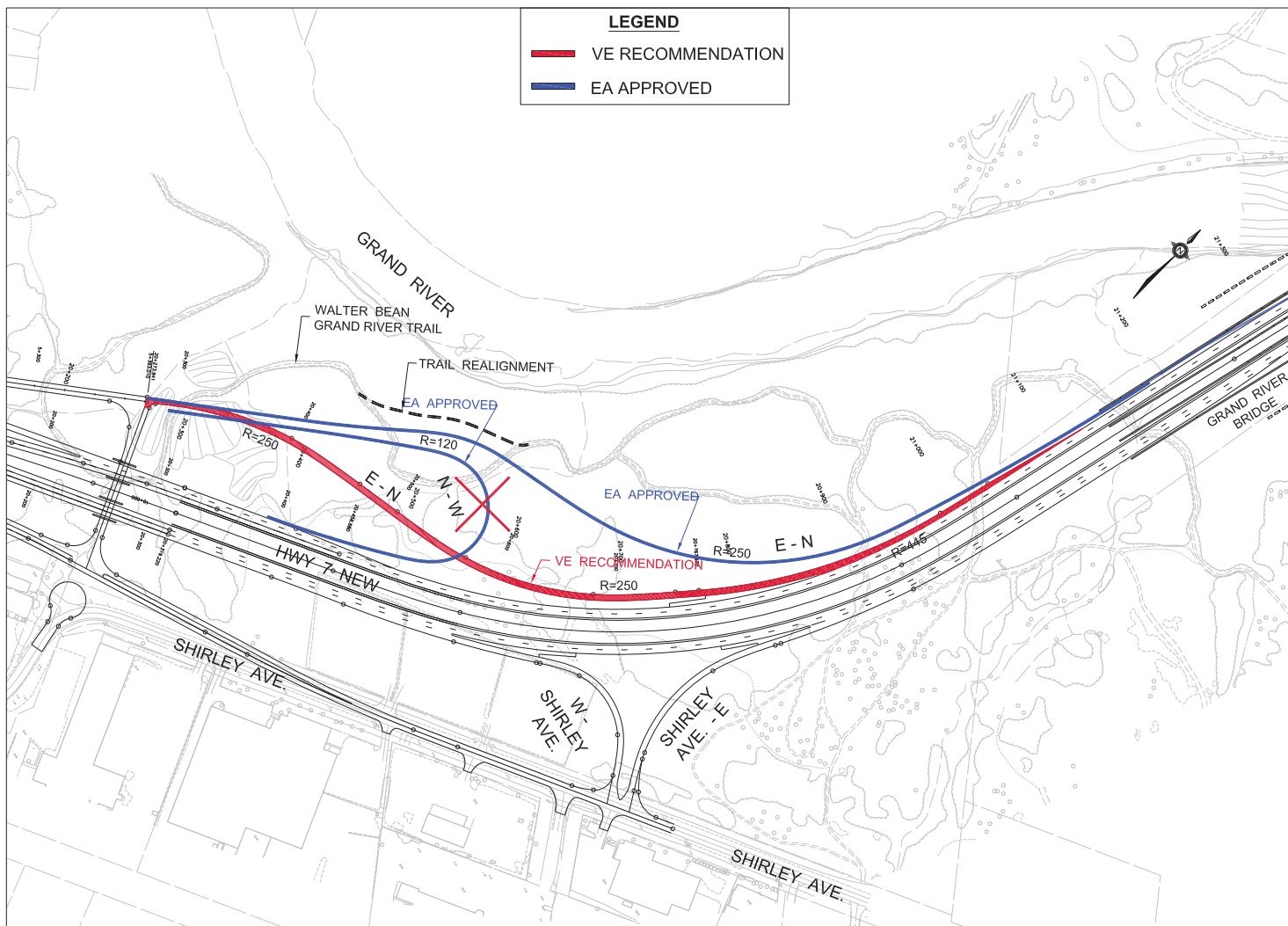
Advantages

- Allows elimination of flare and adverse variable reversed pavement slopes, provides uniform pavement slopes
- Significantly improves bridge geometry and constructability and ensures cost savings
- Improves safety by increasing visibility at the approach and reduces potential for roll-over accidents

Value Engineering (VE) Recommendations

Target Area 1 - Kitchener-Waterloo Expressway Freeway to Freeway Interchange (4)

4 - Shift Hwy 7 WB Off-Ramp to Riverbend Further West and off the Grand River Structure



EA Approved

- Hwy 7 E-Riverbend Dr. Off-Ramp speed change lane is on the Grand River bridge

VE Recommendation

- Move Hwy 7 E-Riverbend Dr. Off-Ramp off the Grand River bridge

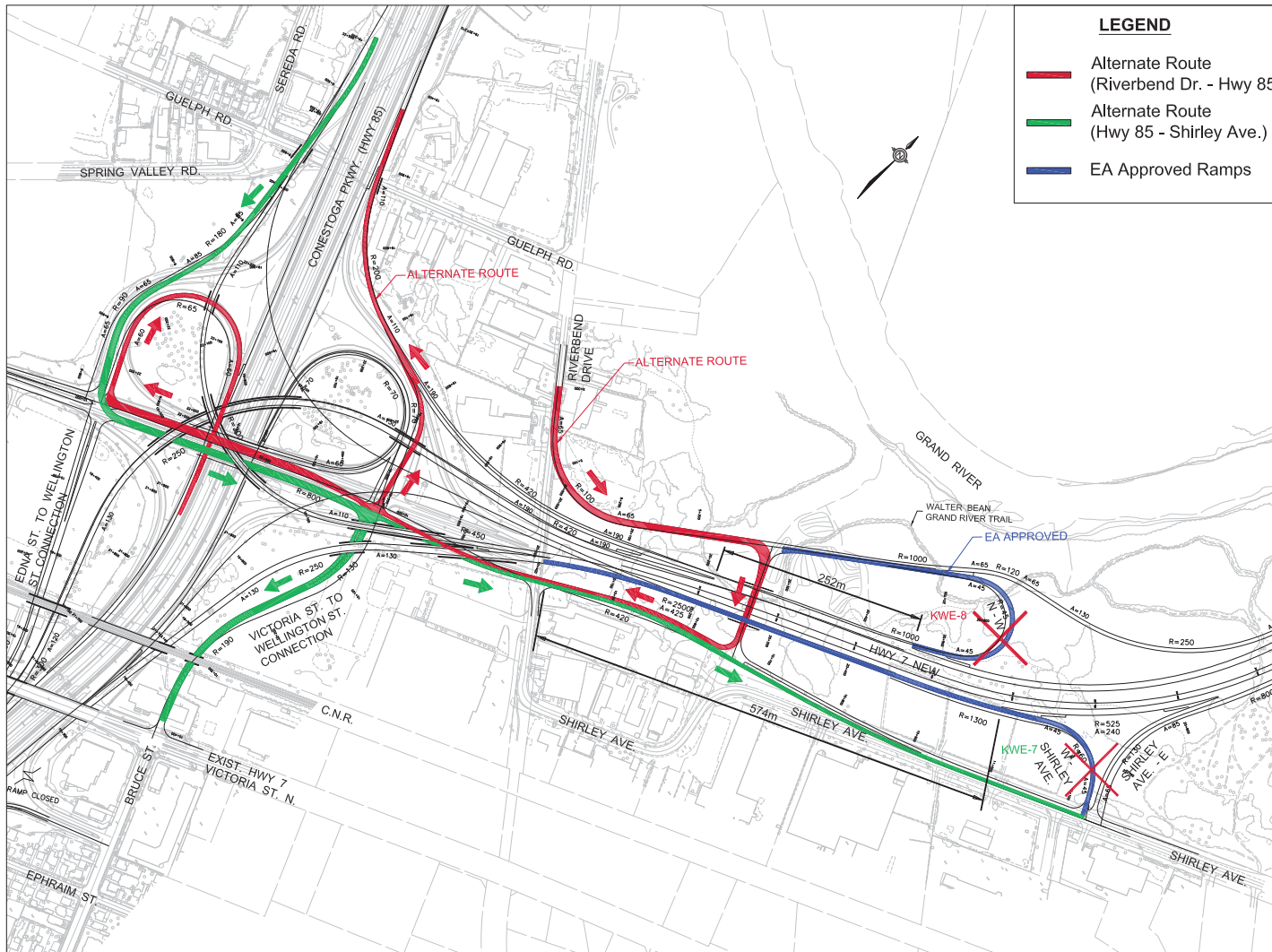
Advantages

- Reduces flare and the associated costs on the bridge
- Reduces fill in the river valley
- Reduces impact to Walter Bean Grand River Trail
- Allows elimination of Riverbend Dr.- Hwy 7 WB ramp in KWE-7 VE recommendation

Value Engineering (VE) Recommendations

Target Area 1 - Kitchener-Waterloo Expressway Freeway to Freeway Interchange (2 & 3)

2 & 3 - Eliminate Riverbend Dr. to Hwy 7 On-Ramp and W-Shirley Ave. Off-Ramp



EA Approved

- Two ramps, Riverbend Dr. N - W and W - Shirley Ave., to accommodate direct access/egress to the highway
- Ramp geometry results in short weaving sections

VE Recommendation

- Eliminate direct ramps, as alternate routes are available through local roads

Advantages

- Eliminates weaving deficiencies on new Hwy 7 – potential for collisions reduced by 40% (estimated at VE)
- Removes redundant ramps – access to Hwy 85 maintained via available local routes at Wellington St.
- Substantial improvement from safety, operations and human factors point of view

Disadvantages

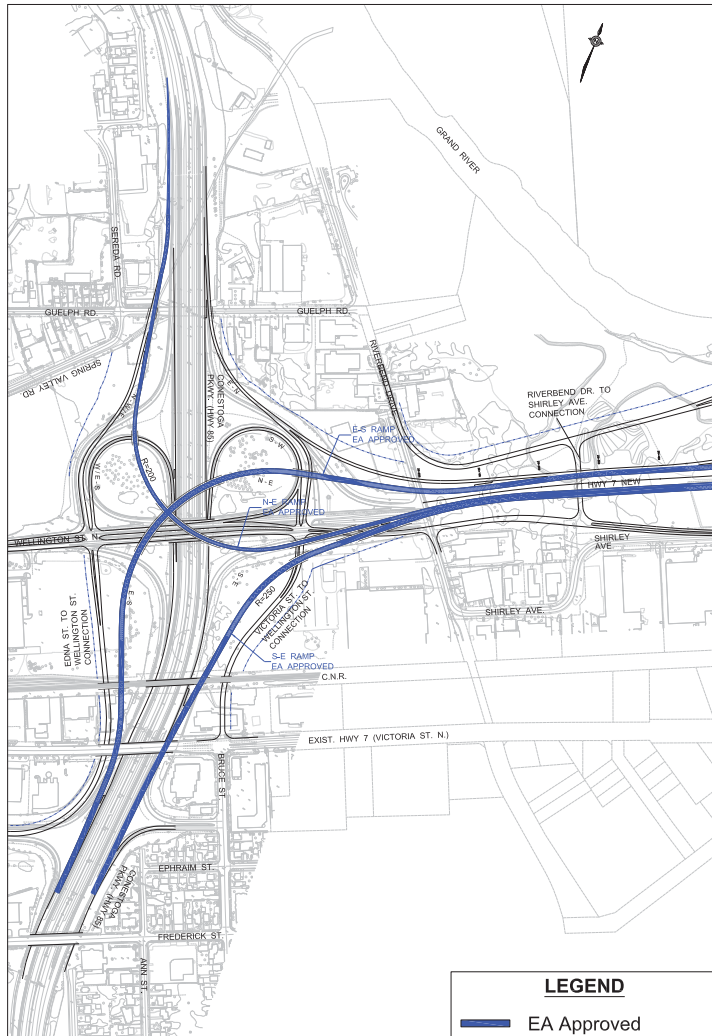
- Inconvenience of indirect travel, but similar to existing condition
- Adds traffic on Shirley and Wellington to access Hwy 85

Value Engineering (VE) Recommendations

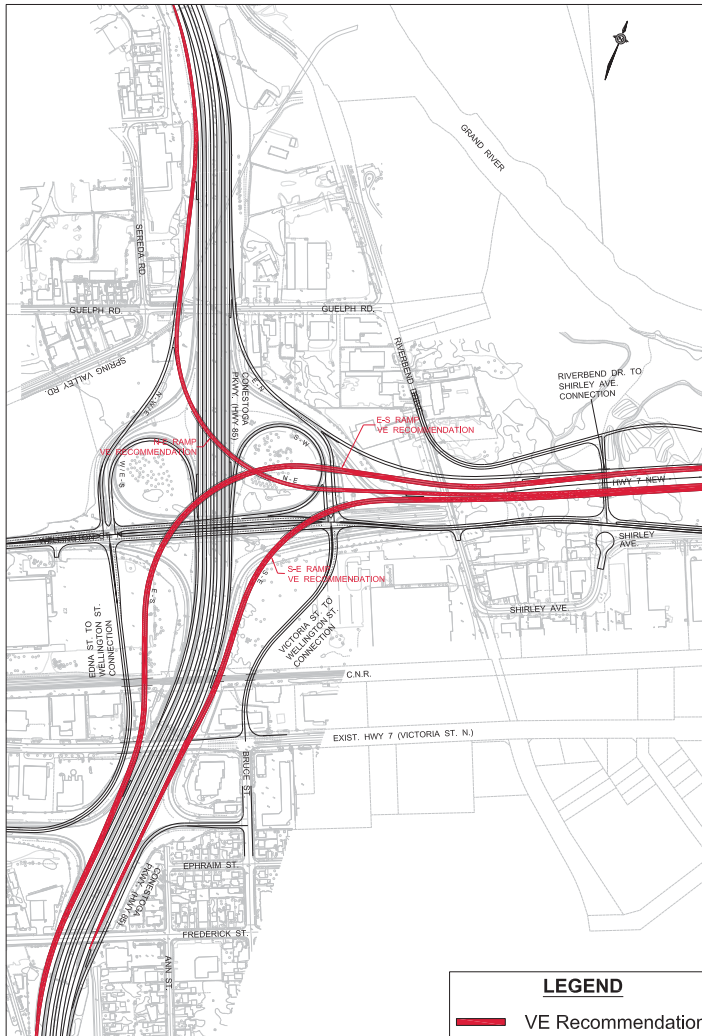
Target Area 1 - Kitchener-Waterloo Expressway Freeway to Freeway Interchange (1)

1 - Move Ramps N-E and S-E to the North of Hwy 7

EA Approved



VE Recommendation



EA Approved

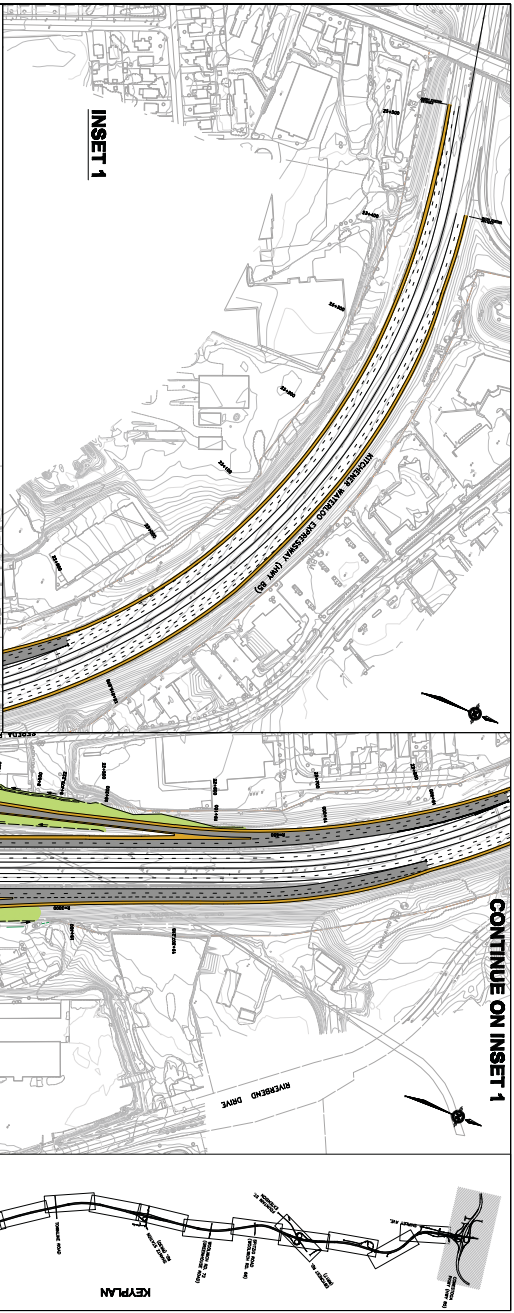
- N-E and S-E combined freeway-to-freeway ramp crossing south of Hwy 7
- Bridge across Wellington St. is not constructible in the EA configuration due to large skew

VE Recommendation

- Move freeway-to-freeway ramp crossing north of Hwy 7 to ensure constructability

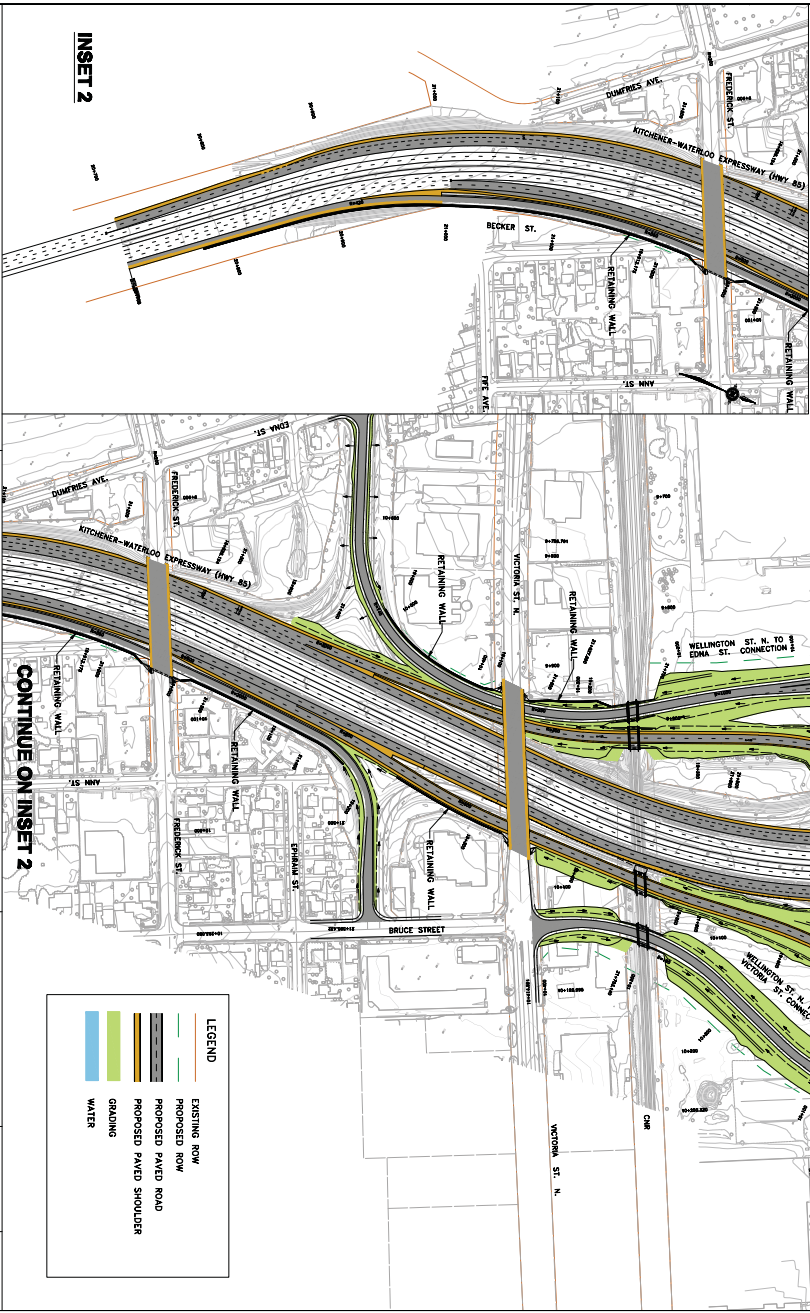
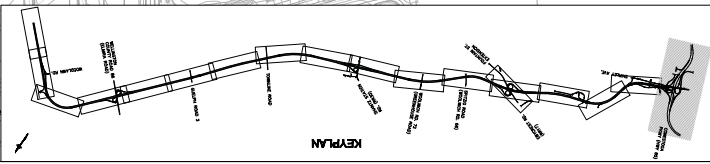
Advantages

- Ensures constructability
- Reduces bridge span and improves geometry of N-E ramp to 80km/h



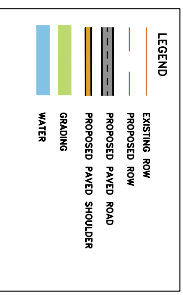
INSET 1

CONTINUE ON INSET 1



INSET 2

CONTINUE ON INSET 2



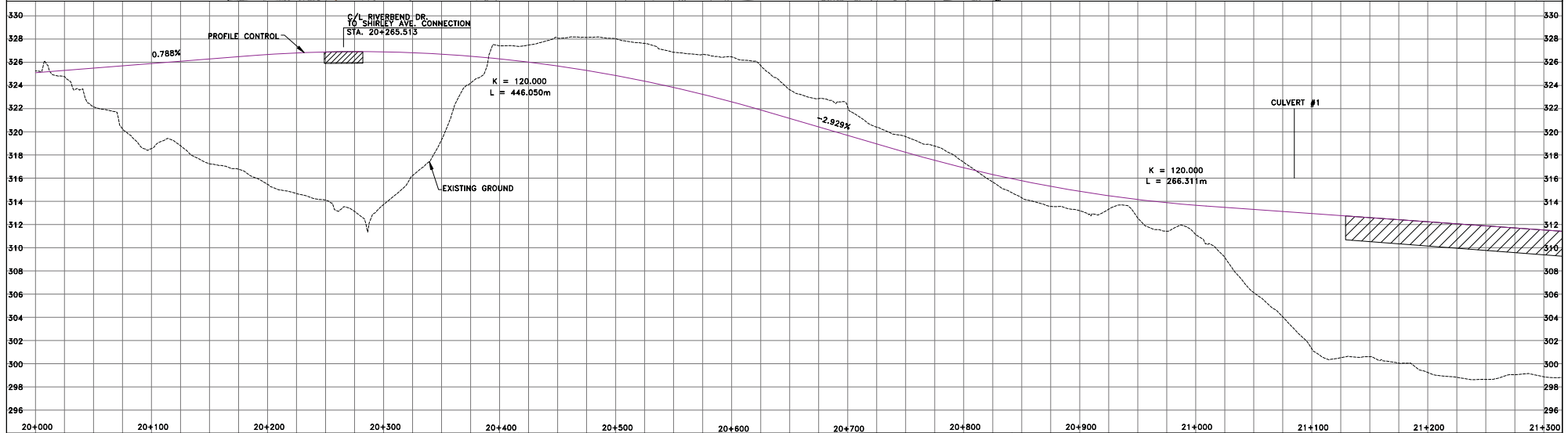
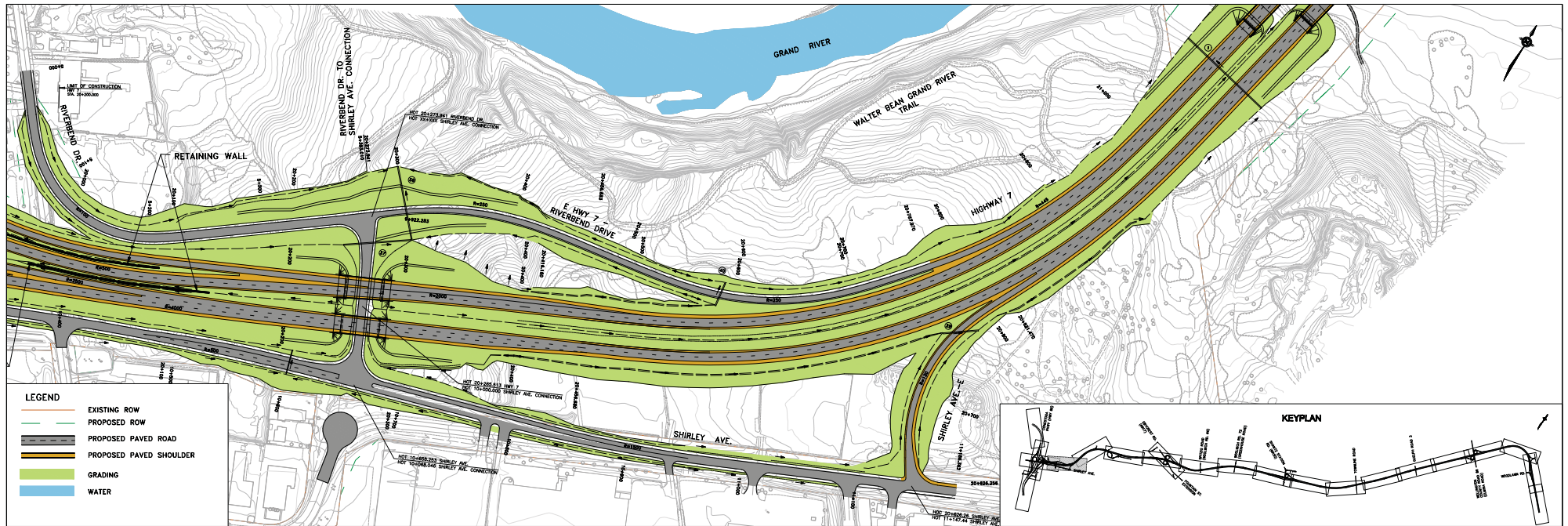
HIGHWAY 7 NEW - KITCHENER TO GUELPH
2007 EA APPROVED PLAN (WITH RECOMMENDED
VE MODIFICATIONS)
G.M.P. 408 - 08 - 00



PLAN & PROFILE

SCALE
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PLATE
1



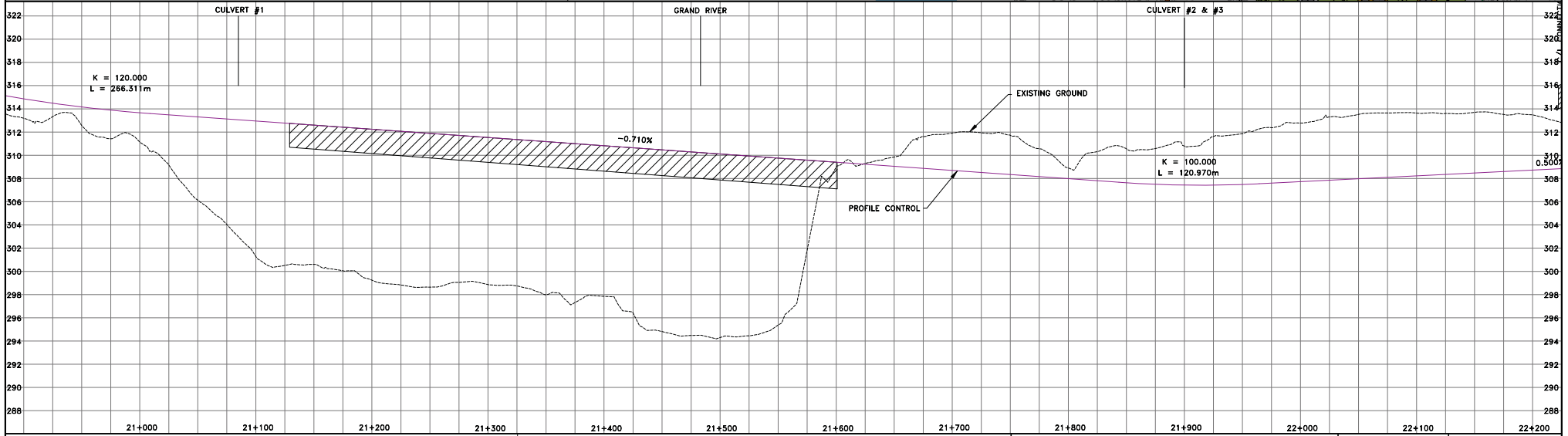
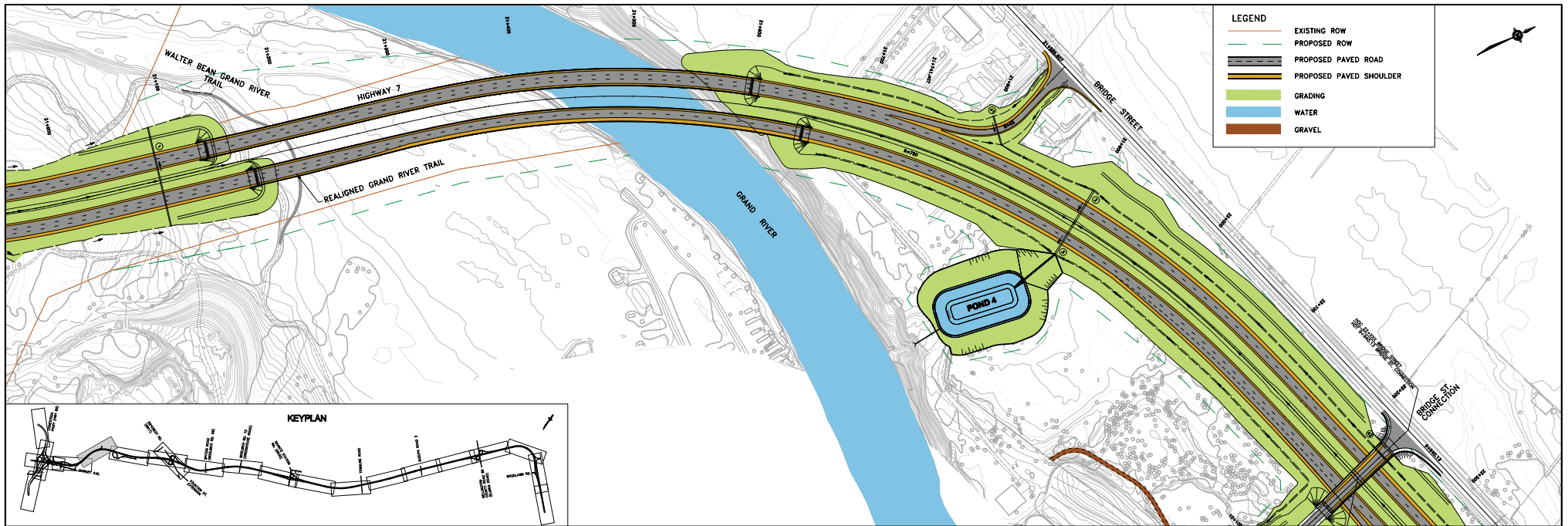
HIGHWAY 7 NEW - KITCHENER TO GUELPH
2007 EA APPROVED PLAN (WITH RECOMENDED VE MODIFICATIONS)
G.W.P. 408 - 88 - 00

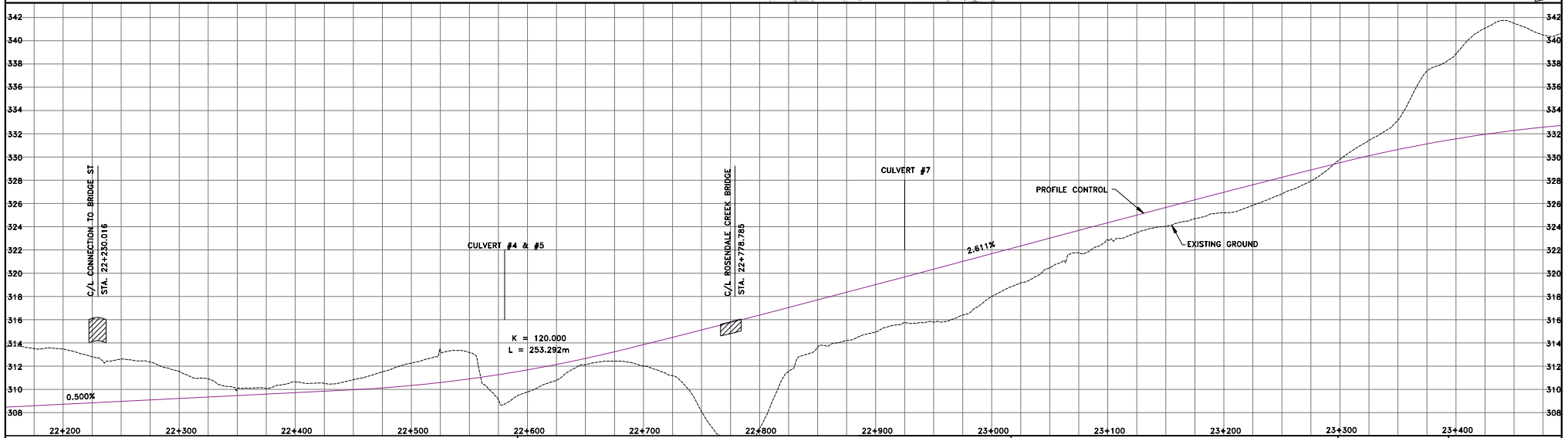


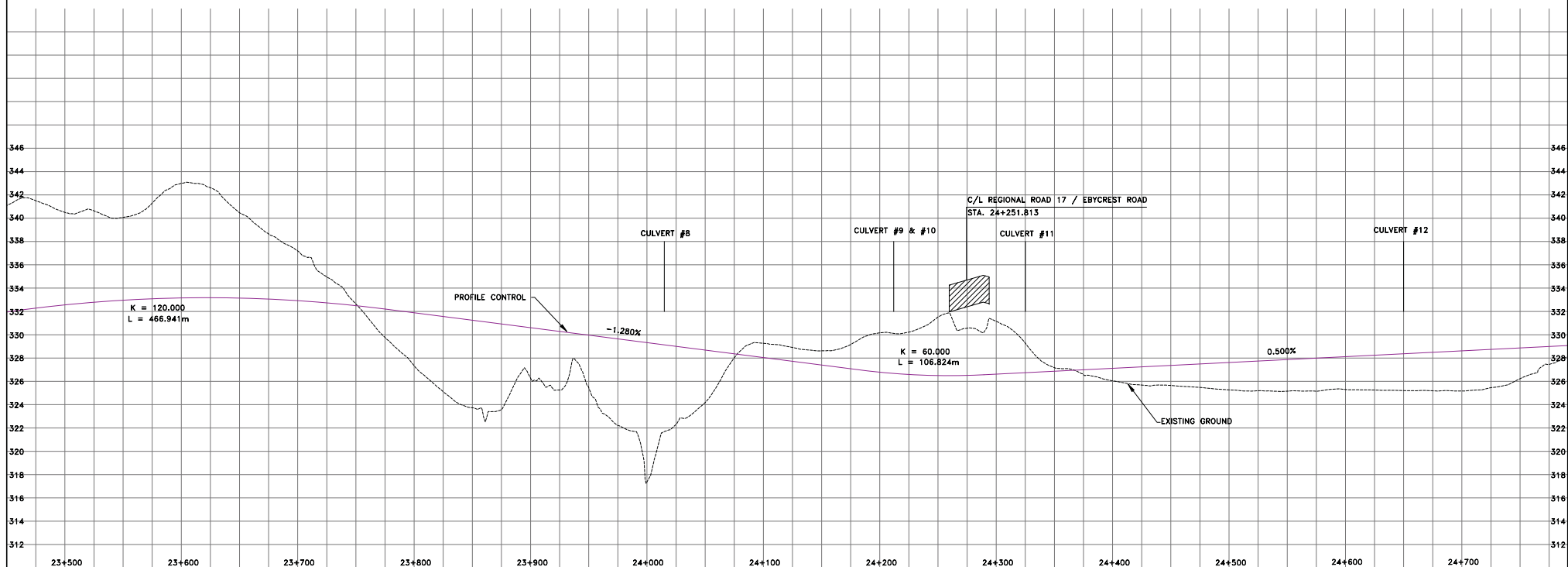
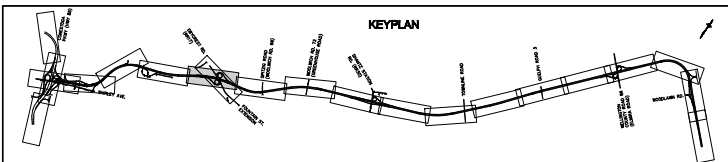
PLAN & PROFILE

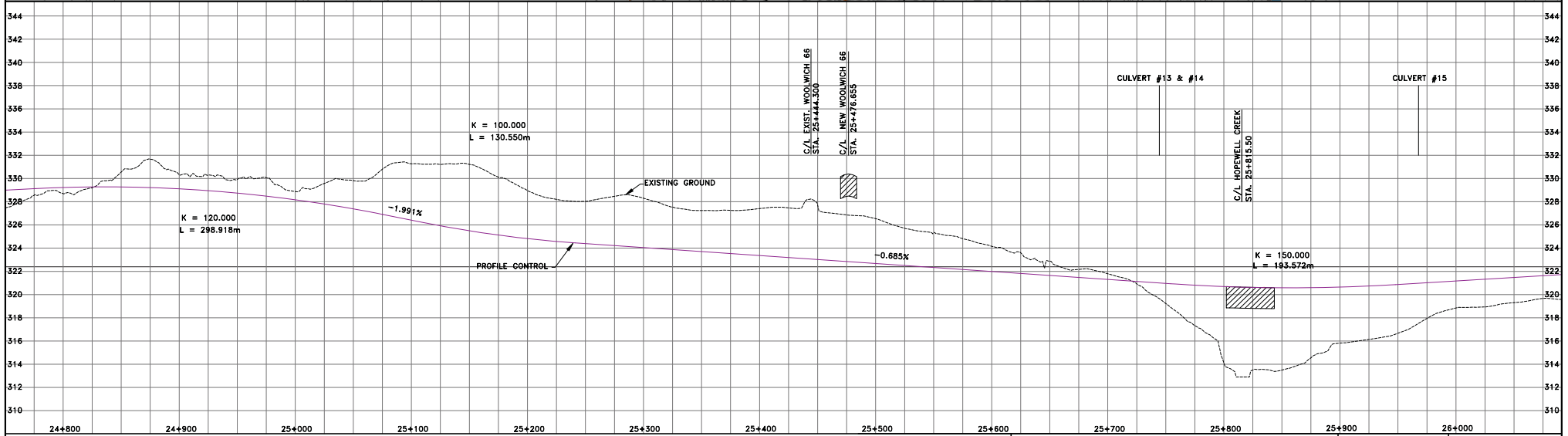
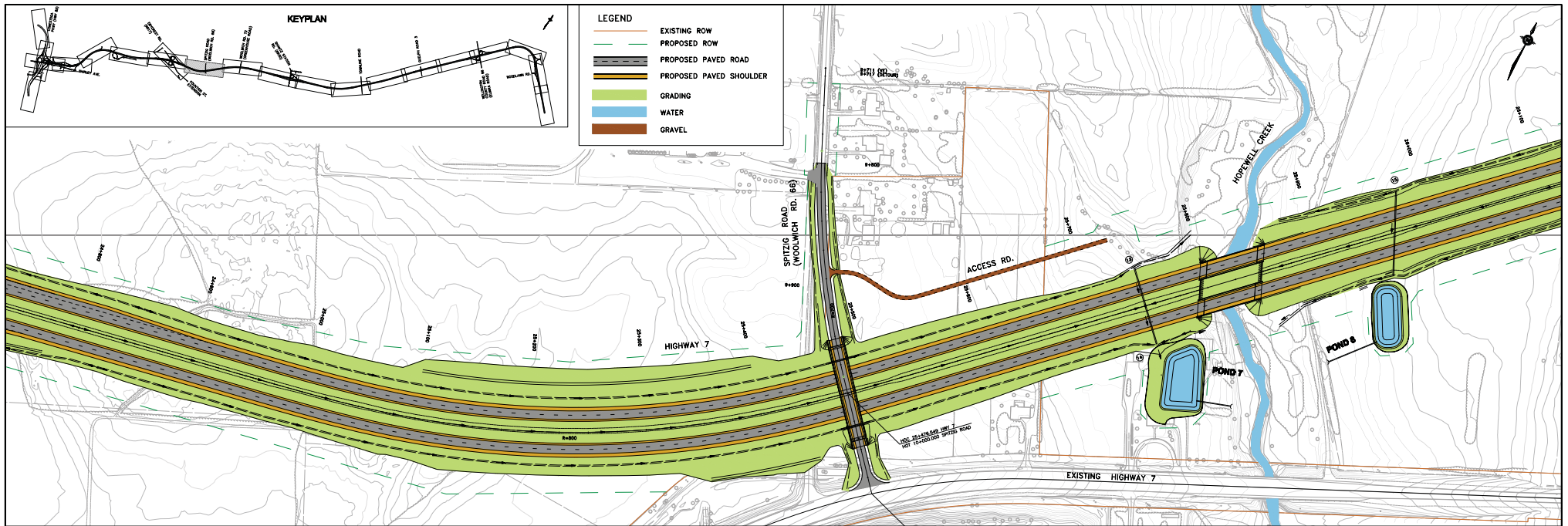
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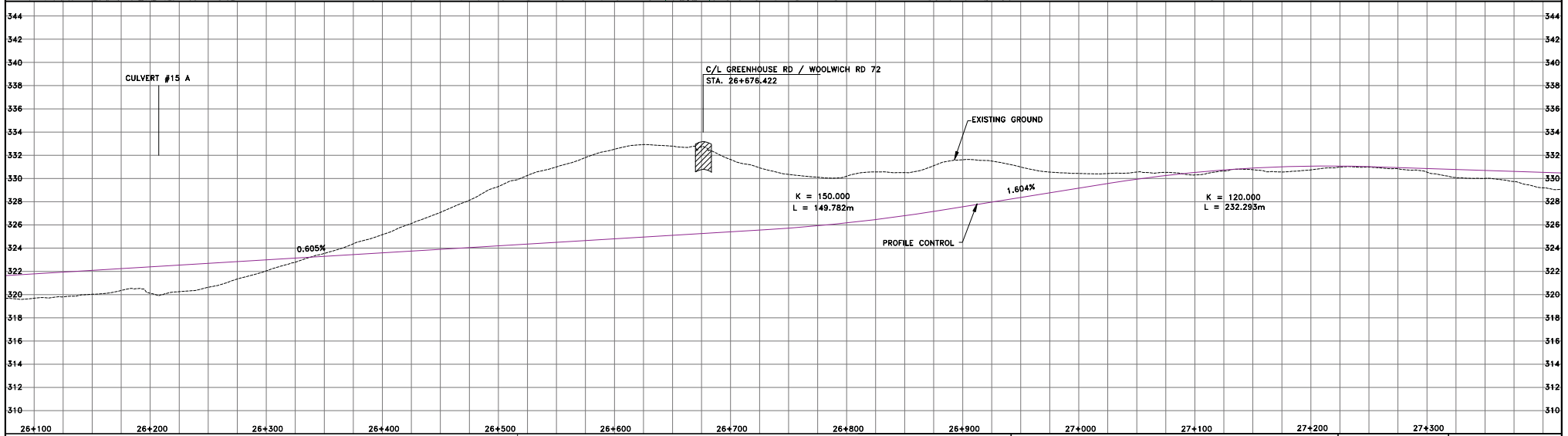
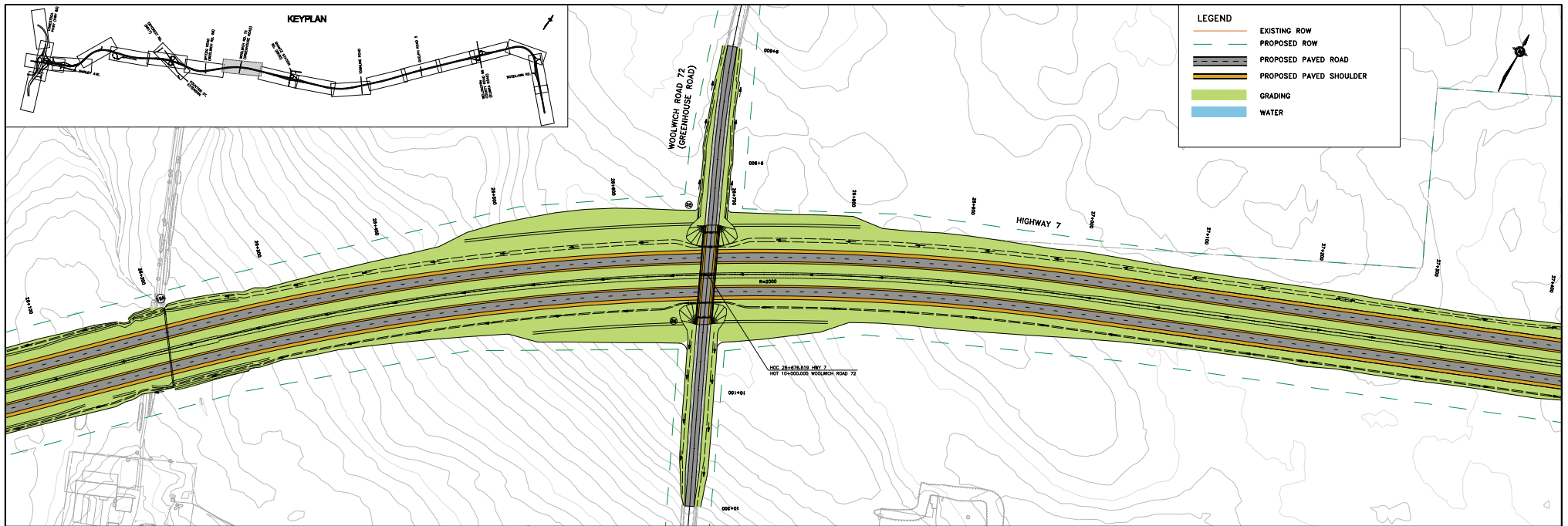
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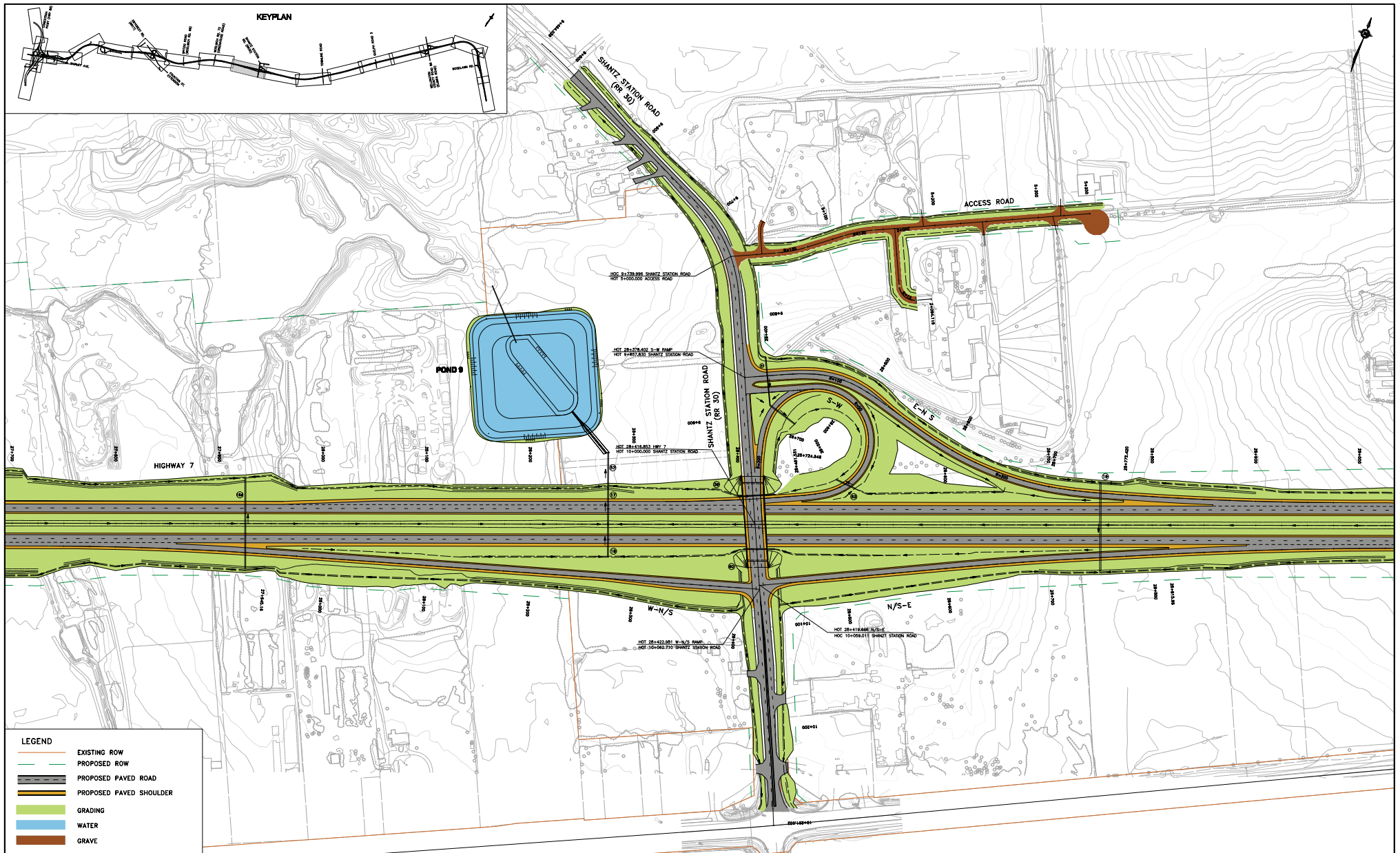










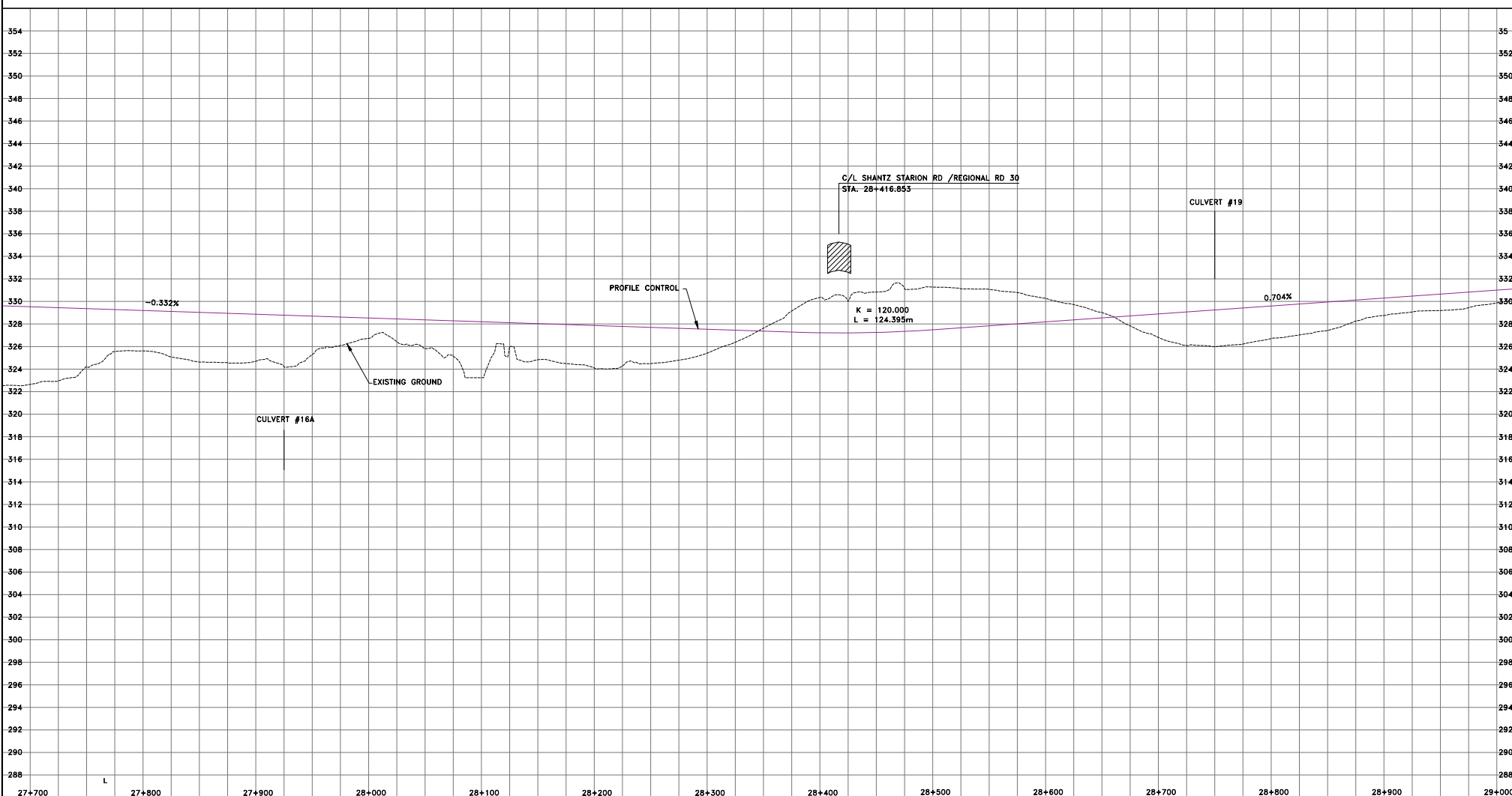
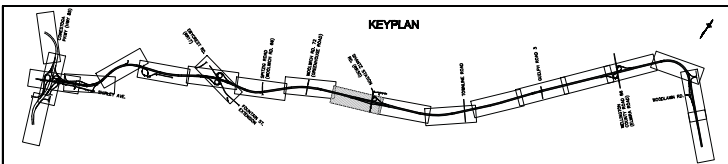


HIGHWAY 7 NEW - KITCHENER TO GUELPH
2007 EA APPROVED PLAN (WITH RECOMMENDED VE MODIFICATIONS)
G.W.P. 408 - 88 - 00



PLAN & PROFILE

PLATE
9



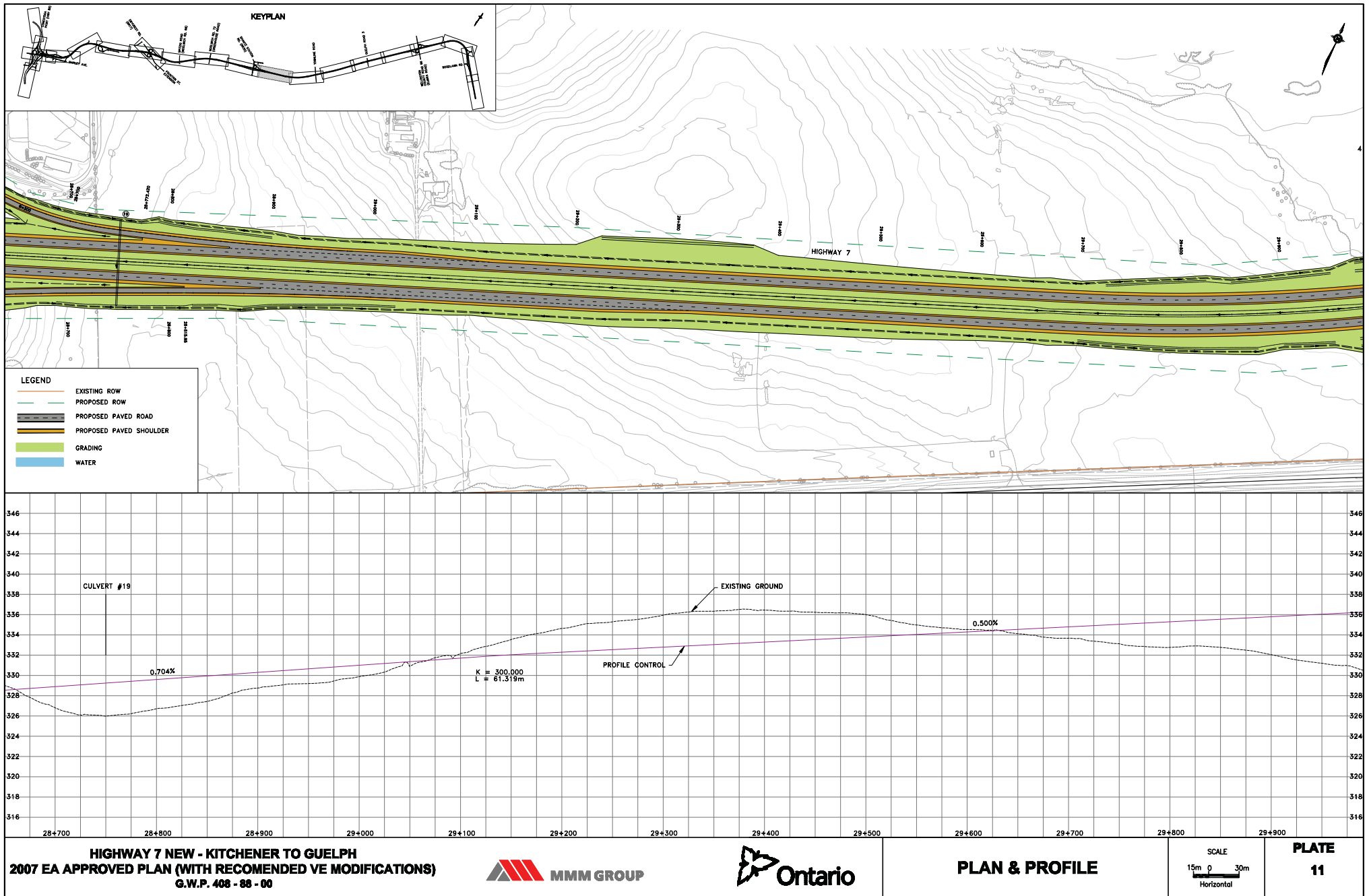
HIGHWAY 7 NEW - KITCHENER TO GUELPH
2007 EA APPROVED PLAN (WITH RECOMENDED VE MODIFICATIONS)
G.W.P. 408 - 88 - 00

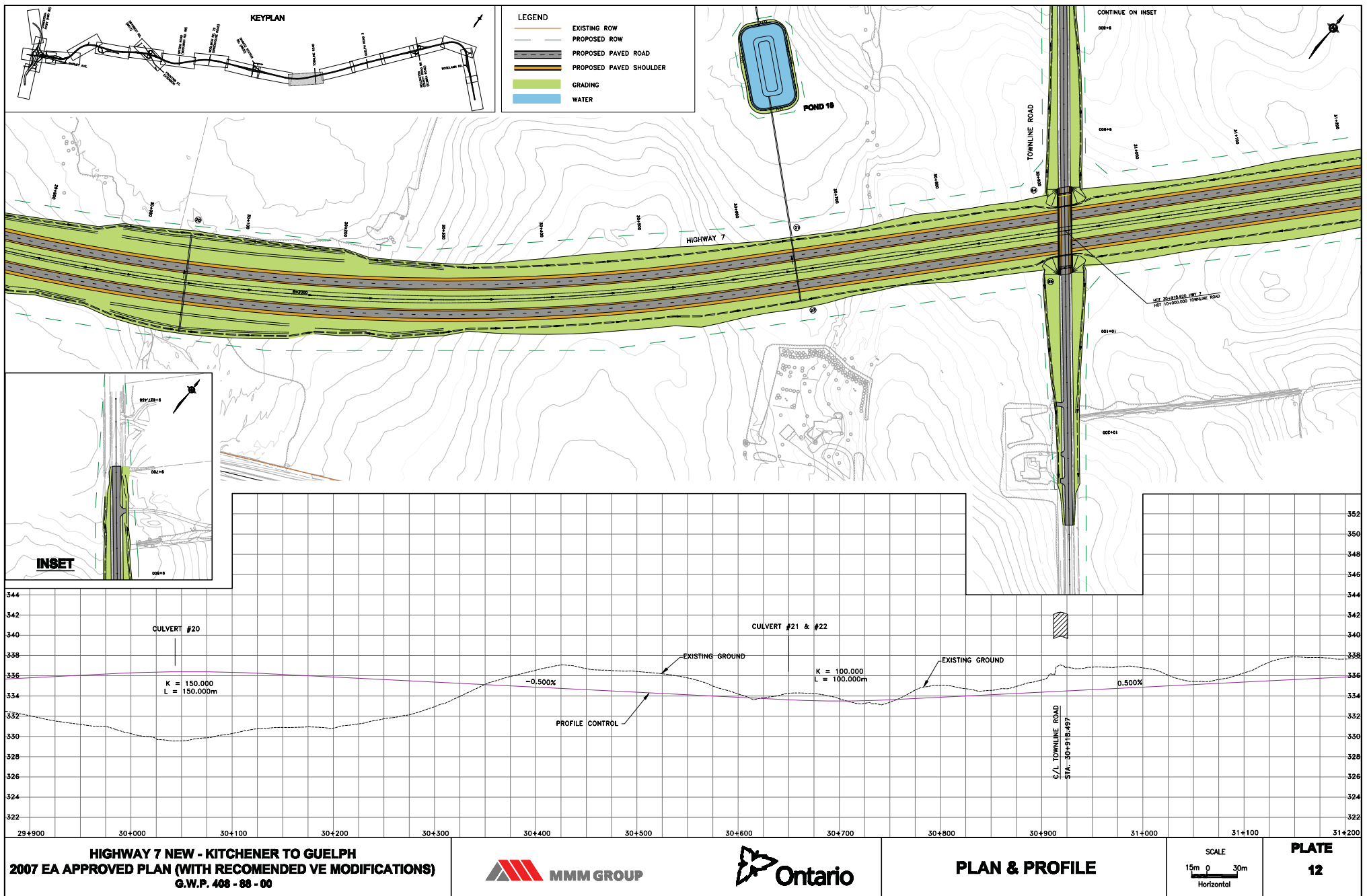


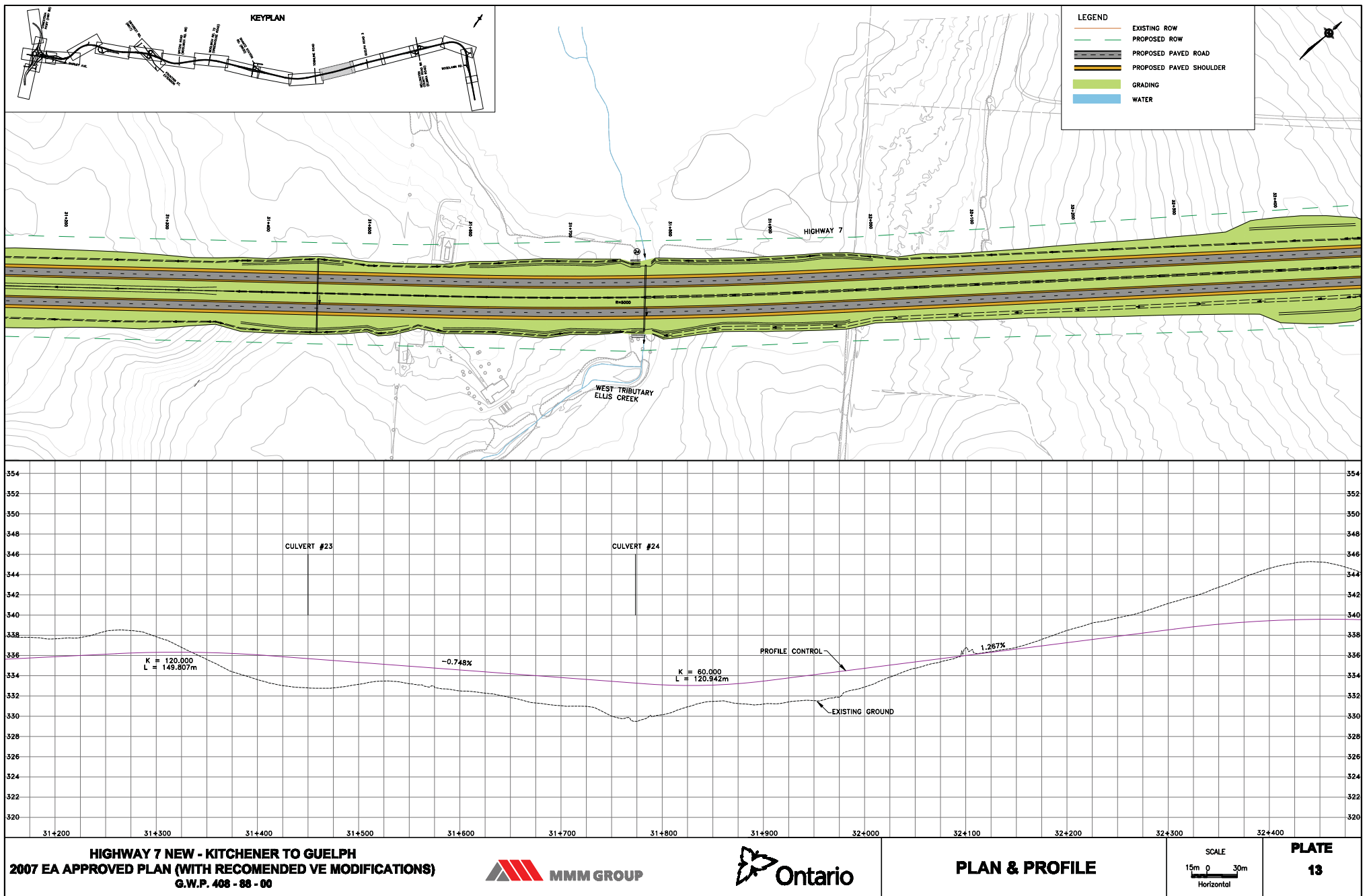
PLAN & PROFILE

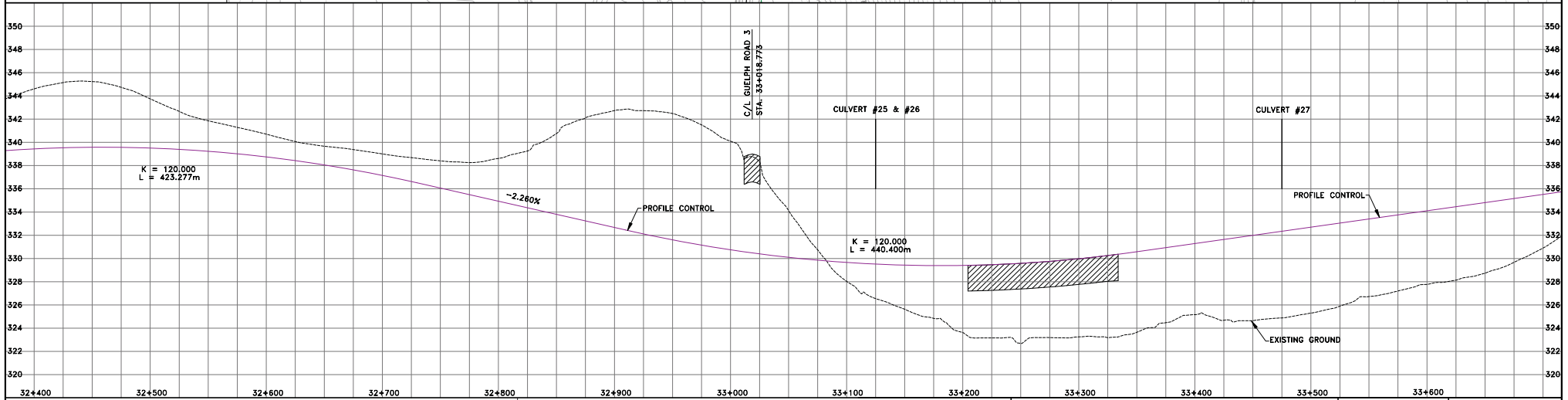
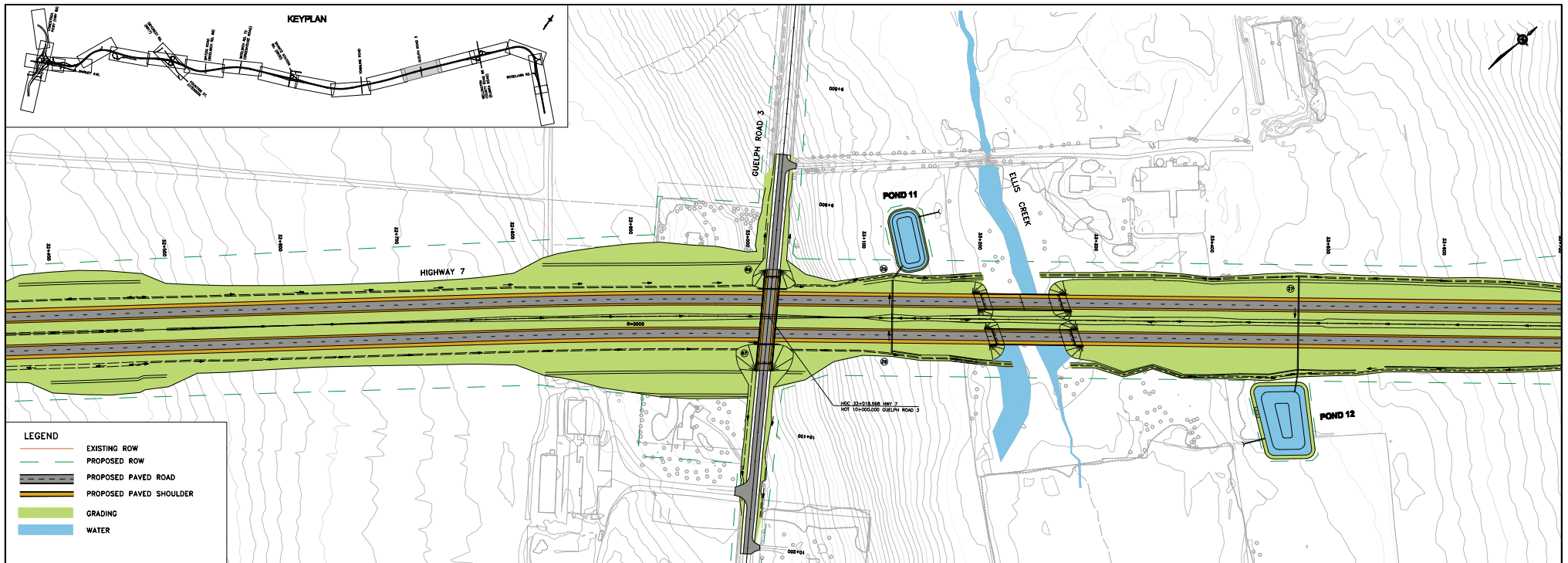
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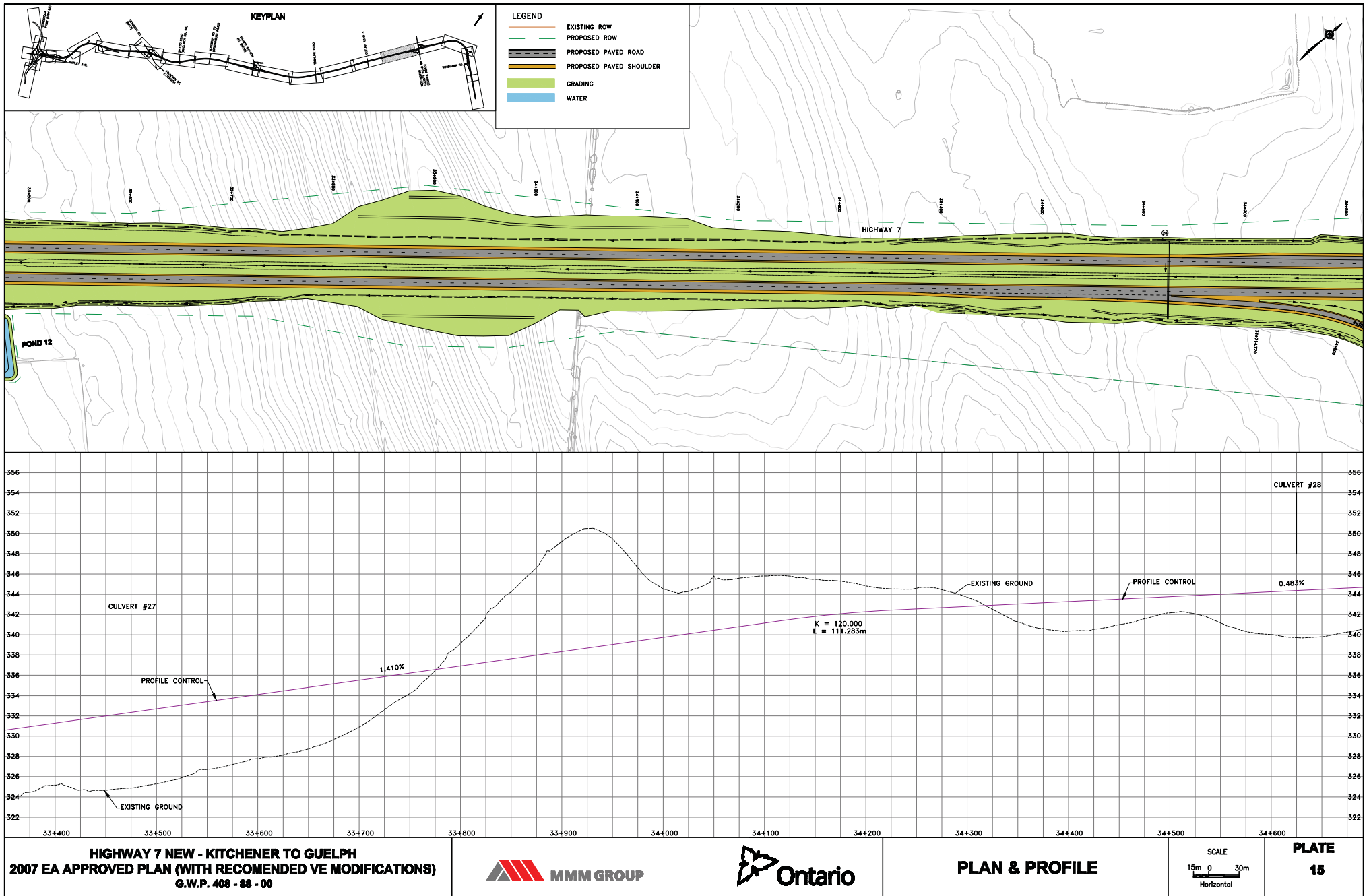
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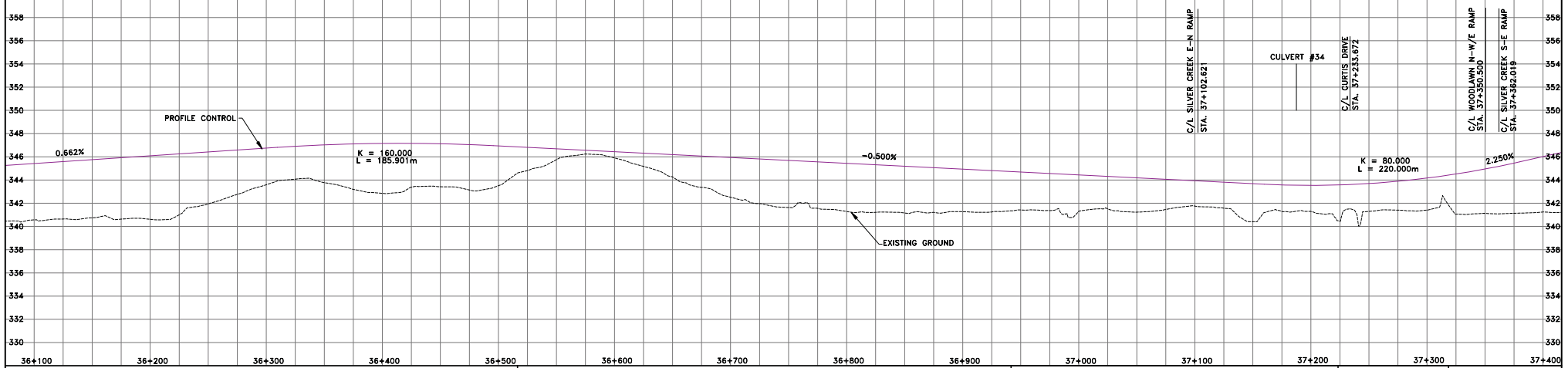












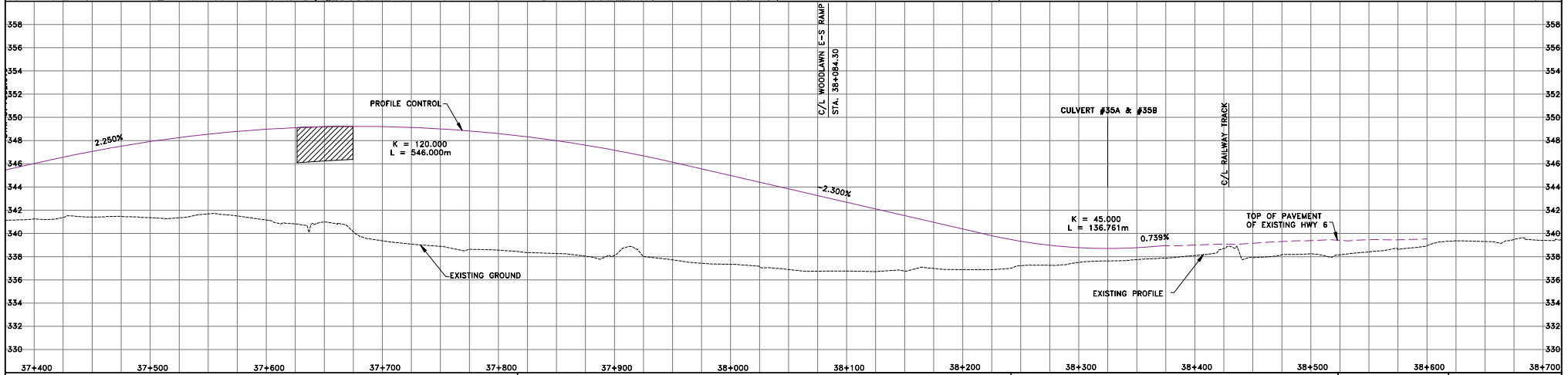
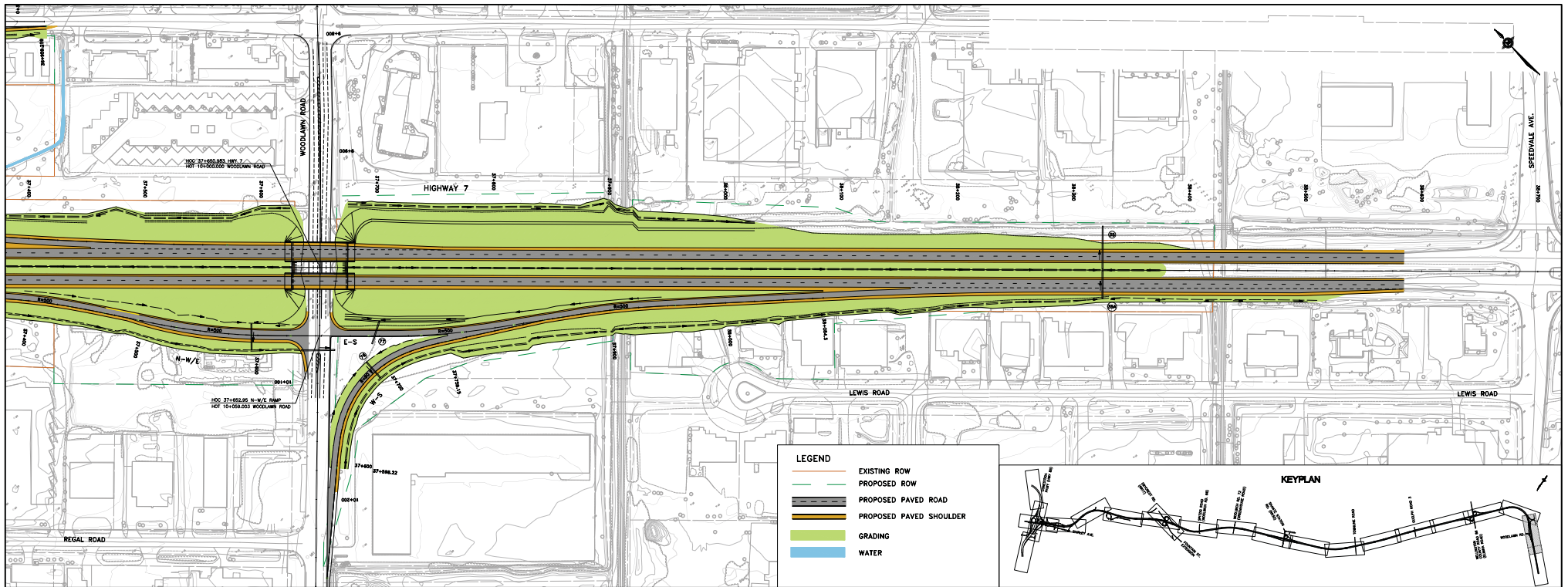
HIGHWAY 7 NEW - KITCHENER TO GUELPH
2007 EA APPROVED PLAN (WITH RECOMMENDED VE MODIFICATIONS)
 G.W.P. 408 - 88 - 00



PLAN & PROFILE

SCALE
 15m 0 30m
 Horizontal

PLATE
17



HIGHWAY 7 NEW - KITCHENER TO GUELPH
2007 EA APPROVED PLAN (WITH RECOMMENDED VE MODIFICATIONS)
 G.W.P. 408 - 88 - 00



PLAN & PROFILE

SCALE
 15m 0 30m
 Horizontal

PLATE
18

**APPENDIX D: PIC COMMENTS ON INITIAL DESIGN NOT
RELATED TO VE RECOMMENDATIONS**

Appendix D: Summary of Stakeholder Comments on Initial Stage of Design Not Related to VE Recommendations

Issue/Concern	Action Taken / Recommendations
<p>Request for additional information:</p> <p>Several comments were received, requesting copies of segments of the Highway 7 New alignment and/or copies of the PIC presentation material.</p>	<p>The MTO/MMM provided the requested information to the interested stakeholders.</p>
<p>Concern with the number of traffic lights needed on Wellington Street to get to businesses along Shirley Avenue</p>	<p>At this stage a need for 2 traffic lights was identified along Wellington Street at the N-EW ramp terminal/Edna Street connection and S-EW ramp/Wellington Street/Shirley Avenue/Victoria Street connection intersection. A need for any additional lights will be determined at the detail design stage.</p>
<p>Inquiries for additional access</p> <ul style="list-style-type: none"> Inquiries were made to provide additional points of access to lands adjacent to the "Combined Service Road and Private Residential" laneway that is proposed for construction at Shantz Station Road (VE recommendation 10). 	<p>Following further review, the VE recommendation that is recommended for incorporation into the design is a private laneway. As such, the laneway will not be modified to include new access to adjacent lands.</p>
<p>Question about any landlocked property</p> <ul style="list-style-type: none"> What is the fate of landlocked property resulting from the Highway 7 New alignment? Can the lands be left to naturalize to support the adjacent wetland and woodlots? 	<p>For properties that become landlocked the MTO will purchase the property at a negotiated market value.</p> <p>After construction of Highway 7 New is complete, the Ministry may sell property that is deemed to be no longer needed for Highway 7 New.</p>
<p>Question regarding effect of other road projects on Highway 7 traffic</p> <ul style="list-style-type: none"> What is the impact on traffic along Highway 7 resulting from traffic travelling over the new Kossuth Road bridge (currently under construction). 	<p>The connection of Kossuth Road to Fairway Road is being carried out by the Regional Municipality of Waterloo. It would be the responsibility of the Region to consider potential traffic impact to Highway 7 New traffic and provide any traffic management measures, should they be required.</p>

Issue/Concern	Action Taken / Recommendations
<p>Stormwater management</p> <ul style="list-style-type: none"> Concerns were expressed regarding how the proposed stormwater management facilities will address potential increases in water volumes resulting from Highway 7 New. Additionally, the MTO was asked to consider other options for addressing stormwater, since stormwater ponds are not considered to be the preferred management option for stormwater. 	<p>Various SWM options were evaluated using pre-defined evaluation criteria (physical suitability of the site, sediment removal benefits, water quality benefits, erosion control, flood control, maintenance requirements and capital cost). It was concluded that a combination of stormwater management ponds and grasses swales would best meet the stormwater management requirements for the project area.</p>
<p>Access to Highway 7 Westbound at Silvercreek Parkway</p> <ul style="list-style-type: none"> Concerns were raised that the current provisions in the design for westbound access from Woodlawn Road via Silvercreek Parkway are inadequate. 	<p>MTO has reviewed the design and access options from Woodlawn Avenue and has recommended a northbound left-turn lane on Silvercreek Parkway to New Highway 7 westbound. This has been incorporated into the proposed design.</p>
<p>Phasing of Construction</p> <ul style="list-style-type: none"> The VE analysis should include an examination of appropriate phasing of construction, which in this case should progress from west to east. 	<p>It is early in the project to determine the construction phasing. The Individual EA provided a possible staging plan to construct in three phases: The middle section is to be constructed first, followed by the western end and then the eastern end. This construction phasing will be finalized during detail design when all design components have been finalized and a contract is prepared.</p>
<p>Bicycle User Interactions with Vehicles at on-ramps</p> <ul style="list-style-type: none"> It was requested that reports provide details regarding bicycle users at access lane intersections with collector roads and to take into consideration, design options that would improve safety for bicycler users travelling along collector roads where they intersect with in-ramps. 	<p>The MTO does not plan to provide bicycle lanes on the regional roads that form interchanges with Highway 7 New, as this would be a regional or local municipal undertaking. This concern will be forwarded to the local municipalities.</p>

Issue/Concern	Action Taken / Recommendations
<p>Timing of Highway Construction</p> <ul style="list-style-type: none"> When will the highway be constructed? 	<p>There are several factors that will determine when the highway can be built. These include receiving all environmental approvals, acquiring all property and receiving funding for construction. This project is currently on the Southern Highways Program 2011 to 2015 under "Planning for the Future". On an annual basis this project will be considered for construction as part of the future Southern Highways program based on the provincial priorities and the availability of funding.</p>
<p>Support for Highway 7 New</p> <ul style="list-style-type: none"> Several stakeholders showed their support of the new highway, considering it to be safer and less disruptive than widening the existing Highway 7. 	<p>Comment noted.</p>
<p>Sight Lines at Private Driveway</p> <ul style="list-style-type: none"> Safety concerns were raised with regard to sight lines at Bridge Street for private driveway entrances where line of sight and access for large vehicles is restricted 	<p>Sightlines at the entrance to Bridge Street will be improved due to the proposed raise in the profile and reduced speed of the side road</p>
<p>Confusion for Driver Operations at KWE</p> <ul style="list-style-type: none"> Several comments referring to confusion over how travelers will gain access to the highway and travel to access downtown Kitchener, businesses on Shirley Avenue/Bingemans Centre Drive. <p>Comments included requests for proper signage to be installed, which clearly identify the access routes to reach popular destinations.</p>	<p>Access to downtown Kitchener for westbound traffic on Highway 7 New will be maintained via Highway 85 (direct ramp connection from Highway 7 New westbound to Highway 85 southbound), exiting at Ottawa Street.</p> <p>Signage to provide direction to the travelling public will be developed during the detail design stage and in accordance with MTO traffic operations requirements.</p>
<p>Request to be Added to Mailing List</p> <ul style="list-style-type: none"> A number of attendees to the PIC requested that they be added to the project contact list or to have contact information updated. 	<p>The individuals were added to the project stakeholder list and existing contacts were updated to reflect a change in information.</p>

**APPENDIX E: SCORING EVALUATION OF VE
RECOMMENDATIONS
AND EA APPROVED DESIGN**

Appendix E: Target Area 1 - Scoring Evaluation of VE Recommendations and EA Approved Design

Grouping	Factor/ Criterion	KWE											
		2004 EA Approved Design Highway 7 N-E & S-E off ramp to Shirley Avenue		VE Recommendation (2) Eliminate W-Shirley Ave. Off-ramp		2004 Approved EA Design Riverbend Drive on-ramp to Highway 7 westbound		VE Recommendation (3) Eliminate Riverbend Drive to Hwy 7 (N-W) On-ramp		2004 EA Approved EA Design Highway 7 westbound off-ramp to Riverbend Drive is partially on Grand River structure		VE Recommendation (4) Shift Hwy 7 WB Off-ramp to Riverbend Further West and off the Grand River Structure	
		Description	Rate	Description	Rate	Description	Rate	Description	Rate	Description	Rate	Description	Rate
TRANSPORTATION (40%)	Traffic Operation	~ The BN location of the ramp is only 570m after to the NS-W Ramp (Freeway to Freeway) BN location. This distance is below the required length and it introduces weaving conflicts along the highway.	6	~ Ramp elimination will divert up to 785 vehicles/hr (PM peak) to alternative/parallel routes. ~ Driver will make 2 turns instead of the direct free flow movement.	8	~ The BN location of the ramp is only 250m prior to the E-N Ramp (Freeway to Freeway) BN location. This distance is below the required length and it introduces weaving conflicts along the highway.	4	~ Ramp elimination will divert up to 325 vehicles/hr (PM peak) to alternative/parallel routes. ~ Driver will make 3 right turns instead of the direct free flow movement.	8	~ Maintains direct on ramp N-W ~ Creates weaving section with WB On-Ramp at Bridge St.	10	~ This option is viable only when Ramp N-W is removed from the design. However, this movement could be accommodated through existing local roads. Weaving with On-Ramp from Bridge St. is improved	6
	Geometric Design	~ Horizontal and vertical alignments conform to standards of less than 40km/hr.	8	~ No effect	10	~ Horizontal and vertical alignments conform to standards of less than 40km/hr.	8	~ No effect	10	~ Horizontal and vertical alignments conform to standards of 60km/hr. ~ Taper and speed change lane comply with Design Speed of 120 km/hr along the highway.	8	~ Horizontal and vertical alignments comply with standards of 80km/hr. ~ Taper and speed change lane improved to Design Speed of 120 km/hr along the highway.	10
	Safety	~ High potential for collisions: conflicts due to vehicle crossing two lanes of highway in opposite directions to exit from N-E Ramp south to Shirley and from S-E ramp to continue travel on Hwy 7 ~ Impact on safety along Hwy 7 new at the weaving section	4	~ Reduced potential for collisions ~ Inconvenience to drivers, Longer trips	8	~ High potential for collisions: conflicts due to vehicle crossing two lanes of highway in opposite directions to exit north and south ~ Impact on safety along Hwy 7 new at the weaving section	4	~ Reduced potential for collisions ~ Inconvenience to drivers, Longer trips	8	~ Slight decrease in driver's comfort due to tight geometry	8	~ Smoother alignment - driver's comfort increased	10
	Constructability and Staging	~ Minimal effect - the work to be done outside of the existing for the most part except tie-ins	10	~ No effect	10	~ if the ramp is to remain the construction of the Grand River Bridge will be more complex and costly.	8	~ Elimination of this ramp will enable relocation of E-N Ramp off the Grand River Bridge and will simplify the construction of the structure.	10	~ 190 m of taper + SCL are on the Grand River Bridge, which present complexity in construction (constructability issue).	2	~ SCL and taper of E-N ramp are completely off Grand River Bridge, which improves the constructability of the bridge.	10
	Average Rate		7		9		6		9		7		9
SOCIO-ECONOMIC ENVIRONMENT (40%)	Community Effects	~ Provides direct access/egress to the highway from/to local businesses	10	~ Results in indirect access, alternate route is available through local roads	8	~ Impact on Walter Bean Grand River Trail (3 crossings and trail realignment required)	8	~ Impact on Walter Bean Grand River Trail (3 crossings and trail realignment required)	8	~ Impact on Walter Bean Grand River Trail (3 crossings and trail realignment required)	8	~ Reduced impact on Walter Bean Grand River Trail (1 crossing)	10
	Noise	~ No noise sensitive area's near ramp; No ramp noise impact	10	~ No noise sensitive area's near ramp; No ramp noise impact	10	~ Noise generated by Highway 7 New adjacent to recreational trails - Ramp extends within close proximity of recreational trails creating local noise source to trail users	8	~ Noise generated by Highway 7 New adjacent to recreational trails - Further noise source adjacent to recreational trails removed	10	~ Noise generated by Highway 7 New adjacent to recreational trails - Ramp extends within close proximity of recreational trails creating local noise source to trail users	8	~ Noise generated by Highway 7 New adjacent to recreational trails - Further noise source from ramp pulled away from recreational trails	10
	Agriculture	~ Agricultural lands not present		~ Agricultural lands not present		~ Agricultural lands not present	10	~ Agricultural lands not present	10	~ Agricultural lands not present	10	~ Agricultural lands not present	10
	Average Rate		6.67		6.00		8.67		9.33		8.67		10.00
NATURAL ENVIRONMENT (15%)	Fisheries and Aquatic Habitat	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10	~ Small drainages providing indirect fish habitat are affected ~ Not influenced by groundwater	6	~ Small drainages providing indirect fish habitat are not affected ~ Not influenced by groundwater	10	~ Crosses 2 small drainages that provide indirect fish habitat ~ Crosses drainage feature influenced by groundwater	6	~ May cross headwater area of drainage features	8
	Wildlife	~ Removal of small amount of vegetation that results in small effect on wildlife and wildlife habitat	8	~ Wildlife and wildlife habitat not affected	10	~ Ramp location creates loss of wildlife habitat and disrupts wildlife movement	6	~ Ramp location creates loss of wildlife habitat and disrupts wildlife movement	6	~ Ramp location creates loss of wildlife habitat and disrupts wildlife movement	4	~ Shifting ramp location closer to mainline reduces loss of wildlife habitat and minimize disruption to wildlife movement	8
	Wetlands	~ Wetlands not present	10	~ Wetlands not present	10	~ Small seepage wetland on slope impacted by ramp	4	~ Small seepage wetland on slope impacted by ramp	6	~ Small seepage wetland on slope impacted by ramp	4	~ Impact on small seepage wetland on slope reduced by relocation of ramp	6
	Vegetation	~ Removal of small amount of vegetation - No significant species or vegetation communities	8	~ No removal of vegetation	10	~ Removal of some tableland vegetation - No significant communities or species present	6	~ Removal of some tableland vegetation - No significant communities or species present	8	~ Removal of vegetation on slopes of Grand River	4	~ Reduced removal of vegetation on slopes of Grand River	6
	Groundwater	~ No groundwater resources present	10	~ No groundwater resources present	10	~ Negative effect to ground water discharge at lower slope area and effect on intermittent drainages that may be supported by seasonal groundwater discharge	4	~ Negative effect to ground water discharge at lower slope area	6	~ Some effect to slopes and ground water discharge	4	~ Reduced effect to slopes and ground water discharge	6
	Average Rate		9.2		10		5.2		7.2		4.4		6.8
COST (5%)	Construction	~ Construction: \$1.45M		~ Construction: \$0.78M		~ Construction: \$1.26M		~ Construction: \$0M		~ Cost for the construction of the flared bridge: \$1.52M		~ Cost for the construction of the flared bridge: \$0M	
	Property	~ No effect		~ No effect		~ No effect		~ No effect		~ No effect		~ No effect	
	Total Cost	\$0.78M	0		10	\$1.26M	0	\$0M	10	\$1.52M	0	\$0M	10
	Average Rate		0		10		0		10		0		10

2004 EA Approved Design Highway 7 N-E & S-E off ramp to Shirley Avenue	2.8	VE Recommendation (2) Eliminate W-Shirley Ave. Off-ramp	3.6	2004 Approved EA Design Riverbend Drive on-ramp to Highway 7 westbound	2.4	VE Recommendation (3) Eliminate Riverbend Drive to Hwy 7 (N-W) On-ramp	3.6	2004 EA Approved EA Design Highway 7 westbound off-ramp to Riverbend Drive is partially on Grand River structure	2.8	VE Recommendation (4) Shift Hwy 7 WB Off-ramp to Riverbend Further West and off the Grand River Structure	3.6
	2.67		2.4		3.47		3.73		3.47		4
	1.38		1.5		0.78		1.08		0.66		1.02
	0		0.5		0		0.5		0		0.5
	6.8		8		6.6		8.9		6.9		9.12

Appendix D: Target Area 2 - Scoring Evaluation of VE Recommendations and EA Approved Design

Grouping	Factor/ Criterion	Indicator	GRAND RIVER			
			2004 EA Approved Design Bridge Street eastbound direct on-ramp to Highway 7 westbound		VE Recommendation (5) Move and Reconfigure Direct W-S On-Ramp into Buttonhook Configuration	
			Description	Rate	Description	Rate
TRANSPORTATION (40%)	Traffic Operation	~ Distances between intersections/IC ~ Possible delays to traffic on intersecting roads ~ Impact on existing Intersections	~ No significant impact on traffic operations	10	~ Minor delay to traffic on the Bridge St. during the construction	8
	Geometric Design	Conformance to standards/ enhancement: ~ Horizontal alignment ~ Vertical alignment ~ Cross-section design	~ Horizontal and vertical alignments conform to standards of 50km/hr. ~ Transition of Superelevation (spiral) too short. ~ Roll-over between the ramp and Hwy 7 New is much higher than recommended	4	~ Horizontal and vertical alignments conform to standards of 40km/hr. ~ Ramp SCL remains on bridge, but has uniformed superelevation.	8
	Safety	~ Potential for conflicts /critical points along roadway ~ Impact on driver's expectations and comfort ~ Impact on visibility conditions	~ Location of BN entry on a curve along Hwy 7 and close to the bridge present visibility issues and increased reaction time for drivers ~ Sharp crown between SCL and mainline Hwy 7, combined with potentially icy conditions on the bridge diminish safety ~ Potential for diminished visibility due to curved alignments and bridge walls	2	~ Increased visibility and reduced potential for roll-over accidents. ~ Sharp crown between SCL and mainline Hwy 7 has been removed.	10
	Constructability and Staging	~ Complexity of Construction work ~ Traffic management issues during construction	~ Negative effect on constructability of the bridge, involving high risk ~ Minimal effect on traffic during staging	0	~ No constructability issues ~ Major cost saving of approximately \$6.5M	10
	Average Rate			4		9.00
SOCIO-ECONOMIC ENVIRONMENT (40%)	Community Effects	~ Community facilities affected ~ Residential displaced ~ Business/ Properties affected	~ Removal of land with potential for future industrial use	8	~ Minor delay to traffic on the Bridge St. during the construction ~ Business to west not affected	10
	Noise	~ Effect of Option proximity to noise sensitive areas ~ Effect of Option on sound level ~ Potential mitigation required for design	~ No noise sensitive areas near W-S ramp; Noise generated by Highway 7	8	~ Noise sensitive areas near this ramp; No ramp noise impact	8
	Agriculture	~ Loss of agricultural productive land ~ Dairy/livestock operations affected ~ Effect on farm woodlots ~ Farm operation severances ~ Effects to ongoing viability of farm operations	~ East side of field is removed from agricultural production	6	~ No agriculture productive land affected	10
	Average Rate			7.33		9.33
NATURAL ENVIRONMENT (15%)	Fisheries and Aquatic Habitat	~ Water crossings or encroachments (lakes, rivers/streams and wetlands) ~ Significant Species ~ Areas of critical fish habitat ~ Warmwater / coldwater communities ~ Degree of interaction with groundwater	~ No fisheries or aquatic habitat present	10	~ No fisheries or aquatic habitat present	10
	Wildlife	~ Encroachment on or severance of forested vegetation or non-forested successional areas ~ Encroachment on or severance of greenways and open space linkages ~ Encroachment on or severance of significant wildlife habitat ~ Significant Species	~ No effect on wildlife or wildlife habitat	10	~ Small effect on wildlife and wildlife habitat through removal of small amount of vegetation	8
	Wetlands	~ Loss of wetland function ~ Loss of wetland area ~ Degree of interaction of wetlands with groundwater	~ No wetlands present	10	~ No wetlands present	10
	Vegetation	~ Encroachment on or severance of high quality forest stands (not wetlands) ~ Significant Species ~ Presence of riparian habitat	~ No effect on vegetation	10	~ Removal of small amount of vegetation. Vegetation not considered significant	8
	Groundwater	~ Implications of roadway grading on groundwater discharge ~ Effect on water wells ~ Presence of erodible soils	~ Well in agricultural field near Bridge Street	6	~ Well on farm property adjacent to buttonhook	6
	Average Rate			9.2		8.4
COST (5%)	Construction	~ Construction ~ Staging	~ Construction: \$6.62M		~ Construction: \$0.17M	
	Property	~ Residential ~ Commercial ~ Industrial ~ Agricultural ~ Other	~ Property: \$0.15M		~ Property: \$0.16M	
	Total Cost	Construction + Property + Operation/Maintenance	\$6.78M	0	\$0.33M	10
	Average Rate			0		10

SUMMARY TABLE - WEIGHTED SCORES

TRANSPORTATION (40%)	2004 EA Approved Design	1.60	VE Recommendation (5)	3.60
SOCIO-ECONOMIC ENVIRONMENT (40%)	Bridge Street eastbound direct on-ramp to Highway 7 westbound	2.93	Move and Reconfigure Direct W-S On-Ramp into Buttonhook Configuration	3.73
NATURAL ENVIRONMENT (15%)		1.38		1.26
COST (5%)		0.00		0.50
TOTAL SCORE		5.91		9.09

Appendix E: Target Area 3 - Scoring Evaluation of VE Recommendations and EA Approved Design

Grouping	Factor/ Criterion	Indicator	Regional Road 17							
			EA Approved Design Bridge Street to retain current alignment at intersection with Regional Road 17		VE Recommendation (6) Move existing ramp further away from the interchange and improve the angle at the intersection from 60° to 90°		EA Approved Design Ebycrest Road connection to Fountain Street Extension for access to Highway 7 New		VE Recommendation (7) Close existing Ebycrest Road and remove the entrance from the future Fountain Street extension, add gated access to RR17 to facilitate emergency vehicles access	
			Description	Rate	Description	Rate	Description	Rate	Description	Rate
TRANSPORTATION (40%)	Traffic Operation	~ Distances between intersections/IC ~ Possible delays to traffic on intersecting roads ~ Impact on existing Intersections	~ Spacing to the intersecting ramp terminal is 270m, less than guidelines recommendation	4	~ Improved spacing to the intersecting ramp terminal, 400m, consistent with guidelines	10	~ Spacing to the intersecting ramp terminal is 380m, less than guidelines recommendation (400m)	8	~ Reduces number of access points at interchange ~ Reduce traffic at existing Ebycrest Rd./Hwy 7 intersection with steep profile	6
	Geometric Design	Conformance to standards/ enhancement: ~ Horizontal alignment ~ Vertical alignment ~ Cross-section design	~ Horizontal and vertical alignments conform to standards of 100 km/hr for the most part but there is an existing curve to 80km/h	8	~ Horizontal alignment conforms to standards of 80km/hr ~ Vertical alignment conforms to standards of 80km/hr	8	~ No impact on horizontal and vertical alignments	10	~ No impact on horizontal and vertical alignments	10
	Safety	~ Potential for conflicts /critical points along roadway ~ Impact on driver's expectations and comfort ~ Impact on visibility conditions	~ Intersection angle not within the desirable range (62°)	4	~ Intersection angle within the desirable range (90°), improve visibility and turning movements at intersection, improve safety and operations along sideroad	10	~ Potential for commuter traffic infiltrating through Old Ebycrest Road to bypass the Breslau Bypass intersection with Hwy 7.	8	~ Eliminates the potential intra-regional traffic through residential area	10
	Constructability and Staging	~ Complexity of Construction work ~ Traffic management issues during construction	~ No construction required	10	~ Low complexity during construction	10	~ Low complexity during construction	10	~ Low complexity during construction	10
	Average Rate			6.5		9.5		9		9
SOCIO-ECONOMIC ENVIRONMENT (40%)	Community Effects	~ Community facilities affected ~ Residential displaced ~ Business/ Properties affected	~ No change to properties	10	~ Loss of agricultural land	8	~ No change to properties	10	~ No change to properties	10
	Noise	~ Effect of Proximity to noise sensitive areas ~ Effect of Option on sound level ~ Potential mitigation required for design	~ Noise sensitive area - residence at intersection of Bridge Street/Ebycrest Road ~ Noise sensitive area (north of Bridge St.) remains unchanged	8	~ Noise sensitive areas farther away ~ Minor sound level decrease at noise sensitive area south of Bridge St. ~ Minor sound level increase at noise sensitive area north of Bridge St.	10	~ Not a significant noise source	10	~ Not a significant noise source	10
	Agriculture	~ Loss of agricultural productive land ~ Dairy/livestock operations affected ~ Effect on farm woodlots ~ Farm operation severances ~ Effects to ongoing viability of farm operations	~ No effect	10	~ Effect on crops field - field severed	6	~ Minor effect on crops field	8	~ Minor effect on crops field	8
	Average Rate			9.33		8.00		9.33		9.33
NATURAL ENVIRONMENT (15%)	Fisheries and Aquatic Habitat	~ Water crossings or encroachments (lakes, rivers/streams and wetlands) ~ Significant Species ~ Areas of critical fish habitat ~ Warmwater / coldwater communities ~ Degree of interaction with groundwater	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10
	Wildlife	~ Encroachment on or severance of forested vegetation or non-forested successional areas ~ Encroachment on or severance of greenways and open space linkages ~ Encroachment on or severance of significant wildlife habitat ~ Significant Species	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10
	Wetlands	~ Loss of wetland function ~ Loss of wetland area ~ Degree of interaction of wetlands with groundwater	~ Wetlands not present	10	~ Wetlands not present	10	~ Wetlands not present	10	~ Wetlands not present	10
	Vegetation	~ Encroachment into significant vegetation communities ~ Significant Species ~ Presence of riparian habitat - removal of vegetation	~ Vegetation not present	10	~ Vegetation not present	10	~ Vegetation not present	10	~ Vegetation not present	10
	Groundwater	~ Implications of roadway grading on groundwater discharge ~ Effect on water wells ~ Presence of erodible soils	~ Groundwater/wells not present	10	~ Groundwater/wells not present	10	~ Groundwater/wells not present	10	~ Groundwater/wells not present	10
	Average Rate			10		10		10		10
COST (5%)	Construction	~ Construction ~ Staging			~ New Construction: \$0.32M		~ Construction: \$0.186M		~ Construction: \$0.05M	
	Property	~ Residential ~ Commercial ~ Industrial ~ Agricultural ~ Other			~ Property: \$0.01M				~ Property: \$0.03M	
	Total Cost	Construction + Property + Operation/Maintenance	\$0.00M	10	\$0.33M	6	\$0.19M	0	\$0.08M	10
	Average Rate			10		6		0		10

SUMMARY TABLE - WEIGHTED SCORES

TRANSPORTATION (40%)	EA Approved Design Bridge Street to retain current alignment at intersection with Regional Road 17	2.6	VE Recommendation (6) Move existing ramp further away from the interchange and improve the angle at the intersection from 60° to 90°	3.8	EA Approved Design Ebycrest Road connection to Fountain Street Extension for access to Highway 7 New	3.6	VE Recommendation (7) Close existing Ebycrest Road and remove the entrance from the future Fountain Street extension, add gated access to RR17 to facilitate emergency vehicles access	3.6
SOCIO-ECONOMIC ENVIRONMENT (40%)		3.73333		3.2		3.73333		3.73333
NATURAL ENVIRONMENT (15%)		1.5		1.5		1.5		1.5
COST (5%)		0.5		0.3		0		0.5
TOTAL SCORE		8.33333		8.8		8.8		9.3

Rate scale is from 0 to 10 where 0 is the least desirable and 10 is the most desirable. Rates are in intervals of 2.

Appendix E: Target Area 4 - Scoring Evaluation of VE Recommendations and EA Approved Design

Grouping	Factor/ Criterion	Indicator	SIDE ROAD			
			2004 EA Approved EA Design Woolwich Road 66 realigned to the west to connect with Highway 7		VE Recommendation (8) Realign existing Spitzig Road intersecting Hwy 7 with 90°, use existing Spitzig Road as detour	
			Description	Rate	Description	Rate
TRANSPORTATION (40%)	Traffic Operation	~ Distances between intersections/IC ~ Possible delays to traffic on intersecting roads ~ Impact on existing Intersections	~ No impact on traffic operations	10	~ No impact on traffic operations	10
	Geometric Design	Conformance to standards/ enhancement: ~ Horizontal alignment ~ Vertical alignment ~ Cross-section design	~ Horizontal and vertical alignments conform to standards of 60km/hr. ~ Short tangents between sharp opposite curves create sharp superelevations transitions ~ No spirals could be fitted to the alignment.	6	~ Horizontal and vertical alignments conform to standards of 70km/hr. ~ Enhanced geometry (horizontal tangent, mild vertical curves)	10
	Safety	~ Potential for conflicts /critical points along roadway ~ Impact on driver's expectations and comfort ~ Impact on visibility conditions	~ Reduces visibility at bridge area due to sharp horizontal curve and bridge walls	6	~ Stopping sight distance along Hwy 7 at current WR66 intersection is slightly diminished, but complies with 90 Km/hr (10 km/hr less than design speed)	8
	Constructability and Staging	~ Complexity of Construction work ~ Traffic management issues during construction	~ Bridge on a horizontal curve ~ does not require a detour	8	~ Bridge on a tangent ~ No road closure	8
	Average Rate			7.50		9.00
SOCIO-ECONOMIC ENVIRONMENT (40%)	Community Effects	~ Community facilities affected ~ Residential displaced ~ Business/ Properties affected	~ Minor impact to farm land	10	~ High impact to farm land	6
	Noise	~ Proximity to noise sensitive areas ~ Effect of Option on sound level ~ Potential mitigation required for design	~ Noise sensitive area in close proximity to existing Spitzig Rd. alignment ~ Similar sound level at noise sensitive area	8	~ Noise sensitive area in medium proximity to Spitzig Rd. realignment	10
	Agriculture	~ Loss of agricultural productive land ~ Dairy/livestock operations affected ~ Effect on farm woodlots ~ Farm operation severances ~ Effects to ongoing viability of farm operations	~ Minor effect on crop field	10	~ Effect on crop field	6
	Average Rate			9.33		7.33
NATURAL ENVIRONMENT (15%)	Fisheries and Aquatic Habitat	~ Water crossings or encroachments (lakes, rivers/streams and wetlands) ~ Significant Species ~ Areas of critical fish habitat ~ Warmwater / coldwater communities ~ Degree of interaction with groundwater	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10
	Wildlife	~ Encroachment on or severance of forested vegetation or non-forested successional areas ~ Encroachment on or severance of greenways and open space linkages ~ Encroachment on or severance of significant wildlife habitat ~ Significant Species	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10
	Wetlands	~ Loss of wetland function ~ Loss of wetland area ~ Degree of interaction of wetlands with groundwater	~ Wetlands not present	10	~ Wetlands not present	10
	Vegetation	~ Encroachment on or severance of high quality forest stands (not wetlands) ~ Significant Species ~ Presence of riparian habitat	~ Vegetation not present	10	~ Vegetation not present	10
	Groundwater	~ Implications of roadway grading on groundwater discharge ~ Effect on water wells ~ Presence of erodible soils	~ one (1) overburden well may be in close proximity	8	~ two (2) overburden wells in vicinity	6
	Average Rate			9.6		9.2
COST (5%)	Construction	~ New Construction ~ Staging	~ New Construction: \$3.77M		~ Construction: \$3.31M	
	Property	~ Residential ~ Commercial ~ Industrial ~ Agricultural ~ Other	~Property: \$ 0.11M		~Property: \$ 0.05M	
	Total Cost	Construction + Property + Operation/Maintenance	\$3.9M	0	\$3.36M	10
	Average Rate			0		10

SUMMARY TABLE - WEIGHTED SCORES

TRANSPORTATION (40%)	2004 EA Approved EA Design Woolwich Road 66 realigned to the west to connect with Highway 7	3.0	VE Recommendation (8)	3.6
SOCIO-ECONOMIC ENVIRONMENT (40%)		3.73	Realign existing Spitzig Road intersecting Hwy 7 with 90°, use existing Spitzig Road as detour	2.93
NATURAL ENVIRONMENT (15%)		1.44		1.38
COST (5%)		0		0.5
TOTAL SCORE		8.2		8.4

Appendix E: Target Area 5 - Scoring Evaluation of VE Recommendations and EA Approved Design

Grouping	Factor/ Criterion	Indicator	REGIONAL ROAD 30							
			2004 EA Approved Design Direct N-W ramp from Regional Road 30 to Highway 7 New		VE Recommendation (9) Convert the north portion of the interchange to Parclo A2, i.e. replace N-W ramp with a left turn lane onto the S-W loop ramp		2004 EA Approved Design New residential access in close proximity to the interchange		VE Recommendation (10) Combine this access with existing public service road to increase spacing to interchange	
			Description	Rate	Description	Rate	Description	Rate	Description	Rate
TRANSPORTATION (40%)	Traffic Operation	~ Distances between intersections/IC ~ Possible delays to traffic on intersecting roads ~ Impact on existing Intersections	~ Traffic on Shantz Station Road will not be significantly impacted (direct ramp)	10	~ Requires dedicated left turn lane on Shantz Station Road, adding a conflict point to this intersection. ~ Increased delays to traffic along Shantz Station Road ~ Ramp elimination will divert up to 50 vehicles/hr (PM peak) to S-W ramp	8	~ Distance between ramp terminal to commercial entrance is only 50m ~ Increased delays for traffic on Shantz Station Road ~ Convenient access to commercial business site	4	~ Distance between ramp terminal to intersection improves to 100m, reduce potential for vehicular conflicts & traffic delays in proximity to interchange ~ Improved operation on Shantz Station Road (decreased delays) ~ Inconvenience for visitors to the commercial business site - 2 turns instead of 1 to access the site	8
	Geometric Design	Conformance to standards/ enhancement: ~ Horizontal alignment ~ Vertical alignment ~ Cross-section design	~ Horizontal and vertical alignments conform to standards of 80km/hr.	10	~ Horizontal and vertical alignments conform to standards of 80km/hr.	10	~ Horizontal and vertical alignments conform to standards (entrance)	10	~ Horizontal and vertical alignments conform to standards (municipal)	10
	Safety	~ Potential for conflicts /critical points along roadway ~ Impact on driver's expectations and comfort ~ Impact on visibility conditions	~ Alternative does not have adverse impact on safety	10	~ Potential for reduced visibility at the left turn location due to bridge walls and vertical curve at the bridge location	8	~ Decreased safety for drivers due to 3 consecutive intersections with many conflict points	4	~ Increased safety for drivers along Shantz Station Road due to less conflicts ~ Increased safety for drivers using the entrances	10
	Constructability and Staging	~ Complexity of Construction work ~ Traffic management issues during construction	~ Low complexity during construction	10	~ Low complexity during construction	10	~ Low complexity during construction	10	~ Low complexity during construction	10
	Average Rate			10		9		7		9.5
SOCIO-ECONOMIC ENVIRONMENT (40%)	Community Effects	~ Community facilities affected ~ Residential displaced ~ Business/ Properties affected	~ Loss of agricultural land	8	~ No effect - within footprint of interchange	10	~No community resources present	10	~No community resources present	10
	Noise	~ Proximity to noise sensitive areas ~ Effect of Option on sound level ~ Potential mitigation required for design	~ No noise sensitive areas near N-W ramp; No ramp noise impact	10	~ Option not a significant noise source ~ Similar sound level at noise sensitive areas	10	~ Noise source is Highway 7 New	10	~ Noise source is Highway 7 New	10
	Agriculture	~ Loss of agricultural productive land ~ Dairy/livestock operations affected ~ Effect on farm woodlots ~ Farm operation severances ~ Effects to ongoing viability of farm operations	~ Loss of agricultural fields/production	6	~ No loss of agricultural fields/production	10	~ Minor intrusion into agricultural lands	8	~ No effect on agricultural lands	10
	Average Rate			8.00		10.00		9.33		10.00
NATURAL ENVIRONMENT (15%)	Fisheries and Aquatic Habitat	~ Water crossings or encroachments (lakes, rivers/streams and wetlands) ~ Significant Species ~ Areas of critical fish habitat ~ Warmwater / coldwater communities ~ Degree of interaction with groundwater	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10	~ Fish and aquatic habitat not present	10
	Wildlife	~ Encroachment on or severance of forested vegetation or non-forested successional areas ~ Encroachment on or severance of greenways and open space linkages ~ Encroachment on or severance of significant wildlife habitat ~ Significant Species	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10	~ Wildlife and wildlife habitat not present	10
	Wetlands	~ Loss of wetland function ~ Loss of wetland area ~ Degree of interaction of wetlands with groundwater	~ Wetlands not present	10	~ Wetlands not present	10	~ Wetlands not present	10	~ Wetlands not present	10
	Vegetation	~ Encroachment on or severance of high quality forest stands (not wetlands) ~ Significant Species ~ Presence of riparian habitat	~ Removal of small amount of vegetation associated with fencerow at the west side of Shantz Station Road	8	~ Occurs within footprint of interchange - no impact to vegetation	10	~ No effect on vegetation	10	~ Some removal of fencerow	8
	Groundwater	~ Implications of roadway grading on groundwater discharge ~ Effect on water wells ~ Presence of erodible soils	Bedrock and overburden wells in the vicinity of the interchange - wells affected by Highway 7 New alignment and interchange	10	Bedrock and overburden wells in the vicinity of the interchange - wells affected by Highway 7 New alignment and interchange	10	Bedrock and overburden wells in the vicinity of the interchange - wells affected by Highway 7 New alignment and interchange	10	Bedrock and overburden wells in the vicinity of the interchange - wells affected by Highway 7 New alignment and interchange	10
	Average Rate			9.6		10		10		9.6
COST (5%)	Construction	~ New Construction ~ Staging	~ New Construction (direct ramp): \$0.99M		~ New Construction (left turn lane): \$0.78M		~ New Construction: \$0.21M		~ New Construction: \$0.13M	
	Property	~ Residential ~ Commercial ~ Industrial ~ Agricultural ~ Other					~Property: \$ 0.07M		~Property: \$ 0.06M	
	Total Cost	Construction + Property + Operation/Maintenance	\$0.99M	0	0.78M	10	\$0.29M	10	\$0.19M	8
	Average Rate			0		10		10		8

SUMMARY TABLE - WEIGHTED SCORES

TRANSPORTATION (40%)	2004 EA Approved Design Direct N-W ramp from Regional Road 30 to Highway 7 New	4.0	VE Recommendation (9) Convert the north portion of the interchange to Parclo A2, i.e. replace N-W ramp with a left turn lane onto the S-W loop ramp	3.6	2004 EA Approved Design New residential access in close proximity to the interchange	2.8	VE Recommendation (10) Combine this access with existing public service road to increase spacing to interchange	3.8
SOCIO-ECONOMIC ENVIRONMENT (40%)		3.20		4.00		3.73		4
NATURAL ENVIRONMENT (15%)		1.44		1.5		1.5		1.44
COST (5%)		0		0.5		0.5		0.4
TOTAL SCORE		8.6		9.6		8.53		9.64

Rate scale is from 0 to 10 where 0 is the least desirable and 10 is the most desirable. Rates are in intervals of 2.