

 WE WINDSOR ESSEX MOBILITY GROUP	Windsor Essex Parkway		 PARKWAY INFRASTRUCTURE CONSTRUCTORS
	Document No.	PIC-00-119-0001	
	Revision No.	B	

THE PUBLIC RECORD

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DESIGN AND CONSTRUCTION REPORT #1

WICK DRAINS AND ADVANCED FILL BETWEEN OJIBWAY PARKWAY AND HURON CHURCH ROAD HOWARD AVENUE DIVERSION AND ROUNDABOUT NORTH TALBOT ROAD BRIDGE HIGHWAY 401 WIDENING RELOCATION OF SPRING GARDEN SANITARY SEWER BETWEEN LABELLE STREET AND LAMBTON ROAD

Submitted pursuant to Ministry of the Environment File No. EA 02 07

REVISION HISTORY					
REVISION	DATE	STATUS	PREPARED	CHECKED	APPROVED
A	14/06/11	ISSUED FOR INFORMATION	GS/RV		
B	19/07/11	ISSUED FOR REVIEW	GS/RV	MM	PQ

PREPARED BY:	Gail Simon, B.Sc., REM Environmental Scientist		19/07/11
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APPROVED BY:	Pablo Quiros PIC Deputy Director		19/07/11
	NAME – TITLE	SIGNATURE	DATE

Parkway Infrastructure Constructors

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PREFACE: WINDSOR-ESSEX PARKWAY OVERVIEW

P.1 OVERVIEW OF PROJECT

In 2005, the Detroit River International Crossing (DRIC) study began under the Ontario *Environmental Assessment Act*. Throughout the study, Windsor and Essex County residents attended meetings, talked to the study team, and provided written comments. This consultation, combined with detailed technical studies and analysis, led to the identification of the Windsor-Essex Parkway as the Ontario access road portion of an end-to-end border transportation system in the Windsor-Detroit Gateway.

The Windsor-Essex Parkway (the Parkway) is a once-in-a-generation undertaking. It is unprecedented in its community enhancement features for any highway, anywhere in Ontario and will include:

- 1.8 kilometres of tunneled sections
- Extensive landscaping throughout the corridor
- Noise mitigation through strategic placement of tunnels, noise barriers and berms
- Ecological restoration and measures to protect wildlife.

Upon completion, the 11 kilometre Parkway will ensure the safe and efficient movement of people, goods and services to and from the Windsor-Detroit border, separate local and international traffic, and eliminate stop-and-go traffic in residential areas. With more than 300 acres of green space, 20 kilometres of recreational trails and new community connections, residents in Windsor-Essex will enjoy an improved quality of life.

The Windsor Essex Mobility Group (WEMG) will design, build, finance, and maintain the Parkway. The team includes designers, builders, financiers and operators who will complete the Parkway and operate it for 30 years. The Parkway is the first road project in Ontario to be delivered using an alternative financing and procurement model.

Design and construction of the Parkway is anticipated to provide a sizeable boost to regional and Ontario economies by creating an estimated 12,000 project-related jobs, with the majority in the Windsor-Essex region.

Work on the Parkway has been underway since Ontario approved the Environmental Assessment in August 2009 and includes:

- Acquiring approximately 900 properties
- Removing 169 buildings in the corridor
- Partnering with local groups for community benefit, including salvaging more than 250 tonnes of materials
- Ecological restoration

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- Constructing two bridges and a two kilometre noise barrier
- Relocating utilities and raising two hydro towers.

Construction is scheduled to begin in late summer 2011 and the Parkway is expected to be open to traffic in fall 2014.

The public has an import role to play during the design and construction phases of the Parkway. Community input will be solicited at Public Information Open Houses and at other consultation events over 2011 and 2012 and questions, feedback and comments are always welcome.

The plans for the Windsor-Essex Parkway strive to build and strengthen linkages within and between both human and ecological communities. Over time, restored green space will evolve into a tall grass prairie and oak savannah landscape that will, through ecological succession, allow the roadway to become a 'Parkway in a Prairie'.

Natural and cultural history will be celebrated in the artful design of gateways and crossings over tunnels that support the existing municipal road system and the inter-connected multi-use pathway system. The gateways are conceived as bold and commanding landscapes that draw on sculpted landform, strong patterning, and public art to create strong visual elements for the driving experience within themes of 'Arrival, Settlement, and Flow'. Opportunities to communicate or tie into these themes will be explored, assisting with community buy-in. The crossings draw on natural and cultural influences to create distinct and memorable places that serve as markers, urban respite areas, and focal points to the overall green space system. Other opportunities for artistic expression include the streetscapes and urban amenity areas, trail bridges; tunnel abutments, and noise barriers. These structural elements offer opportunities for simple expression of the surrounding natural environment, area history and the 'prairie' landscape in particular, through color, form, materials, and the integration of public art.

The lasting legacy of the Windsor-Essex Parkway will be its significant contribution as an international trade and transportation route, and its establishment of a contiguous and sustainable green space system that contributes to the quality of life in the community and supports the reestablishment of an ecologically rich Carolinian landscape.

P.2 DESCRIPTION OF THE RECOMMENDED PLAN - THE WINDSOR-ESSEX PARKWAY

The Windsor-Detroit border crossing represents an important trade corridor between Canada and the United States. Based on 2006 border crossing statistics, approximately 28% of Canada-United States surface trade passes through Windsor-Detroit. Studies undertaken determined that travel demand forecasts of passenger car and commercial vehicle volumes at the Detroit River crossings suggest that additional border crossing capacity will be required to accommodate traffic growth. The studies concluded that, unless steps are taken to expand infrastructure capacity, mounting congestion and delay would have considerable economic impacts by 2035.

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Drawing on the work of the Planning/Need and Feasibility study, a draft Transportation Planning and Needs Report was completed in November 2005. The report identified several transportation planning alternatives, including improvements to border processing, transportation demand management, and various modal shifts, among others. The report concluded that the only transportation-planning alternative that could meet the identified needs was one that included the provision of new and/or improved roads with a new or improved crossing. This alternative was identified as the most effective at addressing the transportation network requirements, border processing requirements, and provided the highest overall level of support to long-term planning objectives.

P.3 PROJECT IMPLEMENTATION AND ORGANIZATION

On December 17, 2010, Infrastructure Ontario (IO) and the Ontario Ministry of Transportation (MTO) representing the Province of Ontario announced that the WEMG reached financial close and signed a fixed-price contract with the Province of Ontario to design-build-finance-maintain the Windsor-Essex Parkway. WEMG has assumed the responsibility to deliver or comply with all obligations, commitments, and responsibilities stated in the approved Environmental Assessments and subject permit and approvals that are required to execute the Project.

As stated in Section P.1, WEMG is the Design-Build-Finance-Maintain team for the Windsor-Essex Parkway. The team includes designers, builders, financiers and operators who will complete the Parkway and operate it for 30 years. WEMG consists of three companies: ACS Infrastructure Canada, Acciona Infrastructure and Fluor.

In order to design and build the Windsor-Essex Parkway, WEMG has formed a “Design-Build Joint Venture” referred to as the Windsor-Essex Parkway Infrastructure Constructors (PIC), which will act as the designers and builders of the Windsor-Essex Parkway. PIC consists of Dragados Canada, Acciona Infrastructure and Fluor. The formation of this Joint Venture will ensure the highest levels of quality, innovation, and safety for the design and construction of the Project. The PIC will represent WEMG in the delivery of the Windsor-Essex Parkway contractual obligations and environmental responsibilities during design and construction.

PIC in turn has retained a design team consisting of Hatch Mott MacDonald, Dillon Consulting, AMEC and LEA Consulting Ltd., who are responsible for overall project highway design including: road and pavement design, structures, utilities, illumination, advanced traffic management system, environmental protection, and landscape design. The construction team consists of Black & McDonald and AMICO Infrastructures Inc. who will be responsible for the construction of the Windsor-Essex Parkway.

Figure P-1 outlines the team structure.

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Figure P-1: The Windsor Essex Mobility Group



MTO is committed to ensuring that compliance monitoring is conducted relative to the commitments made during the EA and subsequent phases. This compliance monitoring includes monitoring of the design process to ensure EA and permit commitments and conditions are incorporated into project design. The design and construction of the Windsor-Essex Parkway will allow continued opportunities for stakeholders and the public to be consulted and informed as the project develops. The Design and Construction Report is a key element in this process.

P.4 PURPOSE OF DESIGN AND CONSTRUCTION REPORTS (DCR)

A DCR documents the development of a Recommended Plan to the design implementation level of detail design and provides contract specific design and construction information. The DCR includes a summary of the consultation process during detail design, a description of the proposed design features, a summary of environmental investigations conducted during detail design, specific environmental issues, mitigation measures and commitments, and commits to monitoring procedures associated with the implementation of the project. This DCR has been completed to document the environmental investigations, environmental impacts, proposed mitigation measures and how commitments outlined in *Detroit River International Crossing Environmental Assessment Report* (December 2008) and the Conditions of Approval (outlined in the MOE Notice of Approval to Proceed with the Undertaking, (August 2009) applicable to the work packages outlined in Section 1 of this DCR have been addressed. This DCR is not intended to reopen planning decisions documented in the approved EA report.

WEMG is committed to continuously engaging with the public, agencies and all other affected stakeholders throughout the DCR process. It should be noted that this DCR is the first in a series of eight separate DCRs (Table P-2) that will focus on various aspects of the design and

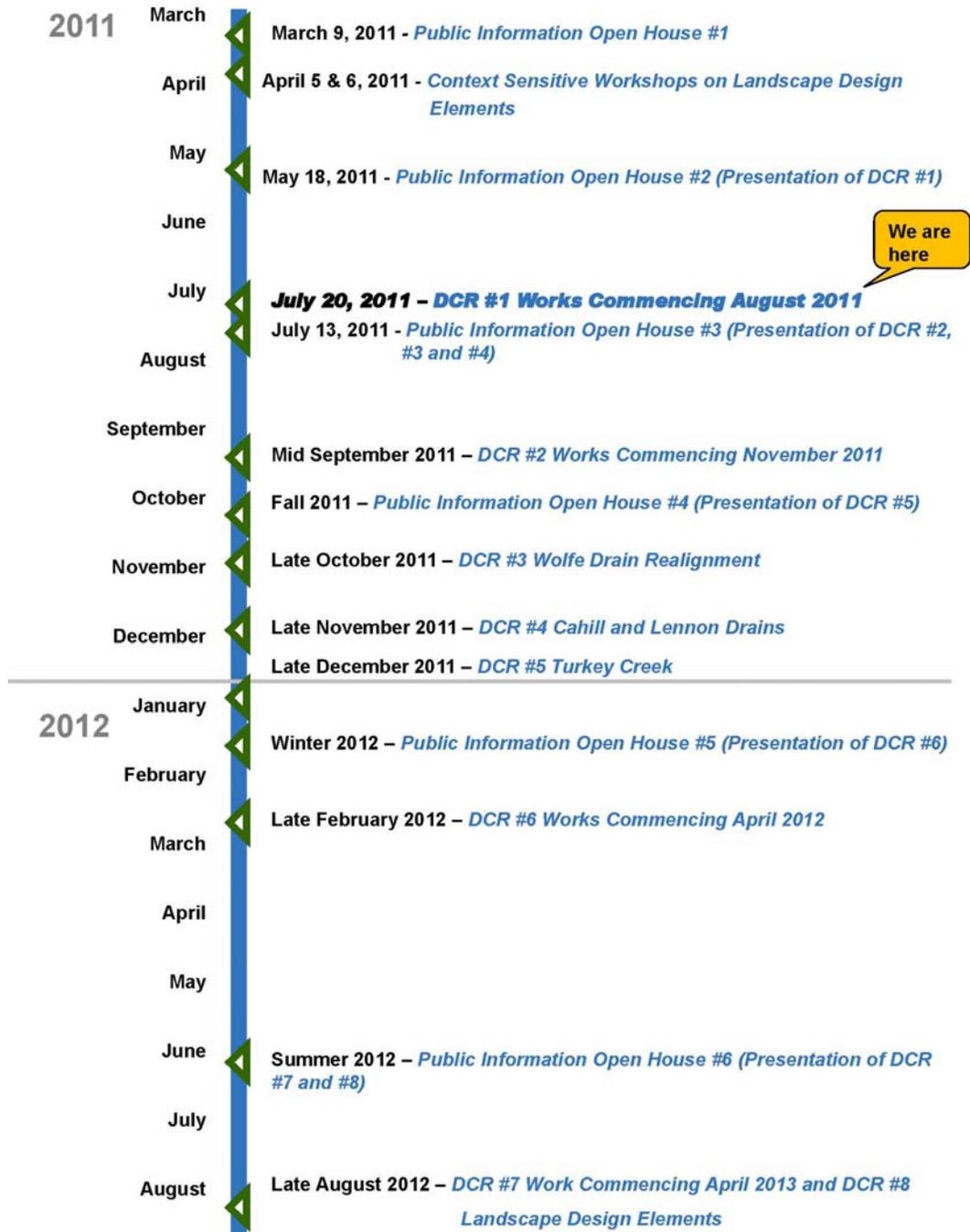
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construction of the Windsor-Essex Parkway and for each package, the affected parties will be encouraged to review and provide feedback to the project team. The project design and associated environmental measures described in this Design and Construction Report (DCR #1) relate specifically to the works described herein and are not binding on the phases of the project to be described in subsequent documents.

Figure P-2 shows the public consultation events that are being held to obtain input on each of the eight (8) DCRs and the approximate timing of the DCRs that will document the work package and input received through consultation. These consultation events are further detailed in Section 2.

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Figure P-2: Anticipated Timeframe



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In general the DCR includes the following information:

- Purpose, history and overview of existing and future natural, socio-economic, cultural and engineering conditions of the project;
- Associated potential environmental effects and mitigation / compensation measures;
- A summary of applicable element of the EA Report;
- A full description of the study's detail design consultation program;
- The transportation, engineering and environmental issues and how they are being incorporated;
- A full description of the identified potential environmental condition changes, effects and commitments to mitigation measures;
- Identification of all project approvals, licenses and permits which have or must be obtained;
- Commitments to future work and monitoring aspects of the project;
- Implementation of the commitments to further work contained in the DRIC Environmental Assessment, DRIC EA Conditions of Approval, and DRIC CEAA Screening Report; and,
- Construction documentation where relevant.

This DCR is being made available to the public, other interested parties and external agencies for a 30-day review period.

The following recipients are stipulated in EA Condition of Approval 2.2:

- Office of the Clerk City of Windsor;
- Office of the Clerk Town of LaSalle;
- Office of the Clerk Town of Tecumseh;
- Regional Director, Ontario Ministry of the Environment Southwest Region Office.

In addition to those listed above, this DCR is available for review at the following locations:

- Ontario Ministry of Transportation Windsor Border Initiatives Implementation Group – Windsor Office;
- Ontario Ministry of the Environment Windsor Area Office;
- Office of the Clerk County of Essex;
- Windsor Public Library Central Branch;
- Windsor Public Library Sandwich Branch;
- Windsor Public Library Nikola Budimir Branch;
- LaSalle Public Library;
- Tecumseh Public Library;
- Ontario Ministry of the Environment Environmental Assessment & Approvals Branch;
- Ontario Ministry of the Environment Windsor Area Office; and,

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- Walpole Island First Nation.

Detailed background information, including supporting documentation can be accessed electronically from the project website www.weparkway.ca or www.partnershipborderstudy.com. The Project Manager and/or Environmental Planner are available to discuss this information and can be contacted as follows:

The following Ministry of Transportation Representatives may also be contacted:

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P.5 ENVIRONMENTAL ASSESSMENT PROCESS

P.5.1 Detroit River International Crossing Study and Environmental Assessment

The *Detroit River International Crossing Study* (of which the Windsor-Essex Parkway is a component) followed the requirements of the *Ontario Environmental Assessment Act (OEAA)* under the Environmental Assessment process, and the requirements of the Canadian Environmental Assessment Act under subsection 5(1)(a) of the Canadian Environmental Assessment Act. As such, both EA processes were coordinated pursuant to the *Canada-Ontario Agreement on Environmental Assessment Cooperation* (the Agreement).

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For projects subject to the *OEAA*, an environmental assessment involves identifying and planning for environmental issues and effects prior to implementing a project. The process allows reasonable opportunities for public involvement in the decision-making process of the project. An EA document is prepared by the proponent of the project and is subject to review by the public and government agencies.

The purpose of the *OEAA* is to help protect and conserve Ontario’s environment by ensuring that projects subject to the Act follow a planning process leading to environmentally sound decision-making. The *Detroit River International Crossing Study* has followed the requirements of the *OEAA* under the Environmental Assessment (EA) process (*Section 6.1 (2) of the OEAA*).

In general terms, an environmental assessment is a study which assesses the potential environmental effects and benefits of a project or undertaking on the environment. Key components of an EA include: consultation with members of the public, regulatory agencies, municipalities, and other stakeholders; First Nations engagement; the consideration of alternatives and their potential environmental effects; and the mitigation and management of environmental effects. *The Detroit River International Crossing Study* was undertaken consistent with the requirements identified in *Section 6.1 (2) of the OEAA*.

The *Canadian Environmental Assessment Act (CEAA)* is the legal basis for the federal environmental assessment process. The *Act* sets out the responsibilities and procedures for carrying out the environmental assessments of projects that involve federal government decision-making.

The federal environmental assessment process is applied whenever a federal authority has a specified decision-making responsibility in relation to a project, also known as a “trigger” for an environmental assessment. Specifically, the *Act* is “triggered” when a federal authority:

- Proposes a project;
- Provides financial assistance to a proponent to enable a project to be carried out;
- Sells, leases, or otherwise transfers control or administration of federal land to enable a project to be carried out; or
- Provides a licence, permit or an approval that is listed in the *Law List Regulations* that enables a project to be carried out.

As a co-proponent of the Canadian portion of the project, Transport Canada (TC) has determined that an EA is required pursuant to subsection 5(1)(a) of the *CEAA*. As such, TC is a Responsible Authority (RA) for the assessment. Fisheries and Oceans Canada (DFO) is also a Responsible Authority, in relation to *Fisheries Act* authorizations that will be required for certain water crossings along the Windsor-Essex Parkway.

As a bi-national study, the federal/provincial EA undertaken in Canada was also coordinated with studies in the United States, which were undertaken in order to gain approval through the

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National Environmental Policy Act (NEPA). Although the documents and approval processes are different, the objectives and processes of *NEPA* are similar to that of *OEAA*. There is no *NEPA* document that is equivalent to the *OEA TOR*, however, the Purpose of the Undertaking discussion in an *OEA TOR* is comparable to the *Purpose and Need Statement* under *NEPA*.

P.5.12.1 Evaluation of Alternatives

A number of planning alternatives (Alternatives to the Undertaking) were considered in the *Detroit River International Crossing Study* and assessed to address the identified transportation problems, as well as meeting the purpose of the undertaking. The alternatives that were considered included the following:

- Do Nothing;
- Improvements to border processing;
- Transportation demand management;
- Transportation systems management;
- New and/or improved rail alternatives including a new and/or expanded international rail crossing;
- New and/or improved transit services;
- New and/or improved marine services;
- New and/or improved road alternatives with a new or expanded international road crossing; and
- Combinations of the above.

The assessment of transportation planning alternatives provided an opportunity to examine fundamentally different ways of addressing transportation problems. In recognition of these fundamental differences among the planning alternatives, it was considered appropriate to assess the effectiveness of each type of alternative in addressing the problems and taking advantage of opportunities at a functional level.

The Alternatives to the Undertaking were assessed and evaluated using broad factors to determine which alternatives were practical and feasible from a transportation, environmental and border processing perspective. The evaluation factors were established to achieve the objectives of the study and were consistent with environmental approval processes in both Canada and the U.S. The factors developed for evaluating the transportation alternatives were as follows:

- Transportation Network Improvement;
- Transportation Opportunities;
- Governmental Land Use, Transportation Planning and Tourism Objectives;
- Border Processing;
- Environmental Feasibility; and,

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- Technical Feasibility.

Based on the assessment and evaluation, the only transportation planning alternative that can meet the identified needs is one which includes the provision of New and/or Improved Roads with a New or Improved Crossing. This alternative was identified as the most effective at addressing the transportation network requirements, border processing requirements, and provides the highest overall level of “support” to planning and tourism objectives. This alternative has a comparable degree of environmental and technical feasibility as the other alternatives on the basis that impacts could be avoided, reduced or mitigated to the extent possible as with other infrastructure improvement alternatives. It is also recognized that improved and expanded border processing capacity is an integral component of this solution.

The DRIC study team identified a Preliminary Analysis Area covering a broad area of the Windsor-Essex region of southwest Ontario, and undertook a series of field studies to document the existing environmental conditions in the study area. Two environmental overview reports were prepared to describe the existing environmental conditions in this area.

In collaboration with the United States study team, the DRIC study team identified a broad range of illustrative or conceptual alternatives within the Preliminary Analysis Area. These Illustrative Alternatives included 15 options for crossing the Detroit River, 13 border inspection plaza options, and a wide range of route alternatives for an access road connecting to the existing Highway 401. The river crossing options ranged from Belle Isle in the north to Amherstburg in the south and connected to alternative border inspection plaza and highway interchange options in the United States.

Given the nature and extent of current land uses and development along the Detroit River in both Canada and the United States, the study teams recognized that it was not possible to develop a new or expanded river crossing, plaza and freeway connection that entirely avoided environmental and community impacts.

As such, a set of key evaluation factors was developed, and systematically applied to the Illustrative Alternatives, in both Canada and the United States. Using these factors, a reasoned argument method and arithmetic method were applied to evaluate each of the illustrative crossing, plaza and access road alternatives.

As a result of this evaluation, the Canadian and United States study teams identified an Area of Continued Analysis, which was the area identified as having the best potential for developing practical crossing and border inspection plaza alternatives that would minimize environmental and community impacts, and that could be viable on both sides of the border. In Canada, the Area of Continued Analysis was located in the industrial area of west Windsor, extending north generally from Broadway Boulevard to the vicinity of Brock Street. The Canadian study team also identified a preferred access road corridor to Highway 401, which largely follows the existing Huron Church Road corridor, from the end of the existing Highway 401 towards

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E.C. Row Expressway, where the road diverged to connect to the various border inspection plaza options.

In addition, the study team prepared work plans to guide the analysis throughout the provincial environmental assessment process. The analysis and work plans were presented to the public and government review agencies in November 2005.

Practical Alternatives for the Canadian access road were developed, and included three different concepts: an at-grade roadway, a depressed/below-grade roadway, as well as a cut and cover tunnel option. For the at-grade and below-grade options, the study team considered two different configurations – one with local access roads located on one side of the highway, and another with directional access roads located on each side of the highway. The results of this work were presented to the public and government review agencies in March 2006.

The DRIC study team identified a broad range of conceptual alternatives for the Windsor-Essex Parkway. In order to evaluate alternatives, the study team systematically applied a series of seven factors to the alternatives, which were:

- Changes to air quality;
- Protection of community and neighbourhood characteristics;
- Maintaining consistency with existing and planned land uses;
- Protection of cultural resources;
- Protection of the natural environment;
- Improvements to regional mobility; and,
- Cost and constructability.

Through the analysis of the Practical Alternatives, and in conjunction with ongoing consultation efforts, a new alternative was developed that combined beneficial features of the original alternatives. The new alternative identified as the Windsor-Essex Parkway in August 2007 included 7 km of below-grade freeway, an optimized service road system, and a green corridor with 10-tunnelled sections totalling 1.5 km in length, a grade separated recreational trail system and extensive green space areas.

Upon completion of the analysis and evaluation of the Practical Alternatives, Ontario and Canada announced the results of the evaluation for the access road component in May 2008. Referred to as The Windsor-Essex Parkway, the Technically and Environmentally Preferred Alternative (TEPA) access road consisted of the major components of the Windsor-Essex Parkway with some refinements made to reflect additional community consultation and analysis. These refinements included an additional tunnel in the Spring Garden area, more green space and a refined trail network.

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Subsequent to the TEPA selection, several refinements were developed based on further technical analysis and stakeholder consultation, with the objectives of further enhancing the benefits of the project and mitigating environmental effects. The combination of the completed TEPA and associated refinements along with the proposed mitigation measures are collectively referred to as the Recommended Plan.

The Recommended Plan was developed to a concept design level to confirm feasibility of the proposed infrastructure, to identify the property requirements and the environmental impacts. This concept design was intended to provide a sufficient level of detail on which to base a decision regarding approval of the undertaking and to guide the development of more detailed designs during subsequent phases of the study.

P.5.2.2 Ontario Environmental Assessment Act (OEAA)

The purpose of the *OEAA* is to help protect and conserve Ontario's environment by ensuring that projects subject to the Act follow a planning process leading to environmentally sound decision-making. The Detroit River International Crossing study has followed the requirements of the *OEAA* under the Environmental Assessment (EA) process (Section 6.1 (2) of the *OEAA*).

For projects subject to the *OEAA*, an environmental assessment involves identifying and planning for environmental issues and effects prior to implementing a project. An EA document is prepared by the proponent of the project and is subject to review by the public and government agencies. The Detroit River International Crossing Study followed the requirements for an individual Environmental Assessment (Section 6.1 (2) of the *OEAA*).

The *OEAA* requires proponents to prepare a Terms of Reference (TOR) for the Environmental Assessment (EA). A TOR sets out a framework that guides the preparation of the EA. The approval of the Terms of Reference is the first statutory decision made by the Minister of the Environment in the EA planning and approval process.

The Detroit River International Crossing study was undertaken consistent with the requirements identified in Section 6.1 (2) of the *OEAA*. The study addressed the following components:

- A description of the purpose of the undertaking;
- A description and statement of the rationale for the proposed undertaking, alternatives to the undertaking, and alternative methods for carrying out the undertaking;
- A description of:
 - The environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking, the alternatives to the undertaking, and the alternative methods of carrying out the undertaking;
 - The effects that will be caused or that might reasonably be expected to be caused to the Environment, by the undertaking, the alternatives to the undertaking, and the alternative methods of carrying out the undertaking;

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- The actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternatives to the undertaking, and the alternative methods of carrying out the undertaking;
- An evaluation of the advantages and disadvantages to the environment of the undertaking, the alternatives to the undertaking and the alternative methods of carrying out the undertaking; and,
- A description of the consultation undertaken by the proponent and the results of the consultation.

Other aspects of the environmental assessment process applicable to this project are described in the *Ontario Environmental Assessment Act*, which can be accessed at: http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90e18_e.htm

The provincial environmental assessment was initiated in May 2004 with the submission of the Terms of Reference to the provincial Ministry of the Environment. The Terms of Reference were approved in September 2004. The provincial assessment formally began in January 2005.

The DRIC Environmental Assessment Report was completed in December 2008 and submitted to the Ontario Ministry of the Environment for review and approval. Approval under the OEAA was granted by the Minister of the Environment in August 2009.

P.5.2.3 Canadian Environmental Assessment Act and Related Federal Approvals

In addition to approval under *OEAA*, the project required Minister of the Environment sign-off under the federal *Canadian Environmental Assessment Act (CEAA)*. The federal environmental assessment process is applied whenever a federal authority has a specified decision-making responsibility in relation to a project, also known as a “trigger” for an environmental assessment. Specifically, the Act is “triggered” when a federal authority:

- Proposes a project;
- Provides financial assistance to a proponent to enable a project to be carried out;
- Sells, leases, or otherwise transfers control or administration of federal land to enable a project to be carried out; or
- Provides a license, permit or an approval that is listed in the Law List Regulations that enables a project to be carried out.

As a co-proponent of the Canadian portion of the project, Transport Canada (TC) determined that an EA was required pursuant to subsection 5(1)(a) of the *CEAA*. As such, TC has identified itself as a Responsible Authority (RA) for the assessment. Fisheries and Oceans Canada (DFO) is also a Responsible Authority, in relation to *Fisheries Act* authorizations that will be required for some water crossings associated with the Windsor-Essex Parkway.

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A number of federal authorities also identified themselves as having specialist or expert advice that may contribute to the conduct of the environmental assessment, including: Environment Canada, Health Canada, Natural Resources Canada, Foreign Affairs Canada, the Canadian Transportation Agency and the Canada Border Services Agency. These authorities participated as expert federal authorities in the EA process. Since the assessment is multi-jurisdictional, the Canadian Environmental Assessment Agency (the Agency) served as the Federal Environmental Assessment Coordinator (FEAC).

MTO is committed to ensuring that compliance monitoring of commitments made during the environmental assessment and subsequent phases, including those related to conditions of permits and approvals, are adhered to. In addition, the WEMG in partnership with MTO is maintaining consultation efforts to keep interested parties informed of activities, future design stages (see Section 2), and project implementation. First Nations engagement by MTO in partnership with WEMG is on-going.

Monitoring and follow-up activities related to the *Migratory Birds Convention Act* are being included in project environmental mitigation and monitoring plans.

MTO, along with Environment Canada and the MNR as Regulating Agencies under the Federal *Species At Risk Act* and *Ontario Endangered Species Act* respectively, are implementing a collaborative approach to Species at Risk mitigation, monitoring and follow-up during design and project implementation. This collaboration ensures a consistent approach to adaptive management strategies and considers the results of monitoring and follow-up from an overall project perspective including the potential for cumulative effects on Species at Risk within the scope of the monitoring and follow-up program.

MTO will obtain any required authorizations under subsection 35(2) of the Fisheries Act for any unavoidable harmful alteration, disruption or destruction (HADD) of fish habitat prior to relevant construction works or activities (URS 2009). A conceptual compensation plan to address HADD associated with the Windsor-Essex Parkway has been developed. MTO and WEMG are finalizing compensation activities in consultation with DFO.

P.5.3 Permitting and Approvals

P.5.3.1 Ontario Endangered Species Act

The *Endangered Species Act, 2007* (ESA 2007) came into force on June 30, 2008. The Act provides species protection (s.9) and habitat protection (s.10) to those species listed as extirpated, endangered and threatened on the Species at Risk in Ontario (SARO) List, Ontario Regulation 230/08, issued under the ESA 2007. Habitat protection for those species listed prior to enactment of the ESA will not be fully instituted until 2013 for all species. Currently, specific

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habitat protection guidelines are being rolled out by the Ministry of Natural Resources for individual species.

Through several years of natural heritage inventory and monitoring, it was determined that the construction of the Windsor-Essex Parkway portion of the Detroit River International Crossing (DRIC) Project will interact with nine species protected under the ESA 2007 including:

- Butler's Gartersnake (*Thamnophis butleri*) and its habitat;
- Eastern Foxsnake (*Pantherophis gloydi*) and its habitat;
- Colicroot (*Aletris farinosa*);
- Common Hoptree (*Ptelea trifoliata*);
- Dense Blazing Star (*Liatris spicata*);
- Dwarf Hackberry (*Celtis tenuifolia*);
- Kentucky Coffee-Tree (*Gymnocladus dioicus*); and
- Willowleaf Aster (*Symphotrichum praealtum* var. *praealtum*).
- Eastern Prairie Fringed-orchid (*Platanthera leucophaea*)

The protection and enhancement of habitat for these species was recognized as a priority early in the project planning process resulting in the development of mitigation and enhancement measures that were ultimately approved as part of the ESA 2007 Permit AY-D-001-09. In addition to the Permit itself, additional Management, Monitoring, and Habitat Restoration Plans for the respective snake and plant species identified were developed.

The Eastern Prairie Fringed-orchid was not identified until 2010 and, as such, the MTO has applied for a 17(2)(c) permit under the *Endangered Species Act, 2007* for the purpose of constructing the Windsor-Essex Parkway portion of the Detroit River International Crossing in Windsor, Ontario. This application has been posted on the EBR Registry (in full) for public comment (EBR Registry Number 010-9192). Following approval of the application, WEMG and MTO will implement the conditions of approval as they apply to works associated with this DCR. The Eastern Prairie Fringed-orchid location is outside of the construction footprint and will not be directly influenced by construction activities.

For all of the species, protection measures have been developed, but also habitat enhancement and restoration techniques are being undertaken, which otherwise may not have been carried out. Protection measures for these species include:

- Preparation and distribution of fact sheets identifying and describing species listed on the ESA permits;
- Development of species specific management plans;
- Providing training to site personnel, through MNR approved trainers, regarding the species and specific actions should be they encountered during construction;

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- Enhancement, restoration, and creation of habitat to maintain and expand important habitat;
- Isolation of habitat and restoration areas from construction activities;
- Implementation of protocols for the capture and release of Butler’s Gartersnake and Eastern Foxsnake individuals;
- Seed collection, propagation, distribution, and planting techniques;
- Plug planting and plant transplanting techniques; and
- Management and monitoring of enhanced, created and restored habitats.

While the status of the individual species covered under the Permit has remained largely static, the Butler’s Gartersnake has recently been uplisted from a threatened status to endangered. As a result this species is also subject to habitat protection under the Act. As a result of this status change, the MTO has applied for a 17(2)(c) permit under the Endangered Species Act, 2007 for the purpose of constructing the Windsor-Essex Parkway portion of the Detroit River International Crossing in Windsor, Ontario. This application has been posted on the EBR Registry (in full) for public comment (EBR Registry Number 011-3238). The new permit application also affects the Eastern Foxsnake.

MTO continues to acquire lands around the Windsor-Essex Parkway for ecological restoration and to strengthen linkages and habitat in the area.

In addition to these species cited above, there are additional species protected under the ESA, 2007 that are known to occur in the vicinity of the Windsor-Essex Parkway, including:

- Eastern Massasauga (*Sistrurus catenatus*);
- Blanding’s Turtle (*Emydoidea blandingii*);
- Five-lined Skink (*Plestiodon fasciatus*);
- Eastern Musk Turtle (*Sternotherus odoratus*); and,
- Grey Fox (*Urocyon cinereoargenteus*).

Through several years of field studies MTO has no records of finding any of these species in the vicinity of the Windsor-Essex Parkway and therefore considers that there is a low risk of impacts to these species as a result of this project. Nevertheless, because of the sensitivity of these species, MTO has included them in its Species at Risk training program for the project (see below).

WEMG has prepared a Species at Risk Training Manual and has been actively training personnel working within the Windsor-Essex Parkway corridor. It includes training on procedures to follow in the event of an encounter with a Species at Risk. The objectives of the training is to ensure that all attendees gain an understanding of the Species at Risk that might be encountered on site and are familiar with the Endangered Species Act, 2007, the Permit conditions and specific protocols to be followed to ensure protection of Species at Risk.

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Training is provided to all personnel involved in on-the-ground work for the Windsor-Essex Parkway. Species at risk training includes an in-person presentation of and discussion on the following topics:

- The *Endangered Species Act*, 2007;
- Conditions written on Permit No. AY-D-001-09;
- Species at risk Fact Sheets;
- On-site Species at Risk protocols;
- Notification protocol for encounters with Species at Risk;
- Protocol for Species at Risk snakes;
- Other wildlife Species at Risk encounters; and,
- Plant Species at Risk protection protocols.

P.5.3.2 Federal Fisheries Act Authorizations

There are a number of watercourses within the Project footprint that will require modification or alteration to facilitate construction of the Windsor-Essex Parkway. In all cases, the watercourses which include McKee, Titcombe, Basin, Youngstown, Grand Marais, Lennon, Cahill, Wolf, Collins and Burk Drains, consist of maintained municipal drain systems which generally drain in a north south direction.

The works associated with several of these drains will require authorization from Fisheries and Oceans Canada (DFO) under subsection 35(2) of the Federal *Fisheries Act*, for channel realignments and/or enclosures, watercourse crossings and other associated channel works along the Windsor-Essex Parkway corridor.

The process by which the works with potential to affect fish habitat will be approved, is to be managed through application of the MTO /DFO / OMNR protocol (MTO 2009). This protocol uses standardized methods to assess potential impacts on fish habitat, taking into account typical mitigation measures, to determine if a Fisheries Authorization will be required for individual watercourses. At least some of the drains will require a formal Fisheries Authorization. Other works within or in proximity to drains, will not have meaningful effects on fish habitat. In these cases, the works will be documented and submitted to DFO for review prior to construction.

A document entitled “Compensation Strategy for Fish Habitat Alterations” (Appendix G of the CEAA Report, CUSOMBTP, 2009) was prepared to provide a summary of expected fish habitat effects and proposed compensation measures. The strategy document was developed during the assessment process in order to demonstrate that the overall effects of the Project on fish habitat would be acceptable given the mitigation and compensation measures proposed. The compensation strategy took into account the existing fish habitat conditions and the Windsor-Essex Parkway.

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It was estimated that approximately 10,255 m² of fish habitat would be affected by the Windsor-Essex Parkway. The expected alterations to fish habitat were summarized based on three primary divisions:

- Channels isolated from downstream habitats due to submerged culverts;
- Culvert Structures (new or extended); and,
- Displaced Habitats.

Compensation works were proposed that would provide for up to 59,952 m² of replaced, restored or enhanced fish habitat, resulting in a potential compensation ratio of more than 5:1.

Through the design process, the project team has continued to build upon the concepts proposed in the original compensation strategy document. The ongoing highway design has remained consistent with the Recommended Plan, such that changes to the overall compensation concepts are minor and the fish habitat plans proposed are consistent with those described in the environmental assessment documents.

As a commitment within the Federal Environmental Assessment, a Fish Habitat Compensation Plan is to be developed through implementation of the MTO/DFO/OMNR Protocol and consultation with MTO and DFO. This process will be used to finalize specific habitat compensation requirements for individual drain features, and to identify other adjacent drains that do not require formal authorizations to facilitate the required works.

Each DCR for the Windsor-Essex Parkway will document works associated with the local drainage features affected by each work package, (as described in Section 3.16), and describe what mitigation measures will be taken to avoid or minimize disturbance to existing fish habitat.

P.5.3.3 Other Applicable Permits and Approvals

In addition to compliance with the ESA permits and potential Fisheries Act authorizations detailed above, the construction of the Windsor-Essex Parkway requires other permits and approvals from municipal, provincial, and federal departments and agencies. Not all permits are required for each work package and those that do not require specific permits may proceed without them. The range of permits, approvals and activities that they apply to are summarized in Table P-1.

Table P-1: Other Permits and Approvals Required Prior to Construction

Permit or Approval	Required For
Federal	
<i>Migratory Birds Convention Act</i>	Construction activities that may impact nests or migratory birds.
National Energy Board	Any works on a pipeline regulated by the NEB.

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Permit or Approval	Required For
	Applies to BP pipeline.
Provincial	
<i>Highway Traffic Act</i> (Designation of Construction Zone)	Construction activities associated with provincial highways.
<i>Highway Traffic Act</i> (Traffic Signals)	Installation of traffic signals on service roads.
Independent Electricity System Operator Notification	Works impacting transmission lines where power interruption may be required, for example, transmission line relocation.
Ontario Energy Board	Any works on a pipeline regulated by the OEB. Applies to the Union Gas Panhandle pipeline.
<i>Ontario Heritage Act</i> (Clearance)	Areas with potential archaeological resources prior to ground disturbance and excavation.
<i>Ontario Water Resources Act</i> (Permit to Take Water)	Required for dewatering activities exceeding 50,000 L/day for example, to keep excavation areas dry for construction.
<i>Ontario Water Resources Act</i> (Sewage Works Approval)	Relocation or construction of sewer works.
Municipal	
Noise By-law Exemption – City of Windsor	Certain construction activities will require exemption from the by-law due to noise levels.
Demolition Permit – All Municipalities	To be obtained by PIC representatives/contractors for demolition of structures.
Building Permit	Building permits will be obtained from the local municipalities by PIC representatives for relevant features

P.6 OVERALL CONSULTATION PLAN

A Consultation Plan has been prepared to outline the consultation program to be carried out for year one of the design and construction of the Windsor-Essex Parkway. The preparation of the Consultation Plan was a commitment in the DRIC Environmental Assessment Report (2008). A key component of success is the integration of diverse communication and consultation activities and approaches. The integrated communication and consultation activities that will be employed by WEMG and MTO will ensure that all stakeholders and members of the public are effectively engaged throughout the Windsor-Essex Parkway project design and construction.

Section 2.0 documents the consultation process undertaken for this DCR.

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P.7 WINDSOR-ESSEX PARKWAY DESIGN BUILD AND DESIGN AND CONSTRUCTION REPORT SUBMISSION PLAN

The Windsor-Essex Parkway represents a unique project in that it is a significant new highway in an urban area being completed through a design-build-finance-maintain process with an aggressive completion schedule. Design-build-finance-maintain projects differ from a traditional highway design-bid-build projects as design and construction of many aspects are carried out simultaneously. In a design-bid-build project, the entire project design is completed, tendered, and then constructed. In a design-build-finance-maintain project, the project is divided into strategic components and work packages in a manner that allows parts of the project to proceed with construction while other parts of the project are still being designed. This process permits larger construction projects to apply efficient use of resources, supporting completion in a shorter schedule.

To meet the aggressive completion schedule, construction of the Windsor-Essex Parkway will be initiated in a staged approach as a number of discrete but linked work packages with corresponding DCRs. This approach will allow for effective timing of approvals and review of the DCR specific components by stakeholders through the consultation process. The components are also selected and organized such that irrevocable decisions that might influence design and construction elements presented in subsequent DCRs can be avoided. Through the consultation process, it is anticipated that many of the comments received will relate to more than any one DCR, and accordingly will be addressed in all DCRs submitted. Eight (8) DCRs (see Table P-2) are being prepared to cover the complete Windsor-Essex Parkway detail design and construction.

As in traditional MTO projects, each DCR will document:

- The design;
- Consultation completed on the design;
- Approvals and permits required;
- Environmental impacts and mitigation;
- How conditions of approvals will be implemented; and
- How the commitments made during the Environmental Assessment will be implemented.

DCR will be made available for a 30-day review period prior to the construction of the work outlined in each DCR.

Recognizing that a staged approach to highway construction being proposed may be unfamiliar to the public and stakeholders, WEMG is committed to continuously engaging with the public, agencies and all other affected stakeholders throughout the DCR process. As part of the DCR process, all parties are encouraged to take the time to review all of the DCRs as they become available and provide feedback to the team.

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Table P-2: Design and Construction Reports

DCR#	DCR Title	Work Addressed	Issue Date for Public Comment
1	Work Activities Commencing August 2011	<ul style="list-style-type: none"> • Wick drains and advanced fill • Howard Avenue diversion and roundabout area • Removal of North Talbot Road bridge and construction of B-15 • Highway 401 widening (asphalt) Sta 11+675 to North Talbot Road • Relocation of Spring Garden sanitary sewer between Labelle Street and Lambton Road 	July 20, 2011
2	Work Activities Commencing November 2011	<ul style="list-style-type: none"> • Tunnel T-2 • Drain D-2, Drain D-3, Highway 3 New Service Road SR2 • Bridge B-7, Bridge B-8, T-5 • Bridge B-10 • Highway 3 from Bridge B-10 to Bridge B-11, Tunnel T-10B • Bridge B-11 • Tunnel T-11 • Bridge B-9 • Highway 401, Highway 3 and ramps 	Mid September, 2011
3	Wolf Drain Realignment	<ul style="list-style-type: none"> • Realignment of existing Wolfe Drain 	Late October, 2011
4	Cahill and Lennon Drains	<ul style="list-style-type: none"> • Realignment of Cahill and Lennon Drains 	Late November, 2011
5	Turkey Creek	<ul style="list-style-type: none"> • Construction Turkey Creek crossing and restoration 	Late December, 2011
6	April 2012 to April 2013 Work Activities	<ul style="list-style-type: none"> • Detailed components to be determined 	Late February, 2012
7	April 2013 Finish Work Activities	<ul style="list-style-type: none"> • Detailed components to be determined 	Late August, 2013
8	Landscape Design Elements	<ul style="list-style-type: none"> • Implementation of landscape design plan 	Late August, 2013

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1.0 WORK ACTIVITIES COMMENCING AUGUST 2011

1.1 Project Limits

Work activities described in this DCR will occur in five areas of the Windsor-Essex Parkway (see Figure 1-1):

- 1) Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange
- 2) Howard Avenue Diversion and Roundabout Area
- 3) Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road
- 4) Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)
- 5) Relocation of Spring Garden sanitary sewer between Labelle Street and Lambton Road

The detail design for the remaining components of the Windsor-Essex Parkway will be addressed in future DCRs.

1.2 General Description of Work Packages for DCR#1

WEMG has proceeded with detail design of the following five elements of the Windsor-Essex Parkway included in this work package:

1. **Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange**
Construction of advanced fill, wick drains, utility relocation, temporary drainage and construction of a temporary storm water management pond.
2. **Howard Avenue Diversion and Roundabout Area**
Highway 3 ("Howard Avenue Diversion") will be realigned to the south from the intersection with Laurier Parkway to the previously constructed Bridge B-13 located to the northwest of the proposed roundabout area, the point where it will cross the Windsor-Essex Parkway. A new roundabout will be constructed at the intersection with the Howard Avenue diversion.
3. **Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road**
Widening of Highway 401 from four to six lanes in the vicinity of the North Talbot Road bridge underpass.
4. **Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)**

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The North Talbot Road bridge over Highway 401 will be replaced to enable Highway 401 to be widened from 4 to 6 lanes to a point 720 m south of the bridge.

5. Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

The portion of the Spring Garden Sewer between Labelle Street and Lambton Road will be installed by WEMG prior to the installation of the gas main by Union Gas as the sewer is to be installed deeper than the gas line.

Plans of the proposed improvements addressed under this work package are provided in Appendix A and described more fully in Sections 1.3 and 3.1.

1.3 Detail Design Process

The detail design process associated with the works commencing August 2011 includes:

- Detail design and preparation of construction drawings for the five work activities;
- Development of environmental avoidance/protection/mitigation measures in the design to address the potential environmental effects associated with the construction works;
- Consultation with the public and stakeholders; and
- Identification of areas where utility relocations related to the work packages address in this DCR are required.

1.3.1 Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange

Early work in the western end of the Windsor-Essex Parkway includes the installation of wick drains and fill. Wick drains are vertical drainage paths to assist the release of groundwater to allow faster compaction of certain types of soils and to provide greater strength in areas where a significant amount of fill will be placed. Once the wick drains are installed, a drainage layer and fill will be placed to build up embankments to provide sufficient weight and to allow soils to compact. This work will also include the installation of monitoring including piezometers to measure pore water pressure; inclinometers to measure movement in the soil and fill during settlement; settlement gauges; and survey monuments.

The fill placed in this area will be mechanically compacted and extra fill material will be temporarily placed on-top of the compacted fill to expedite compaction of the underlying soils.

The installation of the wick drains and fill may require lane reductions or short-term closure (< 24 hours) of Matchette Road and Malden Road. Lane reductions or closures will following applicable traffic management practices and will be coordinated with the City of Windsor and communicated to the local community and general public.

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1.3.2 Howard Avenue Diversion and Roundabout Area

The Howard Avenue Diversion involves the construction of a new road that will connect Howard Avenue, the Windsor-Essex Parkway and Highway 3. It will be a permanent two-lane road with roadside ditches and a multi-use path. It is being constructed early to allow for the maintenance of traffic flow during the Windsor-Essex Parkway construction.

As part of the Howard Avenue Diversion a two-lane roundabout will be constructed at the intersection of realigned Highway 3, the proposed Howard Avenue Diversion, and the proposed Windsor-Essex Parkway on and off ramps.

The roundabout will be designed to accommodate large trucks and will assist with traffic staging and operations and future movement of traffic through this area during later phases of construction. The centre of the roundabout will be landscaped. The landscaping will be included in a future DCR.

In addition, a car pool lot will be constructed on the south end of the Howard Avenue diversion.

1.3.3 Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road

Highway 401 will be widened from four to six lanes by constructing one additional eastbound and one additional westbound lane. The construction will commence 60 m north of North Talbot Road and continue southerly for approximately 720 m. During construction, a minimum of two lanes in each direction will be maintained and temporary lane width reductions will be required on Highway 401.

1.3.4 Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)

To accommodate widening of Highway 401 at the east end of the Windsor-Essex Parkway, the North Talbot Road bridge needs to be replaced. Replacement of this bridge will require the temporary closure of North Talbot Road at Highway 401 for approximately nine months during bridge demolition and temporary closures (55 hours) of Highway 401 for demolition of the structure and during girder installation for the new bridge. During the closure of North Talbot Road, traffic will be diverted onto alternative local roads. Lane reductions or closures will following applicable traffic management practices and will be coordinated with Tecumseh and communicated to the local community and general public. The proposed detour is provided in Appendix A.

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1.3.5 Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

Relocation of the sanitary sewer between Lambton Road and Second Street will involve the installation of a 300 mm PVC sanitary sewer within the Utility Corridor Plan (UCP) UCP-5 and UCP-8. As the Sanitary Sewer is the utility located at the greatest depth relative to other utilities within the UCP, this work is required first to avoid potential safety hazards and settlement issues related to other utilities that are to be installed at shallower depths in these corridors. The sanitary sewer will tie into the existing 675 mm sanitary sewer located at Bethlehem Road and Spring Garden Road intersection and the existing sanitary sewer below Lambton Road.

This DCR covers the construction of only that part of the sanitary sewer between Labelle Street and Lambton Road. No traffic disruptions are anticipated for the construction of this portion of the sewer.

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2.0 CONSULTATION PROCESS

2.1 Consultation Plan

A Community and Stakeholder Consultation Plan (Consultation Plan) has been prepared to provide an overall framework for consultation for Year 1 of the project. The focus of this plan is on consultation activities that will support the finalization of components of the Windsor-Essex Parkway design as well as early stages of construction. This plan meets the DRIC study EA commitment for the development of a consultation plan that will inform the design phases of the project and provide the community and stakeholders with opportunities to consult on the design elements of the Windsor-Essex Parkway. There will be a substantive update to the plan annually to provide additional details on consultation activities to support future construction and maintenance phases of the project.

Specific aspects of the plan as they apply to the work activities discussed in this DCR are provided in the following sections.

2.2 Stakeholder Agencies and Municipalities

In order to facilitate the consultation process with regulatory bodies and key stakeholders, PIC established an Environmental Core Agency Consultation Group (ECACG) consisting of representatives from environmental regulatory agencies, MTO, IO, and PIC. The ECACG provides a forum for well defined, formal communication processes that sets roles, responsibilities, authority and distribution protocols for specified technical and process information or inquiries.

The ECACG process promotes an interactive consultation process that includes a series of regularly scheduled meetings (monthly during design). In these meetings, environmentally related design criteria and concept details are presented to sequentially advance design with input from the ECACG. Through an iterative review and positive collaborative consultation approach, detailed design is efficiently progressing with timely and constructive input. The interactive review and discussion process also promotes final design, technical documentation and appropriate permit submission that is consistent with regulatory requirements and expectations.

In addition, a Species At Risk Coordinating Committee (SARCC) has been formed consisting of members from federal government agencies (TC, DFO, Canadian Wildlife Services, Environment Canada) MNR, Ojibway Nature Centre and Walpole Island First Nation. The mandate of the SARCC is to have coordinated discussions around approaches surrounding the Species at Risk that exist within the Windsor-Essex Parkway corridor and ensure that Species at Risk protection and mitigation practices are effective.

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At the outset of the DRIC study, the Municipal Advisory Group (MAG) was formed and included senior staff officials from the affected municipalities and county as well as school board representatives. Several meetings were held with the MAG to discuss and incorporate input from the group into the design of the Windsor-Essex Parkway. MAG was an important factor in the process as it provided details of community infrastructure needs and habits. Consultation with the municipalities including the Essex County Advisory Group, the local bussing carrier and emergency service providers such as law enforcement, fire departments, and local ambulance/paramedic providers are ongoing throughout the detail design, DCR and construction processes.

To facilitate consultation and information exchange with the local municipalities and utility companies during design and construction a Core Municipal and Utility Consultation Group has been established consisting of representatives from The City of Windsor, Town of LaSalle, Town of Tecumseh, County of Essex, all affected utility companies, MTO, IO and PIC. This group meets biweekly and provides a forum to discuss community infrastructure needs as well as impacts on the local community during construction including traffic management. These meetings along with consultation with transit providers, local bussing carrier and emergency service providers are ongoing throughout the detail design and construction.

2.3 First Nations Engagement

Engagement with First Nations began at the start of the DRIC EA study in January 2005 and has been ongoing through all key stages of the DRIC study. The First Nations who were consulted include:

- Walpole Island First Nations;
- Oneida Nation of the Thames;
- Caldwell First Nation;
- Munsee Delaware Nation;
- Aamjiwnaang;
- Chippewas of Kettle and Stony Point;
- Moravian of the Thames; and
- Chippewas of the Thames.

The Walpole Island First Nation (WIFN) actively participated during the EA process, and both HMQ and WEMG continues to directly engage with Walpole Island First Nation during detailed design and construction phases of the project.

Engagement with First Nations will continue to play an important role throughout the design and construction stages of the Windsor-Essex Parkway project. In order to maintain an open dialogue, HMQ and WEMG will continue to consult with the above noted First Nations, as well as:

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- Association of Iroquois and Allied Indians
- Indian and Northern Affairs Canada
- Ontario Ministry of Aboriginal Affairs.

On June 22, 2011, HMQ and WEMG met with the WIFN to present the works associated with this DCR to the technical group who will be providing input to Chief and Council for consideration. Comments were received by WEMG for consideration in design and additional direction for further consultation opportunities was provided by WIFN. HMQ and WEMG will continue to engage with the members of the WIFN and other First Nations to discuss project design and environmental considerations for this and subsequent DCRs including aspects of archaeology, Traditional Ecological Knowledge and habitat restoration, public art, and aesthetic themes. WIFN has played an active role in archaeological screening, reviewing all reports prior to submission to the Ministry of Tourism and Culture as well as participating directly in the work as part of archaeological crews. Also, a WIFN-based contracting/landscaping firm was directly involved in SAR transplanting work.

2.4 Notification Process

In order to inform the public, agencies and stakeholders of upcoming consultation events, HMQ in conjunction with WEMG is conducting an open and transparent notification program. To achieve this, various means of information and notification activities are being utilized throughout the design and construction stages to keep the public and stakeholders aware of consultation activities. These include:

- Public Notices available at Windsor-Essex Parkway Public Liaison Office and MTO Border Initiatives Group office.
- Public Notices published in various daily and weekly newspapers
- Media advisories and subsequent interviews
- Mail drops to residents along the construction corridor.
- Postings on the Windsor-Essex Parkway project website
- Individual Email/letters sent to over 1500 people (list generated from previous DRIC consultation and added to following each Windsor-Essex Parkway event).
- Phone call “follow-ups”
- Twitter postings

In addition, a schedule is presented at each Public Information Open House (PIOH) and on the project website to inform members of the public of further consultation events and opportunities. A summary of the specific notification for each activity related to this DCR is included in the following sections.

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A “Notice of Design and Construction Report Review Opportunity” (newspaper public notice) for this and all subsequent DCRs will be placed in local newspapers advising of the availability of the report at review locations indicated in the reports.

2.5 Public and Stakeholder Participation

Over the course of the EA and detailed design processes, a variety of consultation activities took place to ensure that the public and stakeholders are adequately informed and involved in the project. At every stage, the public and stakeholders have been invited to provide input to and comment on the project and its progress. For more detail regarding the consultation efforts to engage the public and stakeholders during the EA and planning stages of the project, refer to the Detroit River International Crossing Study EA report W.O. 04-33-22 (December 2008).

2.5.1 Public Information Open Houses

Two (2) Public Information Open Houses (PIOHs) have been conducted to discuss detail design and construction related issues for the initial work packages of the project as documented in this DCR. The PIOHs conducted were informal drop-in centres with the members of the Design-Build-Finance-Maintain team, MTO, and IO available at the events to answer any questions. Attendees were encouraged to complete a comment sheet either at or following the PIOH and to submit the comment sheet to the contacts provided, either in person, by fax or e-mail. In addition, formal presentations and question and answer periods were held to engage the attendees in the event and provide additional information.

Future PIOHs will take place to allow stakeholders and the general public to become familiar with, gain information, and provide feedback on the design and construction phases of the project. These PIOHs will also assist HMQ, WEMG and PIC with defining, understanding, and addressing any outstanding issues or concerns that the public and local stakeholders might have.

Additional details on each PIOH and the comments received and responses provided are presented below. All materials including display panels, invitations, comment forms, sign-in sheets, presentation slides and handout materials are included in Appendix B.

2.5.1.1 Public Information Open House #1

The first Public Information Open House (PIOH#1) was held on March 9, 2011 from 2:00 p.m. to 8:00 p.m. at the Ciociaro Club of Windsor (3745 North Talbot Road, Oldcastle, ON). To ensure that members of the public and stakeholders were given adequate notice of the commencement of detailed design and PIOHs summarized in this document, notifications were placed in local papers as well as on the project website (www.weparkway.ca).

The PIOH #1 public notice was placed in the following newspapers prior to the event:

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- The Windsor Star on Saturday, March 5, 2011 and Monday, March 7, 2011
- Harrow News on Tuesday, March 8, 2011
- Kingsville Reporter on Tuesday, March 8, 2011

As mentioned above, notice of the PIOH#1 was also provided on the project website from March 2, 2011 until March 9, 2011. Information about the PIOH was also tweeted on the project twitter account (@WEParkway; @LautoroutedeWE) leading up to and on the day of the PIOH. Open House information materials were provided on the website in both English and French following the event for individuals who may not have been able to attend or for future reference.

To ensure individuals and organizations involved previously in the DRIC EA process were made aware of the PIOH, emails/letters were sent to elected officials, governmental agencies, First Nations and key stakeholders. Notices were also emailed to those on the project email distribution list. In addition, the public notice of the event was sent to residents along the construction corridor via a mail drop.

The purpose of the first PIOH was to obtain feedback on the Landscape and Trail Master Plan and the initial highway design plan prepared by WEMG, in partnership with MTO. In addition, as the first consultation event since the completion of the Detroit River International Crossing EA, the PIOH also provided an opportunity to introduce the Project Team, re-establish communication channels with members of the public and stakeholders, and inform attendees of how they can be involved throughout the design and construction of the Windsor-Essex Parkway.

The PIOH display boards included a project overview; a description of the DRIC partnership; information on location and study area; objective of the PIOH; overview of environmental assessment process; a description of the Design-Build Team; summary of commitments made in the EA; preliminary design of Parkway structures (i.e., bridges, culverts, etc.); background on studies undertaken in support of this project; summary of Landscape Master Plan; public consultation process; and next steps to be conducted for the study. Four fact sheets were available at PIOH 1:

- Overview of the Windsor-Essex Parkway;
- Overview of the Windsor Essex Mobility Group (WEMG);
- Overview of the landscape plan and trail system; and,
- 11x17 map showing the Windsor-Essex Parkway landscape master plan.

At three points in the PIOH a short 20 to 25 minute presentation was delivered by WEMG representatives. The presentation provided attendees with an introduction to the WEMG representatives and provided details about the draft Landscape and Trail Master Plan

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completed for the Windsor-Essex Parkway. Following the presentation, a brief question and answer period was facilitated by a third-party facilitator.

A total of 313 members of the public and stakeholders voluntarily signed-in at the welcome tables for PIOH#1. Throughout and for a period after the event, attendees were encouraged to fill out and submit comment sheets for response by WEMG representatives.

A summary of the event and comments submitted for PIOH#1 are included in the document titled “Windsor-Essex Parkway Public Information Open House March 9, 2011 Comment Summary Report” (April 2011) and appended to this DCR as Appendix B. Also included in Appendix B are the handout sheets and a table of issues and responses raised at PIOH#1.

2.5.1.2 Public Information Open House #2

A second Public Information Open House (PIOH#2) was held on May 18, 2011 at the Ciociaro Club of Windsor from 2:00 p.m. to 8:00 p.m. To ensure that members of the public and stakeholders were given adequate notice of the PIOH, notifications were placed in local papers as well as on the project website (www.weparkway.ca).

The PIOH#2 public notice was placed in the following papers prior to the event:

- Essex Free Press on (Wednesday, May 11)
- LaSalle Post on (Wednesday, May 11)
- Le Rempart on (Wednesday, May 11)
- Tecumseh Tribune (Thursday, May 12)
- Windsor Star on (Wednesday, May 11 and Saturday, May 14)

Notice of the PIOH was also provided on the project website from May 11, 2011 until May 18, 2011 and posted on the project twitter account (@WEParkway; @LautoroutedeWE). Open House information materials were provided on the website in both English and French following the event for individuals who may not have been able to attend or for future reference.

To ensure individuals and organizations involved previously in the DRIC EA process were made aware of the PIOH, emails/letters were sent to elected officials, governmental agencies, and key stakeholders (including members of existing consultation groups formed during the EA process). Notices were also emailed to those on the project email distribution list. In addition, notification of the event was sent to residents and businesses along the construction corridor or in areas that may be affected by road/traffic interruptions.

The purpose of the meeting was to provide information on:

- The Windsor-Essex Parkway project and team;
- Construction staging for 2011;

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- Initial construction activities to be delivered:
 - Advanced fill and wick drain installation from Ojibway Parkway to Huron Church Road
 - North Talbot Road bridge over Highway 401 (bridge replacement with 6 to 9 month closure)
 - Highway 401 widening from North Talbot Road westerly 700 m
 - Howard Avenue Diversion from South Talbot Road to Highway 3 including a roundabout.
- How impacts of construction will be minimized
- How to stay informed and involved throughout the construction.

The PIOH display boards included a project background overview; the consultation activities and commitments; information on the landscape trails master plan; a summary of highway design and construction for the components of this DCR (including details on those components documented in this DCR); and the environmental commitments for ecological landscapes, Species at Risk, fish habitat compensation and habitat restoration. Handouts provided at this PIOH summarized the activities related to the first DCR and included in Appendix B.

At three points in the PIOH a short 20 to 25 minute presentation was delivered by WEMG representatives. The presentation focused on specific community benefits of the project as well as general construction staging and the construction timeline as well as construction mitigation and the design and construction components of this DCR. To review a copy of the PIOH#2 presentation, please refer to Appendix E. Following the presentation, a brief question and answer period was facilitated by a third-party facilitator.

A total of 454 members of the public and stakeholders voluntarily signed-in at the welcome tables. Throughout and for a period after the event, attendees were encouraged to fill out and submit comment sheets for response by WEMG representatives.

A summary of the event and comments submitted for PIOH#2 are included in the document titled "Windsor-Essex Parkway Public Information Open House May 18, 2011 Comment Summary Report" (June 2011) and included in Appendix B. Also included in Appendix B are the handout sheets and a table of issues and responses raised at PIOH#1. This material is also available on the internet at www.weparkway.com.

2.5.2 Community Level Meetings

In addition to PIOHs, which target the larger area influenced by the project, community level (neighbourhood and business) meetings will be held to focus on specific issues of local concern. Plans for these meetings are still being finalized. Meetings will start in August of 2011.

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2.5.3 Context Sensitive Workshops

As a follow-up to PIOH #1 held March 9, 2011, public and stakeholder workshops were held April 5 and 6, 2011 to provide additional opportunities for the general public and stakeholders to provide input into the Landscape and Trails Master Plan for the Windsor-Essex Parkway. The events were organized as roundtable discussions led by design team members. Participants had the opportunity to review the landscape and trail plan, obtain information, and discuss and provide comments on topics of interest related to the urban design, ecological and landscape elements of the Windsor-Essex Parkway. The workshops were held at the Macedonian Hall Community Centre (5225 Howard Avenue in Windsor, ON).

For these events discussion topics included:

- Trails and Amenities;
- Gateways, Tunnel Tops and Public Art (the designed ecological landscapes); and,
- Parkway Landscapes (Roadside Landscapes, Screening Landscapes, Stormwater Management Landscapes and Ecological Landscapes).

Context Sensitive Workshops were advertised at the March 9, 2011 PIOH and attendees were given the chance to sign up for a workshop at that event. Notices for the workshops were also published in the following newspapers prior to the event:

- Harrow News on Tuesday, March 29, 2011
- Kingsville Reporter on Tuesday, March 29, 2011
- Essex Voice on Tuesday, March 29, 2011
- Amherstburg Echo on Tuesday, March 29, 2011
- Leamington Post on Wednesday, March 30, 2011
- Essex Free Press on Wednesday, March 30, 2011
- Lakeshore News on Wednesday, March 30, 2011
- Shoreline Week on Wednesday, March 30, 2011
- Le Rempart on Wednesday, March 30, 2011
- LaSalle Post on Wednesday, March 30, 2011
- Tecumseh Tribune on Thursday, March 31, 2011
- Leamington Shopper on Friday, April 1, 2011

In addition to the sign-up and newspaper notices, information about the workshops was also tweeted on the project twitter account leading up to the event and e-mailed to those on the project e-mail list. Project Team members also made reminder phone calls to people who had signed-up for the workshops at PIOH#1. These phone calls took place on April 2, 3, and 4, 2011.

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Approximately 30 participants attended the public workshops and 28 participants attended the stakeholder workshop session. The following is a list of the organizations that were represented at the workshops:

- Detroit River Canadian Clean-up;
- The Naturalized Habitat Network;
- Educational Alliance for Sustainable Ontario;
- Essex County Field Naturalist Club;
- Essex Region Conservation Authority;
- St. Clair College;
- The University of Windsor;
- Oakwood Public School Council;
- City of Windsor Recreation and Culture;
- City of Windsor;
- Town of Tecumseh;
- Windsor Essex County Health Unit;
- Local Landscaping Businesses; and,
- Local Horticultural Society.

The public workshops opened with a 20 minute presentation. The presentation outlined the Landscape and Trails Master Plan and introduced the topics for discussion. Once the presentations were over, the participants were invited to discuss the topics in a series of round table discussions, which took place concurrently. That is, each of the topics was discussed in small breakout groups and, when a participant wished to switch topics, they were able to go to another roundtable and join their discussion.

The format of the stakeholder workshop was similar in that it included the presentation and same discussion topics but was initiated with a 30 minute open house. The roundtable discussions were divided into environmental organizations with ecological issues and other organizations who wanted to discuss the Trail System and Amenities, and Gateways and Tunnel Tops topics. The environmental organizations sat at the Windsor-Essex Parkway Landscapes themed tables and primarily discussed environmental issues. The other organizations discussed Public Art, Tunnel Tops and Gateways, and the Trail System and Amenities.

At all the workshops members of the design team were available to discuss site specific issues at large format drawings of the Windsor-Essex Parkway. A summary of the workshop activities and feedback received provided in the document titled “Windsor-Essex Parkway Landscape and Trails Masterplan Workshops April 5 and 6, 2011 Comment Summary Report” (May 2011) and included in Appendix B.

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2.5.4 Website and Social Media

Since 2008 the project website (www.weparkway.ca) has been well used by the public. To ensure consistency, WEMG will refresh and redesign the existing website and use it to host key project communication materials.

The project website is promoted as the main source for all project information. For the works associated with this DCR it will provide:

- Schedule of meetings and events as part of the Spotlight section;
- Public Liaison Office contact information;
- Construction detours and live traffic updates;
- A “What’s Happening” in the construction corridor daily update
- Fact sheets;
- Upcoming meetings section;
- An online comment form as part of the public feedback section;
- PIOH notices; and,
- PIOH presentation materials and display boards.

All communications with stakeholders and the public will include the website link in order to encourage use of the website. Social media such as Twitter, YouTube, and Flickr will also be used to quickly update stakeholders and the public throughout the design and construction phases of the project.

An online comment form will be available on the project website when construction commences to provide users with an easy method for submitting their comments, issues, and concerns to WEMG and MTO. The Senior Public Liaison Officer will log all feedback received through the website and respond in a timely manner.

2.5.5 Public Liaison Office

In April 2011 a Public Liaison Office was opened for the Windsor-Essex Parkway project. This office provides a place where public can find information about the project, ask questions and provide feedback. A Senior Public Liaison Officer has been hired to act as a liaison between the public and WEMG/PIC. In addition, the Senior Public Liaison Officer is available to meet with members of the public to discuss specific issues.

The Public Liaison Office will act as the “one-window” source for all public and stakeholder inquiries. Stakeholders will be encouraged to direct their questions, comments, and complaints, primarily through the project website and the toll-free number but also through e-mail and personal and public meetings. The office will be managed by the Senior Public Liaison Officer and will reside at 2187 Huron Church Road and will be prominently signed so visitors will easily find it.

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A toll-free number (1-877-WE-PKWAY) has been reserved for ease of use and will be prominently displayed along with the www.weparkway.ca website address on all communication materials from the start of construction onward. All responses will be managed and recorded by a Public Liaison Officer and referred to the Senior Public Liaison Officer as needed.

In the event that a member of the public contacts members of WEMG or HMQ directly, all such communications will be re-directed through the Public Liaison Office or the MTO Communications office as appropriate. In accordance with DRIC Notice of Approval, Condition 5, a Complaints Management Protocol has been submitted to the Ministry of the Environment and will be placed on the public record.

To ensure a consistent level of service, a customer service plan has been created to set standards of practice for all communications with stakeholders.

2.6 Public Input Received During Design Phase

As documented in the above sections to date over 800 people have participated in Windsor-Essex Parkway events representing significant interest in the Windsor-Essex Parkway project. All comments received at the events are recorded in the Event Reports (Appendix B). A key issues summary table was prepared to document the main issues raised at PIOH 1 and 2 and the landscape workshops. Responses to the key issues are also provided (Appendix B).

The key issues cover the following general themes many of which relate to the construction elements included in this DCR #1:

- Positive support for the project
- Emphasis on the importance of local jobs
- Concern about air quality, noise and dust
- Importance of visual screening
- Expectation of regular Parkway maintenance
- Concern about disruption to businesses
- Desire to understand timing of construction, traffic flow and road closures
- Importance of protecting wildlife and providing linkages
- Interest in work on Species at Risk
- Desire for additional amenities in the corridor
- Need for additional parking
- Desire to connect the trail system to other existing trails
- Importance of safety
- Support for public art

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In addition to the key issues table, the following specific comments (Table 2-1) were raised regarding the elements covered in this DCR. It is important to note that throughout the Windsor-Essex Parkway project additional input may be received that relates to the advanced fill, Howard Avenue Diversion, Widening of the existing Highway 401 and North Talbot Road Bridge. This input will be taken into consideration for these project elements where possible and appropriate.

Table 2-1: Comments Raised Specific to Works Associated with DCR #1

Comment	Response
More use of roundabouts at surface streets to improve mobility was raised.	The roundabout as part of the Howard Avenue Diversion is the only appropriate location for a roundabout in the Windsor-Essex Parkway corridor.
Questions about the use of the roundabout were raised including how truck traffic would travel around it and how pedestrians would get across. It was also noted that it may require out of the way travel especially going northbound on Howard from eastbound Highway 401.	It is true that drivers may not be familiar with roundabouts. WEMG will consider providing further information on roundabouts later in the process. If you are headed eastbound on Highway 401 you will have to go slightly past Howard Avenue to exit, circle the roundabout and go north on Howard Avenue. It is not expected that this will pose a significant inconvenience to drivers.
It was questioned why Highway 401 at North Talbot Road is being built with asphalt instead of concrete.	Asphalt is being used to provide flexibility at this area for staging requirements.
A number of participants indicated that they did not like the cul-de-sac on Howard Avenue	The inclusion of a cul-de-sac on Howard was approved through the DRIC EA process. The detail design currently underway will consider refinements to the approved EA but there is no intention to change the cul-de-sac. Through the work to date during the EA and detail design, the cul-de-sac has been reviewed and has been designed to effectively move traffic through this area.
Participants expressed a desire to see the trail along Howard Avenue where the homes are rather and down to Laurier Parkway instead of or in addition to the Howard Avenue Diversion.	The location of the trail along the Howard Avenue Diversion was approved through the DRIC EA process. The detail design currently underway will consider refinements to the approved EA but there is no intention to move the trail.
The Howard Avenue road will be a dead end. So Is a trail tunnel needed? Connect trail to cemetery.	The pedestrian trail tunnel connects the trail system to the new Howard Avenue Diversion and the trail alongside the Howard Avenue Diversion connects

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Comment	Response
	<p>to the Laurier Parkway.</p> <p>The cemetery is on Howard Avenue. As the Parkway trail system will go down the Howard Avenue Diversion it will not be directly connected to the cemetery.</p>
Residents expressed a desire to use excess fill for a toboggan hill and lands in the vicinity of Howard Avenue were suggested as a location.	Approximately ½ of the excavated earth will be reused for the project. All excavation and transport will be completed in accordance with an approved excess materials management plan.
Concern raised by North Talbot/Walker Road business about the impact of construction on business.	Notification for the Public Information Open Houses (PIOH 2 and PIOH 3) was specifically extended to businesses near the North Talbot bridge who might be affected by its closure. Neighbourhood and business meetings to discuss construction impacts and opportunities to minimize negative effects will be held beginning in August and continuing into the fall.
A question was raised about the intersection of South Talbot and Howard Avenue and how to turn at light from westbound to southbound	PIOH attendees raising questions about how traffic will move through the corridor were directed to the mapping at the PIOH and had the opportunity to discuss traffic movements with the team.
<p>A participant suggested that a berm was preferred over a noise wall in the vicinity of Howard Ave and Highway 3.</p> <p>A resident at corner of Howard Avenue and north of L-shaped barrier indicated that they did not want a wall, berm or combination</p> <p>A participant indicated that they did not want a noise wall on opposite side of Jessica Way.</p>	Noise walls and berm locations were included in the DRIC Study EA. Detailed design refinements to the work presented in the EA are being undertaken. A traffic noise assessment based on the detail design is being completed and any refinement to noise barriers or berms will be communicated through a design and construction report.

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3.0 DETAILED DESCRIPTION OF THE RECOMMENDED DESIGN

3.1 Major Features of the Proposed Works

3.1.1 Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange

The construction of the wick drains and advanced fill will include:

- Installation and maintenance of temporary erosion and sediment control measures;
- Tree and vegetation removal;
- Grubbing;
- Topsoil stripping;
- Grading of the area;
- Excavation
- Removal of excess material
- Placement of a sand and gravel filter drainage layer;
- Installation of wick drains and a drainage layer below the proposed fill to assist the release of groundwater resulting from the compaction of the soils below the fill;
- Installation of monitoring equipment for measurement of soil compaction below the fill;
- Construction of a temporary stormwater pond (located within the area designated for Pond 6) between E.C. Row Expressway and the embankment adjacent to the interchange at Ojibway Parkway;
- Relocation (by utility companies) or protection of existing utilities crossing or adjacent to the proposed fill;
- Importing and staged placement of approximately 850 m³ fill to form an embankment with a height of approximately 10 m;
- Installation and maintenance of temporary erosion and sediment control measures;
- Restoration of disturbed soils; and,
- Realignment of McKee Drain and partial infilling of Titcombe Drain.

3.1.2 Howard Avenue Diversion and Roundabout Area

The construction of the Howard Avenue diversion and roundabout area will require:

- Installation and maintenance of temporary erosion and sediment control measures;
- Tree and vegetation removal;
- Grubbing;
- Topsoil stripping;
- Realignment of the Burke Drain
- Construction of drainage work, including roadside ditches, temporary drainage, construction of a temporary pond (in the area of Pond 1), municipal drains and culvert installation;

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- Realignment of Highway 3 (four lanes) from east of existing Howard Avenue to east of Outer Drive;
- Construction of a roundabout to connect Highway 3, Windsor-Essex Parkway on and off ramps, and the Howard Avenue diversion;
- Construction of the Howard Avenue diversion (four lanes, tapering to two lanes) from the roundabout to the Laurier Parkway/South Talbot Intersection;
- Construction of the Howard Avenue connector (two lanes) from existing Howard Avenue to the new Howard Avenue diversion, south of Laurier Parkway;
- Realignment of South Talbot Road with the Laurier Parkway and modifications to the signalization at the intersection;
- Construction of cul-de-sacs at Howard Avenue (north of Laurier Parkway/South Talbot Road) and also on Outer Drive;
- Modifications to the existing storm sewer system;
- Construction of a carpool lot; and,
- Restoration of disturbed soils.

3.1.3 Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road

The widening of the existing Highway 401 will consist of:

- Installation and maintenance of temporary erosion and sediment control measures.
- Tree and vegetation removal;
- Grubbing;
- Topsoil stripping;
- Widening from four to six lanes by construction and paving of an additional eastbound and westbound lane with new outer shoulders;
- Installation of new conventional lighting and fixed and variable message signing in the westbound direction near North Talbot Road;
- Modifications to the existing storm sewer system within the right-of-way to accommodate the widening;
- Construction of a median barrier separating the eastbound and westbound lanes of traffic and,
- Restoration of disturbed soils.

3.1.4 Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)

The removal and construction of the North Talbot Road Bridge will consist of the following activities:

- Installation and maintenance of temporary erosion and sediment control measures

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- Tree and vegetation removal;
- Grubbing;
- Topsoil stripping;
- Demolition of the existing bridge over Highway 401 to be completed during a weekend closure of Highway 401 for up to a maximum of 55 consecutive hours;
- Excavation in abutment and centre pier locations to facilitate pile driving for foundations;
- Stockpiling of excavation material on site for re-use at the bridge or removal of excavated material to designated stockpile locations;
- Driving vertical and incline piles to bedrock;
- Construction of abutments and centre pier;
- Modification of the profile of North Talbot Road to match the slightly higher vertical alignment of a maximum of the new bridge structure;
- Installation of girders requiring a second weekend closure of Highway 401 for up to a maximum of 55 consecutive hours;
- Installation of a pre-cast deck panel and cast-in-place concrete deck;
- Construction of curb, sidewalk, and parapet wall; and,
- Paving of the bridge deck.

3.1.5 Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

The relocation of the Spring Garden sanitary sewer will consist of the following activities:

- Installation and maintenance of temporary erosion and sediment control measures
- Tree and vegetation removal;
- Grubbing;
- Topsoil stripping and stockpiling on site for re-use;
- Construction of a temporary stormwater pond in the area of Pond 5 to treat water pumped from the excavation;
- Installation of sanitary sewer pipe and manholes;
- Installation of connections to existing sanitary sewers crossing Huron Church Road; and,
- Backfilling the trench and site restoration.

3.2 Plan and Profile

The following sections describe the plan and profile (where applicable) for the works associated with this DCR. Drawings for the work areas are provided in Appendix A.

3.2.1 Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange

The proposed embankment is designed to carry Highway 401 and the re-aligned eastbound lanes of the E.C. Row Expressway. Over the majority of this length the proposed embankment

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runs adjacent to and parallel to the existing E.C. Row Expressway embankment on the south side of the roadway. The western end the embankment diverts away to the south and is designed to tie into a new future bridge that will carry the Windsor-Essex Parkway over the existing Ojibway Parkway, just north of the existing Ojibway Parkway/Broadway interchange. As described previously, a portion of the advanced fill is temporary to facilitate soil compaction. The final profile for this area of the Windsor-Essex Parkway will be presented in DCR#2.

3.2.2 Howard Avenue Diversion and Roundabout

The proposed Howard Avenue diversion is located on the east side of the existing Howard Avenue adjacent to Outer Drive and south of the existing Highway 3. A roundabout interchange will be constructed to link the diversion to the re-aligned Highway 3 and the adjacent bridges that have been previously constructed by MTO. The diversion, roundabout, and the car pool lot will be constructed at or slightly above existing ground levels.

3.2.3 Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road

The widening will take place on the outside lanes and will maintain the existing road profile and will include new outer shoulders.

3.2.4 Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)

The North Talbot Road bridge crossing will be constructed at the same location as the existing bridge. The new bridge (B-15) will have a greater span to accommodate the widening of Highway 401 from four to six lanes. The profile of North Talbot Road will be slightly raised to match the new bridge.

3.2.5 Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

The Spring Garden sanitary sewer is located on the west side of Highway 3/Huron Church Road between Bethlehem Avenue and Lambton Road, south of E.C. Row Expressway. Plans and profiles for the relevant section of the relocated sanitary sewer are included in Appendix A.

3.3 Typical Cross-Sections

The following sections describe the typical cross-sections (where applicable) for the works associated with this DCR. Drawings for the work areas are provided in Appendix A.

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3.3.1 Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange

The advanced fill will be constructed parallel and at a similar level to the existing E.C. Row Expressway embankment. The advanced fill will generally be constructed with 4:1 and 3:1 [horizontal:vertical] slopes. A drainage ditch will generally be constructed at the toe of slope between the advanced fill and the existing E.C. Row Expressway embankment. As described previously, a portion of the advanced fill is temporary to facilitate soil compaction. The final cross-section for this area of the Windsor-Essex Parkway will be presented in DCR#2.

3.3.2 Howard Avenue Diversion and Roundabout

The Howard Avenue diversion tapers from four lanes at the roundabout interchange down to two lanes at the Laurier Parkway/South Talbot Road intersection. Highway 3 is a four lane highway in cross-section. Both the Howard Avenue connector and the Howard Avenue connector extension will be two lanes in cross-section.

The proposed roundabout at the intersection of the Howard Avenue diversion and re-aligned Highway 3 will also be two lanes in cross-section and large enough to accommodate truck traffic.

3.3.3 Highway 401 Widening (asphalt widening 720 m south of North Talbot Road to North Talbot Road)

The existing road cross-section will be maintained with additional lanes and shoulders constructed on the outer edge of the existing road pavement. There will be no change to the width of the median.

3.4 Pavement

As a general statement, pavement used in the construction of Highway 401 and Highway 3 will consist of Portland cement concrete in below grade sections of the freeway and asphalt on all remaining highway, ramps and municipal roads. Details on locations of asphalt and Portland cement concrete paving will be detailed in a subsequent DCR.

3.5 Interchanges and Intersections

A full flow interchange will ultimately be constructed at the Windsor-Essex Parkway/Highway 3/ Howard Avenue diversion. This design element will be detailed in a subsequent DCR.

As noted above, A/a modern roundabout, designed in accordance with MTO Highway Design Bulletin 2009-00, will be constructed for the intersection of realigned Highway 3, the proposed Howard Avenue diversion and the proposed Windsor-Essex Parkway on and off ramps.

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3.6 Structures

The new North Talbot Road Bridge (Bridge B-15) will be a cast in place concrete slab on pre-tensioned precast girders with an integral abutment structure supported on piles driven into bedrock. Reinforced Soil System wall will be used for wing-walls.

There are no structures associated with the Howard Avenue diversion and roundabout, the installation of wick drains and advanced fill, or for the widening of Highway 401.

3.7 Illumination

Roadway, interchange, trail, traffic lighting will be described in subsequent DCRs.

3.8 Access During Construction

Construction access will be through existing roads along the route of the Windsor-Essex Parkway predominantly designated truck routes. These roads include:

- Ojibway Parkway;
- Matchette Road;
- Howard Avenue;
- Highway 3; and
- Outer Drive.

The site access points onto both old and new alignments of Howard Avenue will be designed for trucks entering and exiting the public road and making use of the on and off ramps on the south side of the intersection to allow for one-way construction traffic that will avoid crossing through oncoming traffic.

3.9 Construction Staging

Construction will commence in August, 2011 with concurrent clearing, grubbing and topsoil stripping in the work areas covered by this DCR with the exception of the Highway 401 widening activities which will follow approximately one month later.

Installation of wick drains, the associated drainage layer and subsequent placement of advanced fill will follow clearing activities at the western end of the project between the Ojibway Parkway/Broadway and the existing E.C. Row Expressway/Huron Church (Highway 3 Interchange). Settlement in this area is expected to continue until mid to late summer, 2012.

Construction of the new roads and a roundabout which will form part of the Howard Avenue diversion and Highway 3 intersection and will include soil excavation and filling, placement of aggregates, construction of curb and gutter and paving through to spring, 2012.

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The demolition of the North Talbot Road Bridge will be completed in August, 2011 with construction of the new bridge (Bridge B-15) commencing approximately one month later and continuing to April 2012 with pile driving, abutment construction, centre pier construction, girder placement, deck pouring, and paving. With the exception of temporary closures during demolition and girder placement, all lanes of Highway 401 will remain open during this phase.

3.10 Site Preparation

3.10.1 Erosion Sediment Control

The erosion and sediment control plan (ESCP) addressing works under this DCR, outlines specific measures that will be implemented to control erosion and sedimentation during placement of the advanced fill. BMPs for water management to control run on and off such as diversion and perimeter ditching and erosion and sediment control, including installation of check dams in ditches and perimeter silt fences (where required) will help minimize the impacts of this work.

Drainage ditches will direct runoff into temporary sediment traps either located at discharge points or within the footprint of future stormwater ponds (as discussed in Section 3.12) for removal of sediment. During placement of the fill, dust will be mitigated through the application of water to haul routes and fill areas, and cleaning of adjacent roads. Following completion of the fill placement, long term control measures including benching, slope texturing and application of hydro-seed/hydro-mulch, will be implemented. Drainage off the fill area will be controlled with internal ditches that directs runoff to armoured down slope ditches.

3.10.2 Topsoil

Topsoil will typically be stripped by grading into windrows or by excavator and haulage by truck. During topsoil stripping, suitable topsoil will be stockpiled within the right-of-way for reuse on slopes and in landscaping. Prior to the start of work, suitable locations for topsoil stockpiles will be identified with considerations given to proximity to water bodies, Species at Risk, provincially significant wetlands and adjacent land uses. Best Management Practices (BMPs) will be implemented at these locations in accordance with an ESCP to manage run-on and off, reduce potential sediment mobilization, and contain sediment within the stockpile area. Measures for dust control during active construction and following completion of stockpile placement will also be applied.

3.10.3 Clearing and Grubbing

Clearing work involves movement of equipment travel along the highway, clearing of trees, piling of merchantable timber and the chipping of all non-salvageable material such as brush, slashings, limbs, fallen branches, and other surface litter.

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Grubbing is the removal of all organic material and unsuitable soil above the underlying subsoil. It also consists of the removal and disposal of all stumps, roots, downed timber, embedded logs, humus, and root mat from areas of excavations and embankments.

3.11 Grading, Earthworks and Excess Fill Management

3.11.1 Excavation

Excavation will be required for construction of temporary (for the construction phase) stormwater ponds (in the general area of Ponds 1, 5, and 6); the abutments for the new Bridge B-15; the sanitary sewer relocation; construction and permanent ditching; and a portion of the Howard Avenue diversion. Temporary or permanent erosion and sediment control measures will be implemented in accordance with MTO's Best Management Practices (BMPs). Where required, excavations will be dewatered and water pumped from the excavations will be discharged to a temporary pond or filter bag to remove sediment.

Excavations will generally be undertaken with hydraulic excavators and on-road and off-road trucks to haul excavated material from areas of excavation to areas requiring fill. For the excavation of bridge abutments and the sewer trench, excavated material will be side cast and temporarily stockpiled on site. Excess material remaining after excavation and trench backfilling will be handled as described in Section 3.10.4 below.

3.11.2 Placement of Advanced Fill

Before commencing fill placement, the site will be cleared, grubbed and stripped of topsoil. Temporary ditching draining to temporary ponds will be constructed. In the area of the advanced fill, a 500 mm gravel drainage blanket will be placed on the embankment footprint. The gravel blanket will act as a filter between the existing subsoil and fill material and will promote drainage. The wick drains in the advanced fill area will be installed using the drainage blanket as a drilling platform. The drainage blanket will be covered with geotextile fabric before embankment fill material is placed. In fills of 8 m or higher, typically west of Malden Road, a 2 m to 2.5 m deep clay-geogrid core system will be placed prior to the earth fill, if ground conditions require.

3.11.3 Excess Materials

If re-usable excess soil material is generated during the works associated with this DCR it will be managed as disposable fill and handled in accordance with Ontario Provincial Standard Specification 180 and an appropriate excess earth management plan. Any excess unsuitable soils will be disposed of off-site

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3.12 Utilities

3.12.1 Howard Avenue Diversion and Roundabout

A new watermain will be installed easterly from Howard Avenue following the alignment of Highway 3. In the remaining work areas, the existing utilities will be maintained and protected or will be relocated by the utility companies. See Section 4.2.10 for further details.

3.12.2 Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

The Spring Garden sanitary sewer between Labelle Street and Lambton Road will be installed prior to the relocation of the gas main owned by Union Gas which is located at a shallower depth. Service to existing customers will not be disrupted, except for short periods of time to make the switch over. Advance notice will be provided to customers before making these switchovers.

The invert depth of the sanitary sewer is estimated to be between 8 m and 12 m, and will be up to 10 m below the average water table depth. To accommodate construction dewatering the soil using a wellpoint or equivalent system may be required. Removal of accumulated water during construction from precipitation will also be required. Water from both the dewatering operations and water management during construction will be diverted to a temporary stormwater pond located within the footprint of future stormwater management pond 5 and ultimately discharge to the Marentette Mangin Drain. Other temporary erosion and sediment control measures will be implemented as outlined in Section 4.1.6 and will be included in the Erosion and Sediment Control Plan.

3.13 Stormwater Management

For the works associated with this DCR, temporary construction ponds will be located in the area of Ponds 1, 5 and 6 for the purpose of water management and sediment control. In addition, temporary ditches and swales will be constructed to control and direct site run-off to the temporary construction ponds as part of erosion and sediment control plan. Ultimately, the temporary works will be decommissioned and permanent Stormwater Management Ponds will be constructed at these locations, and will be described in subsequent DCRs.

Temporary ponds will be sized on the basis of the area to be drained and the grain size of soils upstream to the pond and follow the guidance of MTO's Best Management Practice 35 – Sediment Traps and Basins

In general, the length of the ponds will be three to five times width for maximum detention efficiency and will retain a minimum of 1 m of water to reduce the potential for scour. As well, outlets and inlets will be widely spaced to allow adequate time for sediment in the water to settle

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out. The sides of the ponds will be sloped for both safety and to prevent side erosion of pond walls.

Ditching and ponds will be monitored and kept clear of silt. The excavated silt will be contained within sediment fencing and left to dry sufficiently before being reused or hauled off site as unsuitable material if applicable.

3.14 Culverts

To facilitate drainage following construction of the works associated with this DCR, culverts will be installed in the locations outlined in Table 3-1. Culverts will not be constructed in watercourses.

Table 3-1: Culverts Associated with DCR#1

Culvert Number	Size and Type	Location
CV-13	825 mm RCP	Howard Avenue diversion
CV-13A	825 mm RCP	Carpool parking lot
CV-14	1.5 m x 1.0 m concrete box	Howard Avenue connector
CV-15	1.5 m x 1.0 m concrete box	Howard Avenue
CV-16	1.16 m x 0.92 m CSP arch	Highway 3
CV-17	525 mm RCP	Outer Drive
CV-18	1.5 m x 1.0 m concrete box	Howard Avenue and South Talbot Road
CV-19	825 mm RCP	Westbound ramp at Highway 3
CV-20	825 mm RCP	Highway 3
CV-21	1050 mm RCP	Howard Avenue diversion
-	825 mm RCP	Realigned Highway 3 east of roundabout
CV-22	825 mm RCP	Eastbound ramp to Highway 401 from roundabout
CV-23	825 mm RCP	Westbound ramp at Ojibway Parkway
CV-29	1050 mm RCP	Westbound ramp at Ojibway Parkway
CV-30	825 mm RCP	Windsor-Essex Parkway east of Ojibway Parkway
-	825 mm RCP	Eastbound ramp at Ojibway Parkway
CV-11	825 mm RCP	Eastbound ramp at Ojibway Parkway

RCP = reinforced concrete pipe

CSP = corrugated steel pipe

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3.15 Drains

3.15.1 McKee Drain

The construction activities related to the installation of wick drains and placement of advanced fill will require realignment of the McKee Drain, as the alignment of the highway, from Matchette Road to a point 250 m east of Matchette Road intersects the current drain alignment.

In general, the drain begins just west of Malden Road and flows from east to west crossing Matchette Road via a 900 mm x 1750 mm plastic pipe. From there the drain continues west and crosses E.C. Row Expressway via a 2440 mm x 1520 mm concrete box culvert.

The future crossing will be a 900 mm diameter culvert at approximately 250 m east of the existing crossing of Matchette Road. The drain will be conveyed via open ditch to a 900 mm culvert crossing Matchette Road just north of the existing crossing and outlet into Pond 6 to provide quality and quantity control for flows conveyed by the drain. Pond 6 will outlet to the existing McKee Drain downstream of E.C. Row Expressway through the existing box culvert. Both of the proposed 900 mm culverts will be embedded a minimum of 0.30 m.

3.15.2 Burke Drain

In the Howard Avenue diversion and roundabout area, the Burke Drain flows from north to south along the east side of Outer Drive and will be intersected by the proposed Highway 3. Outer Drive will be terminated north of Highway 3 which will require crossing of the Burke Drain by the realignment of Highway 3 east of the roundabout and realignment to convey flows to the drain's existing crossing of South Talbot Road.

The proposed works will result in the permanent interception of flows from the northerly 250 m of the drain which will then be redirected as road drainage westerly along the north side of the new Highway 3 alignment and then cross the new Highway 3 through a 900 mm concrete pipe culvert and continue southerly along the new Howard Ave diversion. Drainage from the new Howard Avenue diversion will ultimately rejoin the Burke Drain at the intersection of Outer Drive and South Talbot Road. The existing crossing of South Talbot Road will be replaced with a 1.5 m x 1.0 m box culvert. Aside from the interception of flows from the drain north of the new Highway 3 crossing, the remaining drain feature will remain in its current condition. Opportunities to create more permanent standing water at the culvert crossing of the new Highway 3 will be reviewed and erosion and sediment control will be implemented to ensure that there are no effects to downstream drainage features.

3.15.3 Titcombe Drain

Placement of the advance fill west of Malden Road will result in infilling of the terminal portion of the Titcombe Drain within the existing E.C. Row Expressway. As the Titcombe Drain is not

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considered fish habitat, no measures, other than erosion and sediment control are proposed for this drain, and are outlined in Section 4.1.5.

3.15.4 Marentette Mangin Drain

Work under this DCR will include the crossing of the Marentette-Mangin Drain by a 300 mm diameter sanitary sewer. The proposed works will not directly affect fish habitat. Erosion and sediment control and water management measures will be implemented to prevent potential affects to the watercourse downstream of the work area.

3.16 Landscape Plan

An overall Landscape Plan has been submitted to the Ministry of Natural Resources in accordance with the MOE Condition of Approval #10.0, landscaping treatments for the Windsor-Essex Parkway will be presented in subsequent DCRs, where applicable.

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4.0 ENVIRONMENTAL ISSUES AND COMMITMENTS

This section identifies the impacts to the natural, built and socioeconomic environment associated with the construction of the components of the Windsor-Essex Parkway project included in this DCR and the proposed measures to mitigate potential effects during construction. This section also describes how commitments outlined in the DRIC EA Report (December 2008) and the associated Conditions of Approval (August 2009) have been addressed.

In addition, this section needs to indicate compliance with EA Condition of Approval #11 regarding compensatory mitigation and EA Condition of Approval #12 regarding finding New Major Biological Features.

4.1 Natural Environment

4.1.1 Vegetation

The vegetation within and adjacent to the Windsor-Essex Parkway corridor has been documented in detail in the Environmental Assessment Report (CUSOMBTP, 2008a) and the associated Natural Heritage Impact Assessment Study (CUSOMBTP, 2008b). Vegetation communities range from remnants of the former natural landscape to cultural communities shaped by present or past agricultural and other land uses.

Much of the notable and regional rare vegetation communities are protected within designated natural areas that exist within and adjacent to the Windsor-Essex Parkway including one Area of Natural and Scientific Interest (ANSI), one Provincial Nature Reserve, and several Environmentally Sensitive Areas (ESAs), Candidate Natural Heritage Sites (CNHSs), and municipally designated environmental protection areas as well as a Provincially Significant Wetland (PSW).

The following vegetation community characteristics are associated with the proposed work activities to be initiated in August 2011:

Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road and Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)

Within the area of the Highway 401 works the landscape was previously altered through transportation corridor and urban development and no natural heritage features persist. Vegetation features in this area represent roadside landscapes and later ditches. No vegetation communities as defined under Ecological Land Classification.

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Howard Avenue Diversion and Roundabout

In the vicinity of the Howard Avenue diversion, agricultural land use has persisted and only remnant hedgerows and linear vegetated roadside drains characterize the vegetation. As a component of recent Tallgrass Prairie restoration initiatives by WEMG in partnership with MTO, several areas adjacent to the proposed work area were planted with native species.

Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange and Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

The west end of the project area is characterised by a combination of urban landscapes associated with roadways and residential developments as well as naturalized areas. Within the naturalized areas located within and adjacent to the Windsor Essex Parkway, a variety of vegetation units were identified including:

- Cattail Mineral Shallow Marsh
- Coniferous Plantation
- Dry-Fresh Black Oak Deciduous Forest
- Dry-Moist Old Field Meadow
- Fresh-Moist Ash Lowland Deciduous Forest
- Fresh-Moist Ash Oak-Maple-Hickory Deciduous Forest
- Fresh-Moist Ash Poplar-Sassafras Deciduous Forest
- Fresh-Moist Tallgrass Prairie
- Fresh-Moist Willow Lowland Deciduous Forest
- Gray Dogwood Cultural Thicket
- Mineral Cultural Savannah
- Mineral Cultural Thicket
- Mineral Cultural Woodland
- Swamp Maple Mineral Deciduous Swamp

The vegetation communities in the area provide habitat for a large variety of plants including. Those listed under and the Ontario Endangered Species Act. Species at risk plants that are located within or adjacent to the proposed work areas as described within this DCR include:

- Willowleaf Aster (*Symphyotrichum praealtus*)
- Dwarf Hackberry (*Celtis tenuifolia*)
- Kentucky Coffeetree (*Gymnocladus dioicus*)
- Dense Blazing Star (*Liatris spicata*)
- Common Hoptree (*Ptelea trifoliata*)

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The overall effects of the Windsor-Essex Parkway on vegetation communities and plant life has been documented as part of the Environmental Assessment Report (CUSOMBTP 2008a and b). This includes temporary and permanent vegetation removal as well as indirect effects resulting from changes in site conditions. Further assessment of SAR impacts on SAR plants has been undertaken as a component of ESA Permit AY-D-001-09 (the ESA Permit), and permit conditions dictate the permitted work activities and impacts to SAR species within the project footprint.

Within the areas addressed in this DCR, most of the existing vegetation communities will be disturbed during the construction and a large proportion permanently or temporarily removed. Comments received from PIOH#1 and PIOH#2 indicating that maintaining vegetation and vegetated views are important.

Mitigation

Though disturbance is inevitable, the removal of permanent vegetation has been minimized throughout the project design. Minimizing and mitigating the adverse effects is being accomplished by the implementation of a comprehensive Landscape Plan (CUSOMBTP 2008c) and the application of a series of mitigation measures for the construction and maintenance phases of the project (CUSOMBTP 2008a). To ensure highway and Landscape designs proceed in a coordinated manner, the initial Landscape Plan has been prepared as a Master Plan. This lays out the framework of the overall plan and distribution of vegetation typologies, trails and trail bridges, watercourse realignments, stormwater ponds and other habitat restoration features (e.g., ESA Permit related areas and Fisheries Compensation sites). This framework then allows highway infrastructure design to proceed without compromise of future landscape detail design elements. This Master Plan was presented to stakeholders through PIOH and Context Sensitive Workshops. With this Master Plan in place accounting for elements of mitigation and compensation approaches that address vegetation communities to be affected, early construction work activities can proceed while additional landscape detail design and consultation opportunities continue to advance.

Typical mitigation strategies to address vegetation impacts include considerations of vegetation preservation, restoration and enhancement. An Ecological Landscape Plan component of the Master Landscape Plan is based on the objective of establishing and extensive habitat network consisting of existing, new and rehabilitated communities for terrestrial and aquatic ecosystems which is integrated with, and builds on, the existing ecosystem features. It provides compensation for the full geographic extent of habitat losses of the WEP and is expected to re-establish and enhance all existing habitat functions. Emphasis will be placed on preference for native Carolinian and tallgrass prairie associated typologies in the landscape restoration. The Landscape Plan also integrates ecological considerations in all other landscape typologies, including roadside, screening and stormwater landscapes as well as the tunnel tops.

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Vegetation and individual trees that are to be protected will be demarcated and cordoned off prior to construction and no disruptive work activities will be permitted in these areas. Exclusion fencing will be used to prevent access to areas located beyond the work zone. Any potential effects on Species at Risk located within the footprint of the project will be addressed in accordance with the ESA Permit. This involves such activities as transplanting of plant species to designated restoration areas prior to construction, seed collection and dispersal, propagation and planting of plugs, sod cutting and laying, and reuse of topsoil to maintain the pre-construction seed bank, where possible.

Species at risk plants have been relocated in much of the area covered by this DCR, however some plants between Spring Garden Road and the E.C. Row Expressway remain. Plant removal under the spring 2011 relocation program targeted those plants specifically within areas where works have been proposed to occur prior to the fall 2011 transplantation program. To remain consistent with the ESA Permit, all areas where construction activities will be occurring in SAR plant habitat, sites will be screened to confirm that designated plants have been removed and effectively transplanted prior to initiation of works. Plant protection through clear demarcation and isolation with fencing or hoarding will be applied for any Species at Risk plants that in areas where works may need to be undertaken prior to feasible transplantation.

The boundary of the WEP ESA Permitted areas has been demarcated with a framed geotextile exclusion barrier fence. This barrier will serve to exclude construction activities from occurring outside of designated areas, thereby minimizing potential impacts to adjacent vegetation communities and habitat restoration sites as outlined in the ESA Permit.

Work activities will also be occurring within the vicinity of the Ojibway Prairie Wetland Complex PSW. Consistent with EA Approval conditions, construction activities associated with works as identified in this DCR will only be permitted to enter the wetland area on completion of a Wetland Compensation Plan reviewed by the Ministry of Natural Resources.

4.1.2 Wildlife and Wildlife Habitat

4.1.2.1 Wildlife

Wildlife investigations identified 139 species (11 amphibians and reptiles, 108 birds and 20 mammals) present in proximity to the Windsor-Essex Parkway. These identifications are largely based on indirect evidence from signs such as trails, tracks, scat, smells, and sounds. No mammal species found in the study area are regulated under the *Species at Risk Act* or the Ontario *Endangered Species Act*. Among those twenty mammalian species identified are the Meadow Vole (*Microtus pennsylvanicus*), Raccoon (*Procyon lotor*), White-tailed Deer (*Odocoileus virginianus*) and Coyote (*Canis latrans*) (CUSOMBTP, 2008a) all of which potentially are present within the areas associated with this DCR. Comments received during PIOH#1 and PIOH#2 indicate concern with mammals moving into areas under construction.

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As noted, one hundred and eight bird species have been identified in proximity to project area. Field survey data showed that 50 species were breeding birds, and most of the remaining 58 species were considered non-residents or migrants. No Species at Risk birds listed under the *Endangered Species Act* have been observed within lands to be disturbed by the construction of the Windsor Essex Parkway (CUSOMTB 2008a).

Consistent with the vegetation unit descriptions in each of the areas of work activities as outlined in this DCR, habitat opportunities are available to the wildlife characteristic of the project site. The general habitat features represented by the urban and agricultural landscape provide some opportunities for wildlife use although limited. The areas located between Spring Garden Road and Matchette Road contain more diverse and complex habitat features that support key life cycle stages of several wildlife species including Species at Risk snakes. Construction of the Windsor-Essex Parkway will impact existing snake habitat located within the areas of construction addressed in this DCR.

Among the snake species identified within the Windsor-Essex Parkway footprint, the Eastern Foxsnake and Butler’s Gartersnake are listed as Species at Risk under the federal *Species at Risk Act* (2002) and the Ontario *Endangered Species Act* (2007). While both of these species are listed as endangered, the Butler’s Gartersnake has just recently been uplisted from threatened to this elevated protection status.

Mitigation

Several mitigating measures will be implemented to minimize impact on wildlife habitat during the course of the project.

An exclusion barrier fence has been installed in numerous areas along the right-of-way to minimize encounters with fauna. While the exclusion fencing serves as an isolation barrier that clearly demarcates the construction limits it has specifically been designed and located to exclude Species at Risk snakes. The exclusion barrier will also serve to limit access to the right-of-way for all mammals, amphibians and reptiles, and maintain work activities in designated areas thereby avoiding encroachment to adjacent habitats. With the exclusion barrier fence installed in the spring of 2011, migration into the site by wildlife has been notably reduced thereby serving to minimize potential encounters during active construction activities to be initiated in August 2011.

Attention throughout the construction of the highway will be made to wildlife with measures implemented to direct the wildlife from site should they be encountered. When necessary MNR and/or local humane society will be consulted in regards to these encounters.

In relation to bird species potentially impacted by construction activities, several mitigative techniques will be followed. Vegetation removal could potentially disturb nesting migratory birds and therefore measures taken to protect or mitigate vegetation also apply to birds. As a result

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clearing will be limited, to the timing windows outlined within the Environmental Assessment and the *Migratory Bird Act*. This timing window limits clearing within the period from May 1 to July 23 of any year. Where clearing is required within that period a qualified avian biologist will conduct a nest survey. Should nests be encountered WEMG's Environmental Manager will coordinate bird nest mitigation and/or removal through the appropriate regulators when necessary.

With respect to Species at Risk snakes, mitigation measures for Eastern Foxsnake and the Butler's Gartersnake are being undertaken in accordance with ESA Permits issued by the Ontario Ministry of Natural Resources (MNR) under the Ontario *Endangered Species Act* (2007). It is to be noted that a new permit application is in process to address new information. In advance of the start of construction in August 2011, targeted snake salvage from areas within the exclusion barrier fence has been ongoing throughout the active snake season and will take place right up to the start of construction. The objective is to ensure that all snakes are removed from the construction area and placed in adjacent suitable habitat. As construction proceeds throughout the Windsor-Essex Parkway, this effort will continue to ensure that all Species at Risk snakes are removed from the construction zone. Incidentally encountered snakes of other species are also being salvaged and released.

In advance of any relocation, work has been ongoing to improve, enhance and restore the areas where the snakes will be relocated. Snakes are relocated in designated natural areas of suitable habitat consistent with the ESA Permit and in consultation with the Ministry of Natural Resources.

ESA Permit related monitoring is being undertaken to assist in confirming and developing protection/restoration activities to benefit the Species at Risk snakes populations. In accordance with approved permits, a wide range of mitigation measures are being undertaken. These include:

- Species at risk awareness training for those working on site;
- Timing windows relative to pre-construction and construction activities;
- Installation of wildlife exclusion barriers, specifically designed to exclude rare snake species;
- Targeted salvage of the respective snake species within the construction area;
- Equipment inspections;
- Monitoring prior to, during and post construction;
- Creation, enhancement and restoration of tallgrass prairie using ecologically based principles; and,
- Replacement of any key habitat features impacted by construction with like or improved habitat features in suitable ecological restoration areas.

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4.1.3 Fish and Fish Habitat

Watercourses within the Windsor-Essex Parkway corridor were investigated to determine the presence or absence of fish and fish habitats as well as the characteristics of the fish communities present (CUSOMBTP, 2008). A total of 21 species of fish were found to inhabit streams located in the study area while the Detroit River alone supports a diverse resident and migratory fishery of 69 recorded species. The majority of local waters were dominated by warmwater (over 25°C) sport and bait fish communities, although some coolwater (18 to 25°C) species are also found.

The works associated with this DCR will result in the alteration of four municipal drains: McKee Drain, Titcombe Drain, Burke Drain and Marentette Mangin Drain.

McKee Drain

The McKee Drain is located at the south west end of the Windsor-Essex Parkway corridor, and drains westerly under Ojibway Parkway and out of the study area. Initially the McKee Drain was classified as a Type F municipal drain and considered to represent fish habitat along its length. However, a subsequent assessment of the channel revealed that a small diameter culvert results in a likely fish migration barrier, and the drain within the Windsor-Essex Parkway footprint has been reclassified as not fish habitat (CUSOMBTP, 2009).

Works associated with the McKee Drain include the installation of two crossings totalling approximately 200 m of 900 mm diameter Corrugated Steel Pipe (CSP) culvert under and east of Matchette Road, and the development of an online stormwater management pond between E.C. Row Expressway and Matchette Road. Despite the determination that the drain does not represent direct fish habitat in the project area, the drain provides important fish habitat downstream of the Windsor-Essex Parkway.

A site visit with the Department of Fisheries and Oceans Canada (DFO) on June 16, 2011 confirmed that the McKee Drain is separated from the Titcombe Drain by a height of land. Although standing water was observed throughout the drain no fish were observed supporting the determination that the drain in the work area does not support direct fish habitat.

Titcombe Drain

The Titcombe Drain is a Type F municipal drain (CUSOMBTP, 2008), which originates south of the E.C. Row Expressway within the Windsor-Essex Parkway right-of-way. The drain extends southward away from the corridor, west of Malden Road. Within the Windsor-Essex Parkway right-of-way itself the channel is ephemeral and does not represent direct fish habitat. A site visit with DFO on June 16, 2011 confirmed that the drain terminates downstream of the Windsor-Essex Parkway footprint and the remnant feature within the project work area is ephemeral drainage associated with E.C. Row Expressway drainage. Downstream of the site the channel becomes intermittent in flow, and supports a warm water sport fish community.

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Development of the Windsor-Essex Parkway and placement of the advance fill will result in infilling of the terminal portion of the drainage feature associated with existing E.C. Row Expressway.

Burke Drain

The Burke Drain is classed as a Type F municipal drain (CUSOMBTP, 2008), that provides lateral road drainage south along Outer Drive. Historical sampling efforts determined that the drain periodically supports a limited warm water sport fish community consisting of Green Sunfish. The drain exhibits ephemeral flows which result in dry conditions persisting within the drain during the majority of the year. A joint site visit with DFO on June 16, 2011 noted that there was no standing water in the drain despite recent precipitation events. During the site visit the group identified a barrier to fish passage in the Burke Drain under the intersection associated with the South Talbot, Outer Drive and Howard Avenue intersection. Downstream of this intersection the drain is classified as not fish habitat.

The limited number of Green Sunfish found in the Burke drain in previous reports is likely incidental, and all evidence indicates they are not resident nor do they appear to be using the Burke Drain to carry out their life processes.

The proposed works will result in the permanent interception of flows from the north portion of then drain which will be redirected as road drainage westerly along the north side of the new Highway 3 and then cross through a 900 mm concrete pipe culvert. The existing crossing of South Talbot Road will be replaced with a 1.5 m x 1.0 m box culvert. Aside from the interception of flows from the drain north of the new Highway 3 crossing, the remaining drain feature will remain in its current condition.

Marentette Mangin Drain

The Marentette Mangin Drain is classified as a Type F municipal drain which originates downstream of Huron Church Road. The drain has been classified as obstructed and not fish habitat to its confluence with the Grand Marais Drain approximately 1 km downstream of the site (CUSOMBTP, 2008). Proposed project works will involve the crossing of the drain by a 300 mm diameter sanitary sewer. The proposed works will not affect direct fish habitat and erosion and sediment control measures will prevent potential affects to downstream watercourses.

Mitigation

There are no anticipated losses of direct fish habitat expected to occur in within the McKee, Titcombe, Burke or Marentette Mangin Drains, as a result of the works proposed in this DCR or in the development of the ultimate Windsor-Essex Parkway. As such, the fish habitat

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compensation plan and compensation plan strategies do not apply to these works. The DFO Risk Management process will be applied to these drains.

Erosion and sediment control and water management measures at outlined in Section 4.1.5 will be implemented to prevent impacts to downstream reaches of these watercourses. As discussed in Section 3.12, temporary construction ponds will be located in the area of Ponds 1, 5 and 6 for the purpose of water management and sediment control. Drainage from work areas will be directed to these ponds prior to release to the receiving watercourse. Where works are not proximal to these ponds, other measures, such as temporary sediment traps, or pumped silt treatment may be used, as outlined in the Erosion and Sediment Control Plan.

Culvert lengths will be minimized to the extent possible where appropriate and feasible. Construction in drainage features will be completed ‘in the dry’, utilizing either pump bypass systems or temporary channel diversions. Where water will be pumped around work areas, pump intakes will be fitted with screens to prevent fish entrainment, in accordance with the requirements of Fisheries and Oceans Canada.

Although the work areas associated with this DCR are not considered direct fish habitat, should any fish be observed during de-watering activities, isolated fish will be captured and relocated by qualified personnel.

Culvert lengths will be minimized to the extent possible where appropriate and feasible. Construction in drainage features will be completed ‘in the dry’. Water will be pumped around work areas and pump intakes will be fitted with screens to prevent fish entrainment, in accordance with the requirements of Fisheries and Oceans Canada.

Although the work areas associated with this DCR are not considered direct fish habitat, should any fish be observed during de-watering activities, isolated fish will be captured and relocated by qualified personnel.

Designated Natural Areas

Municipalities or regulatory agencies identify Designated Natural Areas, synonymous with environmental policy areas, for conservation purposes. These include: Provincially Significant Wetlands (PSWs), Environmentally Sensitive Areas (ESAs), Areas of Natural and Scientific Interest (ANSIs), and Candidate Natural Heritage Sites (CNHS).

Ojibway Prairie complex

For the works addressed in this DCR, there are work activities in proximity to a portion of a the Ojibway Prairie Wetland Complex located between Matchette Road and Huron Church Road will be potentially impacted by the installation of wick drains and advanced fill. The 350 ha Ojibway Prairie Complex is designated as an Area of Natural and Scientific Interest (ANSI) and is comprised of the following 5 areas:

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- Prairie Remnants (Ojibway Park) Life ANSI;
- Prairie Remnants (Titcombe Road North) Life ANSI;
- Prairie Remnants (Spring Garden Road) Life ANSI;
- Prairie Remnants (Black Oak Woods) Life ANSI; and
- Prairie Remnants (Southeast of Nature Reserve) Life ANSI.

The land is diverse in nature and made up of tallgrass prairies, savannahs, Carolinian zone vegetation, wetlands and forests. Along with diverse land, the Ojibway Prairie Complex is habitat for a number of different animal and insect species. Records show that 29 species for Ontario have only been found at this ANSI and a few other sites. A new species was recently discovered; the *Loxocera ojibwayensis* insect is a small Psilidae fly (*Diptera*) that was named after the Ojibway Prairie and the only known site in the world for this species. The eastern Massasauga and the eastern hognosed snake also reside in this area, both listed as threatened and endangered species in Canada.

A wetland compensation plan for this area consistent with provincial policy is currently being developed for approval by MNR to address effects on the Ojibway Prairie Complex.

4.1.4 Groundwater

The groundwater levels within the overburden are fairly consistent and close to ground surface (approximately 2 m below surface) and tend to decrease from the southeast to the northwest within the of the Windsor-Essex Parkway corridor.

Groundwater in the Windsor-Essex Parkway area can be affected by dewatering activities during the course of deep excavations, such as that required for construction of the sanitary sewer between Labelle Street and Lambton Road. Dewatering activities during the course of deep excavations could potentially result in the inadvertent release of naturally occurring hydrogen sulphide gas (H₂S).

Mitigation

The need for dewatering will be minimized to the extent practical by limiting the depths of temporary and permanent excavations. Where dewatering is necessary, if hydrogen sulphide or any other contaminants are encountered, an *Ontario Water Resources Act* approved treatment system may be required and deployed as appropriate.

Dewatering will be required for construction activities associated with the new North Talbot Road Bridge (Bridge B-15) and for the construction of the sanitary sewer between Labelle Street and Lambton Road. The extent of dewatering is expected to exceed 50,000 L/day as a result, a Permit to Take Water (PTTW) has been obtained from MOE. The PTTW includes permit specific mitigation measures including measures for H₂S that will be implemented by WEMG.

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There may be short term and localized changes in the shallow groundwater table in the vicinity of the advanced fill. Changes in vegetation that may result from localized changes in the groundwater will be monitored in accordance with the ESA permit.

There is limited potential for accidental contaminant spills during construction to affect the groundwater, as a naturally occurring 20 m layer of impermeable clay layer between the surface water and the deeper groundwater exists in the area of the Windsor-Essex Parkway. In addition, WEMG has developed a spill contingency plan to direct responses to spills during construction.

4.1.5 Surface Water Protection and Erosion and Sedimentation Control

There are ten drainage systems within the project footprint: McKee Drain, Titcombe Drain, Basin Drain, Marentette Mangin Drain, Turkey Creek, Lennon Drain, Cahill Drain West Tributary, Cahill Drain, Wolfe Drain, and Burke Drain. All of these drainage systems flow into the Detroit River. Both agricultural and urban developments have a strong impact on these watercourses which include both physical (e.g., channelization, barriers) and chemical (e.g., metals, nutrients) means. Furthermore, these watercourses receive surface water runoff from current transportation infrastructure within the project footprint.

In accordance with Condition 8 of the Conditions of Approval, a surface water baseline monitoring program was implemented and completed 12 months prior to the start of construction. This program included:

- Identification of areas within which the construction may affect surface water;
- Identification of monitoring parameters, locations and frequency as well as the requirement for interpretative reports; and,
- Collection of baseline data on surface water quality within the potentially affected areas.

A surface water monitoring plan has been completed and has been submitted to the MOE. The study establishes baseline water quality data and provides a framework for the required post construction monitoring program.

For the work associated with this DCR, only the McKee, Titcombe, Marentette Mangin and Burke Drains are within the footprint of construction activities.

A Stormwater Management Plan has been developed for the purpose of mitigating potential effects on the quantity and quality of stormwater runoff from the operating highway facility being discharged to local watercourses as a result of the proposed undertaking. The Stormwater Management Plan will be implemented in accordance with the applicable Ontario Ministry of the Environment’s design standards to provide quality treatment quantity control and erosion

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management. Erosion and sedimentation control measures will be used on the project site to prevent the migration of sediment or stormwater from the project work area.

Potential impacts on surface water include the transport of sediment due to exposed soils associated with excavation activities during construction and potential contamination due to accidental spills from construction equipment.

Mitigation

Protocols for erosion and sediment control (ESC) will be followed based on the MTO document “Environmental Guide for Erosion and Sediment Control during Construction of Highway Projects (February 2007)”. Based on a risk assessment for the proposed works under this DCR, the erosion potential is considered to be moderate to low for the works associated with this DCR, however, the consequences of erosion is considered high for the advanced fill works, the sanitary sewer realignment and the Howard Avenue diversion due to the proximity to sensitive areas containing SAR species and the municipal drains, including the McKee, Titcombe, Marentette Mangin and Burke. The consequences of erosion and sedimentation is considered low for the Highway 401 widening works.

An Erosion and Sediment Control Plan has been developed consistent with the MTO standards and include:

- Erosion and sediment objectives;
- Critical areas of concern;
- Water management, erosion control and sediment control protocols;
- Description of selected BMPs;
- Training and communication protocols;
- Definition of responsibilities and accountability;
- Monitoring and maintenance programs; and,
- Contingency plans.

For the work outlined in this DCR, the following BMPs are anticipated to be utilized:

1. Water management measures including diversion ditches and/or berming, surface grading and cut-off ditching.
2. Slope/soil stabilization through seeding (hydroseeding/hydromulching), use of turf reinforcement mats (rolled erosion control products) and other surface covers and slope texturing and grading.
3. Installation of temporary erosion and sediment control measures, including sediment fence barriers, straw bale barriers, check dam, sediment traps and pumped sediment control systems.

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An inspection and maintenance program will be developed for water management and erosion and sediment control measures. Measures will be inspected weekly and more frequently following larger rain events and periods of snow melt. The inspection program will identify measures requiring maintenance to ensure optimal performance, including removal of any accumulated silt/sediment.

As a component of the works under this DCR, temporary construction ponds will be located in the area of Ponds 1, 5 and 6 for the purpose of water management and sediment control, as discussed in Section 3.12.

To ensure that there are no indirect effects to surface water, municipal drains or to wetlands due to spills, the following measures will be adhered to during construction:

- Site specific spill contingency plans which encompass the key elements of avoidance of spills, capture of spills, equipment needs for spill response; and training of personnel for spill response including restricting refuelling within 30 m of watercourses;
- All machinery and equipment will be maintained in good working order and free of chronic or continuous leaks;
- Spill kits will be available at all field site offices and on specific equipment (e.g., refuelling trucks, foreman trucks, etc.);
- All spills will be reported and cleaned up immediately and contaminated materials disposed of as per current MOE guidelines and policies.
- Personnel will always be present during refuelling operations to monitor the refuelling operation; and,
- Chemical toilets will be placed more than 30 m from watercourses.

4.2 Socio-Economic and Cultural Environment

4.2.1 Land Use

Land uses surrounding the Windsor-Essex Parkway consist of residential neighbourhoods, commercial/industrial land use, and parklands and trails. The following provides a general overview of land use adjacent to the works addressed in this DCR.

Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange

Land uses in the vicinity of the wick drains include natural areas and single-family residential units associated with the Armanda Street neighbourhood and parkland (Malden Park) and commercial land uses along the main arterial roads. In addition, the eastern end of the advanced fill is located north of the Spring Garden Road residential neighbourhood.

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Howard Avenue Diversion and Roundabout Area

The area of the works associated with this DCR contains a mixture of vacant lands, residential, industrial, institutional, and commercial land uses.

Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road and Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)

Land uses located along the north portion of this area include a portion of residential subdivision. There is one institutional land use, the Extencicare Southwood Lakes Long Term Care Facility, located at the northwest corner of North Talbot Road and Highway 401. Land uses along the south side of Highway 401 include the Del Duca Industrial Park.

Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

Land uses include vacant areas, commercial land uses, including a hotel, and adjacent residential uses.

In general, impacts of construction on land use relate primarily to traffic disruption due to lane reductions or temporary road closures; and noise from construction sources such as excavators, bulldozers, trucks, and pile driving (Bridge B-15 only for the works associated with this DCR). These impacts are described further in Sections 4.2.6 and 4.2.7.

Mitigation

While there will be short-term impacts to land use, such as potential for noise impacts (described in Section 4.2.6), traffic disruption, or temporary road closures (described in Section 4.2.7), the Windsor-Essex Parkway project will create more open space along the corridor, which provides a buffer for adjacent land uses and new recreational opportunities. In addition, the Windsor-Essex Parkway will provide a greater buffer between neighbourhoods and provide a number of opportunities for new green space and recreation trails to link to existing parks and trails. This project will allow for greater opportunities for the enhancement of natural features and the restoration of natural linkages. More than 300 acres of new green space will be created.

Residents, businesses, institutions, and municipal departments and agencies are being kept informed of the status of construction and the potential short term impacts on their areas and operations, especially with respect to construction traffic, lane closures, and temporary road closures. Mitigation measures and a complaint protocol are in place to minimize nuisance impacts to surrounding land uses and address specific concerns in a timely manner.

A new roundabout associated with the Windsor-Essex Parkway will also be constructed by WEMG that will provide a more efficient link to the Town of LaSalle.

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4.2.2 Air Quality

Air quality in the Windsor-Essex Parkway corridor has been an issue raised during PIOH#1 and PIOH#2. The existing air quality is greatly influenced by local, regional, and long range (cross-border) contaminants generated in upwind urban and industrial areas west of Windsor. The predominant wind directions in Windsor are from the west to southwest, which brings contaminants from the heavily industrialized areas of Detroit, nearby communities and beyond. For further details on air quality, refer to the DRIC Environmental Assessment Report (2008) and associated Air Quality Technical Supporting Documents.

Mitigation

The operation of heavy equipment during construction activities will generate dust and exhaust emissions. Impacts from fugitive dust will be minimized through various measures including careful planning of works and by applying the appropriate control methods or practices. As with any construction site, the emissions will be of relatively short duration and are unlikely to have any long-lasting effects to the surrounding area. In addition, in many areas of the project, properties are separated (i.e., set back) from construction zones. The most effective technique is to control dust at the source and prevent it from becoming airborne. Therefore, during construction, the operational procedures summarized below (and listed in greater detail in Table 6-1 of the Dust Control Plan) will be implemented to minimize impacts to the surrounding area:

- Monitoring of current and forecast weather conditions to determine when dust control measures are likely to be required.
- Planning of work to limit the area of exposed soil to the minimum required for the work.
- Limiting time between topsoil stripping and commencement of earthworks.
- Limiting the length of time that exposed surfaces (i.e., graded areas etc.) remain exposed and using erosion control measures to provide cover as soon as possible, where feasible.
- Limiting the speed of construction vehicle traffic.
- Watering earthwork areas in areas of construction vehicle and equipment traffic.
- Minimizing vehicle traffic on exposed soils.
- Watering of stockpile surfaces where inspections indicate emission of fugitive dust.
- Using water sprays during the loading and unloading of materials during dry conditions.
- Covering of vehicle loads of aggregate and soil travelling to or from site.
- Wet sweeping and/or water flushing of the entrances to construction zones.
- Promptly cleaning public roads to remove tracked out material.
- Where necessary, using calcium chloride to suppress dust on unpaved site roads/access.

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Staff training, maintenance procedures and regular site inspection will serve to ensure the effectiveness of the dust control practices. WEMG will also respond to site specific dust concerns brought forward by the public.

4.2.3 Human Health

A Human Health Risk Assessment (HHRA) was completed for the overall DRIC study, using the results from air quality modeling, to determine the potential for adverse health effects for people living in the immediate area of the project. HHRA has been applied by WEMG to evaluate potential air quality related construction effects to workers and the surrounding community. This second study has been submitted to the MOE in accordance with the EA Condition of Approval #9 (see Table 4-1) and is currently under review by MOE. Through regular construction related monitoring, potential construction related air quality issues will be identified and mitigation measures applied where recommended.

4.2.4 Materials Management

The management of construction waste includes the transfer of waste material, including excess earth/soil and contaminated materials, to an approved disposal or recycling site (URS 2009). Excess soil and aggregate materials will be managed in accordance with Ontario Provincial Standard Specification (OPSS) 180 and the Ontario Ministry of the Environment’s Guideline “Management of Excess Material in Road Construction Projects” (URS 2009) and Ontario Regulation 347 governing waste management. An excess earth management plan has been prepared and is currently being reviewed by MTO.

Hazardous chemicals will be removed from site after use by certified and insured waste disposal companies for disposal at an approved facility.

Mitigation

- Recyclable materials and materials banned from landfills (paper, cardboard, drink containers, wood, scrap steel, paint, metal and tires) will be collected separately for recycling.
- There shall be no burning of wastes generated on the site.
- Non-recyclable non-hazardous construction wastes shall be stored in appropriate containers and removed from site on an as required basis for disposal at an approved waste disposal site.
- Rags used in equipment maintenance and other potentially combustible materials will be kept in a container separate from the above materials until the combustible material can be removed from the site for disposal.
- Waste oils and lubricants will be stored in a labelled tank or drum placed on a spill containment pad and disposed of a disposal facility approved for receiving liquid industrial wastes.

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- Solvents, acids and caustic liquid waste will be collected separately and stored for removal and disposed by waste management company specializing in liquid and hazardous wastes.

4.2.5 Contamination Management

Environmental Site Assessments were conducted as part of the property acquisition phase of the Parkway project. A number of properties exist within the Windsor-Essex Parkway corridor that have known or potential contamination in the soil and/or groundwater. Contaminated soil, groundwater and sediment may be encountered during construction. As general practice, WEMG is undertaking Phase 2 Environmental Site Assessments Designated Substance Surveys (DSS) and will implement a demolition protocol in order to have a full understanding of the materials and environmental issues of each area and property within the works associated with this DCR.

A Contaminant Management Plan has been developed to address soil, ground water or sediment that is impacted with levels of contaminants above the applicable standards that are encountered during construction, in accordance with applicable health, safety and environment regulations. This plan will guide site-specific remediation activities that may be necessary for these sites.

Mitigation

If prior to or during construction, contamination to soil and/or groundwater is identified, a Site Management Plan may be developed for further investigation, which may include a Phase III Environmental Site Assessment and a remediation plan

Contaminated soil and groundwater from excavation and investigation activities during construction will be managed according to MOE requirements. Waste characterization and classification will be done in accordance with O.Reg. 347, and applicable designated substances regulations made under the *Occupational Health & Safety Act*. Stockpiled soil will be removed from the site, in a timely and efficient manner. Any stockpiled material remaining onsite will be managed to prevent the release of dusts, odours or sediment.

Contaminant management activities, if required, will be conducted ahead of construction to minimize impacts to the environment and to the local community.

4.2.6 Construction Noise

The study area lies within a highly urbanized corridor characterized by transportation noise, including road, rail, and air, as major contributors to the existing noise environment. The area is also characterized by several large complexes and commercial activities as sources of existing

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noise. However, MTO and WEMG recognize that highway construction and operational noise is a concern to local residents and businesses.

Noise and vibration are common outcomes of any construction work. Noise and vibration's impact mostly varies depending on type of equipment used and timing of construction work. The annoyance of noise and vibration depends on vicinity of construction site to residents, institutions and businesses.

Typical construction traffic noise, such as excavators, bulldozers, articulated trucks, dump trucks, compactors, cranes, pile drivers and pumps, will be apparent but not excessive during the following construction work packages:

- Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange.
- Howard Avenue Diversion and Roundabout Area.
- Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road.
- Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road.

Excessive construction noise will be apparent during the demolition of the North Talbot Road Bridge (B15) in the form of demolition and excavation equipment and associated concrete breaking, crunching and hauling. A noise by-law exemption will be sought for this activity and will be mitigated by the short time frame (55 hours or less) during which this activity will take place.

Mitigation

The following measures will be implemented to mitigate noise during construction of the Windsor-Essex Parkway:

- Ensure that all construction equipment is in good repair, fitted with functioning mufflers, and complies with noise emission standards outlined in Ministry of the Environment guidelines.
- To the greatest extent possible, limit the most noisy construction activities to daytime hours, in accordance with local municipal noise by-law requirements. Noise by-law exemptions may be required under certain circumstances (i.e., In cases where traffic is reduced to a single lane, work will take place during a night shift).
- To reduce the overall duration of noisy activities, we will stick to the construction schedule and where possible limit the duration of time spent in any one area.
- Opportunities to install permanent noise structures in advance of construction were considered and resulted in the early installation of noise barriers at the east end of the project.

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- Maximize the distance between the construction staging areas and nearby residents to the greatest extent possible.
- Maintain construction haul roads to eliminate the loud noise caused by construction vehicles travelling over uneven road surfaces.
- Inform residents in advance if any noise by-law exemptions are required, when noisy activities will take place nearby and speak personally to residents about any noise complaint.

There may be some vibration depending on the equipment that will be used. While excessive vibration is not anticipated as part of these above work packages, should it be necessary, surveying of homes and property will be considered.

4.2.7 Traffic Disruption

Impacts on traffic and transportation in general are a key concern with area residences and businesses. Construction activities will require some minor interruptions to local roads but, in general, one (1) lane of traffic in each direction will be maintained at all times, as described in each section related to each work package below.

Wick Drains and Advanced Fill Highway between Ojibway Parkway and Huron Church Road to Highway 3 Interchange

Traffic will be maintained on Ojibway Parkway but depending on the stage of the wick drains installation and advanced fill placement, there may be temporary lane closures. The advance fill between Ojibway Parkway and Huron Church Road will not in itself require closure of local roads but Matchette Road and Malden Road may be affected by associated utilities diversion/protection works. Where these are required the impact will comply with applicable traffic management principles and be discussed with the local municipality to ensure that disruption is kept to a minimum.

Howard Avenue Diversion and Roundabout Area

The construction of the Howard Avenue diversion will require minor interruption to local roads. The existing Howard Avenue will be open for traffic during the construction of the roundabout. Once the roundabout is completed, Howard Avenue will be diverted to the roundabout for a period of six months. During this period, the bridge connecting Howard Avenue over Highway 401 will be constructed (construction of this bridge will be presented in DCR#2). Once the bridge is completed, Howard Avenue will be returned to its original configuration.

Highway 401 Widening (asphalt widening) 720 m south of North Talbot Road to North Talbot Road

Widening of the Highway 401 will occur over a period of approximately three months. During this time the travelling lanes on the Highway 401 will be narrowed to 3.5 m from the existing

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3.75 m and the right shoulder will not be available for traffic (in order to tie the widening to the existing travelling lanes). Lanes will be shifted to the right to facilitate widening and barrier construction and to the left for widening and abutment removal after the closure. A minimum of two (2) lanes in each direction will be maintained at all times.

Removal of Existing North Talbot Road Bridge and Construction of New North Talbot Road Bridge (Bridge B-15)

To accommodate the widening of Highway 401, the existing North Talbot Road Bridge over Highway 401 will be demolished and replaced with a new two span structure. The demolition of the existing bridge and construction of the new bridge will require the closure of North Talbot Road for a period of six to nine months.

Demolition of the North Talbot Road Bridge will require the full Highway 401 closure, between Exit 21 (Manning Road) and the western terminus of Highway 401 at Highway 3, for a maximum of 55 consecutive hours. The closure will occur on a weekend and Highway 401 traffic will be diverted to the Emergency Detour Route located south on Manning Road and west on Highway 3 (Figure 4-1). Similarly, a maximum consecutive 55 hour closure will be implemented for the installation of girders for the new bridge.

Relocation of Spring Garden Sanitary Sewer between Labelle Street and Lambton Road

There will be no traffic disruptions during the relocation of the sanitary sewer between Labelle Street and Lambton Road.

Mitigation

Construction of the Windsor-Essex Parkway will be completed in such a manner so as to minimize disruption to the surrounding community and local traffic patterns as much as possible, and to maintain local access to residences and businesses. In order to ensure minimal disruption, maintaining four lanes of traffic in the Highway 3/Huron Church Road corridor as well as the E.C. Row Expressway corridor has been established as a principle for development of the staging concept of the Windsor-Essex Parkway. This principle will be a key requirement in the development of detailed staging plans in future design phases

Signage will be used to inform the community of local road closures and lane restrictions. Signs will be put up before construction begins to ensure the travelling public and community are aware of future traffic impacts. The project website (www.weparkway.ca) will provide way-finding information and reports/updates on closures. Detours and other traffic-related information will be provided to local newspapers, and radio and television stations, and posted on social media sites such as www.twitter.com/WEParkway.

Traffic will be accommodated and diverted during road closures and construction activity that affects existing roadways (permanently and temporarily).

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For the duration of the existing North Talbot Road bridge and construction of the new bridge, North Talbot Road will be signed as “Local Traffic Only” or “Use Alternate Route” for a period of six to nine months.

There are no anticipated impacts to private or business entrances associated with the works addressed in this DCR. Any measures required to maintain private accesses will be agreed to with the landowner and notice periods agreed to before implementation of any diversion routes. Concerns can be reported to WEMG through its Public Liaison Office.

4.2.8 Built Heritage Resources and Cultural Landscapes

A Built Heritage Impact Assessment (URS 2008) undertaken as part of the Environmental Assessment, identified six structures that required more detailed assessment. Further assessment has now been completed. None of the properties in question qualify for heritage recognition under the criteria as laid out in the *Ontario Heritage Act*, and no mitigation is required.

No built heritage features or cultural landscapes were identified within the areas addressed by this DCR. The North Talbot Structure scheduled for removal has been screened in accordance with the Ontario Bridge Guidelines and it has not been identified as a candidate structure for provincial heritage significance. All bridge structures more than 40 years old are assessed for their heritage significance.

4.2.9 Archaeological Resources

Stage 1 and the preliminary Stage 2 archaeological assessments were completed as part of the Detroit River International Crossing EA Report. The Stage 1 assessment documented the archaeological and land use history of the area and its current geography and topography, in order to assess the potential for archaeological resources. The Stage 2 systematic field assessment investigated all areas with archaeological potential within the Area of Investigation, and for which permission to enter had been obtained. Stage 2 of the assessment utilized two types of survey techniques: pedestrian and test pit. Pedestrian survey was used on lands with open surface visibility (e.g., lands that were ploughed, or with open, immature crops, and well-weathered) while test pit surveying was used on lands with closed surface visibility (e.g., scrub farmland, windrows, lands within forest or valley floor, or with dense, mature crop). These assessments identified areas for further detailed assessment prior to construction.

The Stage 2, 3 and 4 archaeological assessments are currently underway. Archaeological clearance from the Ministry of Culture, for the properties affected by DCR #1 (and future DCRs) will be obtained prior to construction.

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Archaeological and heritage resource investigations continue to be undertaken. For the construction phase, any unexpected archaeological finds will be reported to the appropriate agencies.

4.2.10 Utilities

In the area of the wick drains and advanced fill, the existing utilities generally are located along the Matchette Road and Malden Road. The utilities on these roads may be impacted by settlement of the advanced fill. In addition to the utilities associated with Matchette and Malden Roads, BP Pipeline (three pipes east of Ojibway) and the trunk sanitary sewer owned by the City of Windsor on the Second Street right-of-way (east of Malden Rd) may be impacted by the settlement.

These utilities will not be relocated. During the settlement process of the advanced fill, the existing utilities will be monitored for potential damage, and contingency plans will be put in place should the settlement exceed the tolerable limits. Any damaged utilities will be replaced.

In the Howard Avenue Diversion and roundabout area, there are four existing utilities that will be impacted. The watermain belonging to the Town of Tecumseh will be replaced with a new watermain in a utility corridor, parallel and south of Highway 3 (as discussed in Section 3.11). The overhead Bell Canada line along the existing Highway 3 will be relocated underground by Bell Canada in a utility corridor, parallel and south of the new Highway 3. The existing gas line along Outer Drive will remain in place with some minor adjustments in grade, if the existing depth of the gas line results in insufficient cover. The overhead Hydro One line on Outer Drive will also remain in place, with some new poles being installed by Hydro One.

There are no anticipated existing utility impacts in the Highway 401 widening and the removal of North Talbot Road Bridge and construction of Bridge B-15.

In addition, the following utilities will be relocated by third party utility companies with their own forces and not by WEMG, at locations throughout and adjacent to the Project Corridor:

- Hydro One-Power
- Union Gas-Gas

Other third party utility companies may be relocated throughout and adjacent to the corridor, should they choose to have the civil works undertaken by their own subcontractors. These include:

- Enwin – Power (Windsor)
- Essex Power Lines – Power (LaSalle)
- Cogeco Cable – Network cabling
- Bell Canada – Telephone and Communications

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- MNSI – Network and Fiber
- MTO Fiber – Advanced Traffic Management System fiber connected to City of Windsor system

In addition, the following utilities replacements will take place:

- Enwin – Replacement of existing poles with new poles at 7th Street and Lambton Road
- Hydro One – the underground powerline proposed in the DRIC EA will be an overhead powerline.

Mitigation

As with any major construction project, it is anticipated that there may be short time periods when services to customers are temporarily disrupted as new or temporary services are put in place. WEMG will work with each utility company to coordinate these temporary disruptions and customers will receive advanced notice consistent with the policies and protocols of the affected utility company. New and, where necessary, temporary utility relocations will be installed before existing utilities are removed in an effort to minimize service disruptions.

4.3 Summary of Environmental Effects, Proposed Mitigation, Commitments to Future Work

Table 4-1 outlines how the commitments identified in the Ministry of Environmental Conditions of Approval (August 2009) have been addressed during the detail design phase of this project or will be addressed during construction. Table 4-2 describes the environmental commitments have been addressed for the works described within this DCR.

Table 4-1: Ministry of Environment Conditions of Approval Relevant to DCR #1

EA Conditions of Approval		How Commitments to Future Study Have Been Addressed During Detail Design of the Project
1.0	General Requirements	
1.1	The proponent shall comply with the provisions in the Environmental Assessment which are hereby incorporated in this approval by reference except as provided in these conditions and as provided in any other approval or permit that may be issued for the undertaking.	The project will comply with all provisions as outlined in the <i>DRIC Environmental Assessment Report</i> (December 2008) and associated Conditions of Approval.
1.2	These conditions do not prevent more restrictive conditions being imposed under other statutes.	Acknowledged. Conditions associated with other permits and approvals, including ESA 2007 Permit AY-D-001-09, will be incorporated in the contract documents as appropriate.
1.3	The proponent, during detail design and	The Design and Construction Report has

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	construction of the undertaking, shall comply with the provisions for Group B Projects identified in the Ministry of Transportation Class Environmental Assessment for Provincial Transportation Facilities.	been prepared to satisfy the documentation requirements under the Class EA.
1.4	Any refinements to the alignment and to the right-of way of the undertaking shall be done in accordance with section A.2 of the Environmental Assessment and the requirements of the Ministry of Transportation Class Environmental Assessment for Provincial Transportation Facilities, as may be amended from time to time.	There are no amendments to the design or new requirements outlined in the <i>DRIC Study EA Report</i> (December 2008).
2.0	Public Record	
2.1	Where these conditions require the submission of a document that is required for the public record, the proponent shall provide two copies of the document to the Director: a copy for filing within the specific public record file maintained for the undertaking and a copy for staff use.	Two copies of the DCR will be provided to the MOE as requested.
2.2	As appropriate, additional copies of such documents will be provided to the: Regional Director; Clerk of the Town of Tecumseh; Clerk of the Town of LaSalle; and/or Clerk of the City of Windsor.	Copies of the DCR will be provided to the identified stakeholders.
2.3	The file number EA 02 07 shall be quoted on all documents required to be submitted to the ministry.	Acknowledged.
3.0	Compliance Monitoring Program	
3.1	The proponent shall prepare and submit to the Director for review an Environmental Assessment compliance monitoring program.	A Compliance Monitoring Plan (CMP) was prepared and submitted to the MOE in accordance with MOE Condition of Approval 3.0
3.2	The compliance monitoring program shall be submitted no later than one year from the date of this notice, or no later than 60 days before the commencement of construction, including initial construction, whichever is earlier.	Reporting of compliance is documented in the CMP.
3.3	The compliance monitoring program shall include monitoring of the proponent's fulfillment of the provisions of the Environmental Assessment, including mitigation measures, public consultation, additional studies and work to be carried out, and of all other commitments made during the Environmental Assessment process.	Reporting of compliance is documented in the CMP.
3.4	The compliance monitoring program must contain	The CMP includes a schedule for

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	an implementation schedule for monitoring the fulfillment of the provisions of the Environmental Assessment.	monitoring EA commitments.
3.5	A statement must accompany the compliance monitoring program when submitted to the Director, indicating that the compliance monitoring program is intended to fulfill this condition of approval.	A statement is included in Section 1.0 in the CMP.
3.6	The Director may make amendments to the compliance monitoring program.	Acknowledged.
3.7	The compliance monitoring program, as it may be amended by the Director, must be carried out by the proponent.	Acknowledged.
3.8	The proponent may, in consultation with the Director, make amendments to the compliance monitoring program.	Acknowledged.
3.9	The proponent shall make the compliance monitoring program, including any amendments made to it, available to the ministry or it's designated upon request in a timely manner when so requested by the ministry during an inspection, audit, or response to a pollution incident report or when information concerning compliance is requested by the ministry.	Agreed, the CMP will be provided to the Ministry as outlined.
4.0	Compliance Reporting	
4.1	The proponent shall prepare annual compliance reports which describe the proponent's compliance with the conditions set out in this notice and the results of the compliance monitoring program.	Annual Compliance Reports (ACRs) will be prepared as outlined.
4.2	The proponent shall submit a compliance report to the Director on an annual basis until all conditions set out in this notice are satisfied, with the first compliance report being submitted no later than one year following the date of this notice. Each compliance report shall cover the previous 12 month period.	Compliance Reports will be submitted to the MOE as outlined.
4.3	When all conditions set out in this notice have been satisfied, the proponent shall indicate in the compliance report following satisfaction that the compliance report is the final compliance report.	Acknowledged.
4.4	The proponent shall make all compliance reports available to the ministry or its designate upon request in a timely manner if requested by the ministry during an inspection, audit, or in	Acknowledged.

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	response to a pollution incident report or when information concerning compliance is requested by the ministry.	
5.0	Complaint Protocol	
5.1	The proponent shall prepare and develop a protocol on how it will deal with and respond to inquiries and complaints received during the construction and operation of the undertaking.	WEMG prepared a protocol on how inquiries and complaints received during the construction of the Works Package commencing August 2011 will be dealt with and responded to. The Works Package commencing August 2011 will not address the operations phase as this will be completed prior to and will be developed during future design stages. Reporting of compliance concerning the complaints protocol will be documented in the ACR.
5.2	The proponent shall submit the protocol to the Director for review and placement in the public record.	The final protocol has been submitted to the MOE EAAB and will be placed on the Public Record prior to the start of construction
6.0	Construction Contracts	
6.1	In carrying out the undertaking, the proponent shall ensure that as appropriate, contractors and subcontractors: Adhere to commitments made by the proponent during the Environmental Assessment process, including those made in the Environmental Assessment and in the proponent's responses to comments made during the Environmental Assessment comment periods; Meet applicable regulatory standards, regarding construction, operation and maintenance of the undertaking; and Obtain any necessary approvals, permits and licenses.	Acknowledged, WEMG will ensure that contractors and subcontractors adhere to the commitments in the EA, Conditions of Approval, and relevant regulatory standards.
7.0	Contaminated Materials	
7.1	If contaminated materials are encountered during construction, the proponent shall ensure that management of the contaminated materials is consistent with the ministry guidelines and legislation.	Acknowledged.
7.2	If contaminated materials are encountered during construction, the proponent shall contact the ministry (Windsor Area Office) prior to continuing with construction to confirm compliance with ministry legislation and guidelines.	Acknowledged. WEMG will contact the ministry (Windsor Area Office) prior to continuing with construction if contaminated materials are encountered during construction.
8.0	Surface Water Monitoring	

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8.1	Before commencing initial construction, the proponent shall identify the areas, if any, within which the undertaking may affect surface water.	Acknowledged.
8.2	The proponent shall prepare and submit to the Regional Director for review and comment a surface water monitoring plan for the areas within which the undertaking may affect surface water as identified in accordance with condition 8.1. The proponent shall submit the plan at least three months before commencing construction within any of the areas identified in accordance with condition 8.1.	A plan has been prepared and submitted to MOE in accordance with condition 8.1
8.3	The surface water monitoring plan shall identify monitoring parameters, locations and frequencies and include the requirement for interpretive report(s) prepared by a Qualified Person.	See above.
8.4	The proponent shall collect baseline data on surface water quality within the areas identified in accordance with condition 8.1. Baseline data shall be collected during the 12 months before commencement of construction and during the 12 months following the end of construction.	See above.
8.5	Following completion of the surface water monitoring required by condition 8.4, the proponent shall submit a report to the Regional Director outlining the results of the surface water monitoring program. As required, the monitoring results shall include a discussion of the adequacy and success of erosion and sedimentation control measures during construction based on surface water impacts.	See above.
9.0	Human Health	
9.1	The proponent shall prepare workplans for conducting focused assessments of risks to human health associated with the construction of the undertaking.	A work plan for a human health assessment specific to the construction of the Windsor-Essex Parkway has been prepared previously.
9.2	The proponent shall submit the focused risk assessment workplan for initial construction to the Director for review and comment as soon as possible after the date of this approval.	Prepared and submitted initial construction contract completed
9.3	The proponent shall submit the focused risk assessment workplan for the construction of the remainder of the undertaking to the Director for review and comment within one year of the date of this approval.	The focused risk assessment work plan for the construction of the remainder of the undertaking has been submitted to the Director for review and comment.

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9.4	The proponent shall carry out the requirements contained in the focused risk assessment workplans.	Acknowledged.
9.5	No later than 45 days before commencing initial construction, the proponent shall submit the results of the risk assessment for initial construction to the Director for review and comment.	Prepared and submitted initial construction contract completed
9.6	No later than 3 months before construction (other than initial construction), the proponent shall submit the results of the risk assessment for the construction of the undertaking (other than for initial construction) to the Director for review and comment.	A focused Human Health Risk Assessment for the construction of the undertaking was submitted 3 months prior to construction for review and comment.
10.0	Landscape Plan	
10.1	The Landscape Plan identified in Section 10.7 of the EA shall be prepared by the proponent in consultation with the MNR. A Landscape Plan shall be prepared for each stage of the project, and shall be provided to the MNR District Manager for review and comment no later than 90 days prior to construction of the applicable stage.	Condition does not apply to this DCR Detailed landscape plans for the DCR #1 Works package and other works will be included in a subsequent DCR
10.2	The portions of the Landscape Plan(s) dealing with ecological protection, restoration and enhancement are subject to review comment by the MNR District Manager.	See above.
10.3	The Landscape Plan(s) shall contain, at a minimum, the following: A Monitoring and Adaptive Management Protocol; Strategies for minimizing impacts to natural heritage features; Details of restoration measures; and Identification of measurable indicators that can be used to report progress towards desired targets.	See above.
10.4	The Landscape Plans must reflect any relevant conditions of any permit obtained in respect to the undertaking under the <i>Endangered Species Act, 2007</i> .	See above.
10.5	As part of the annual compliance report required by condition 4.1, the proponent shall include a discussion of the impacts of the undertaking on identified natural heritage features and their functions and whether the proposed mitigation measures in the Environmental Assessment have yielded expected results and what approaches have been used to address failures.	Acknowledged.

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10.6	The requirement for Landscape Plans set out in condition 10.1 does not apply to initial construction works not affecting critical natural heritage elements.	Acknowledged.
11.0 Compensatory Mitigation		
11.1	During the detail design phase, the proponent shall identify whether any designated natural heritage features and rare ecological communities and their functions will be lost due to the construction and/or operation of the undertaking.	All requirements as noted in the <i>Endangered Species Act, 2007</i> for the ESA 17 (2) (c) permit and conditions of the permit from MNR will be complied with.
11.2	The proponent shall determine how it will restore and/or replace any identified designated natural heritage features and rare ecological communities, including an identification of what restorative/replacement techniques the proponent will use and at which locations.	All requirements as noted in the <i>Endangered Species Act, 2007</i> for the ESA 17 (2) (c) permit and conditions of the permit from MNR will be complied with.
11.3	The proponent shall provide the information required by conditions 11.1 and 11.2 to the MNR District Manager for review and comment.	Information pertaining to the requirements as noted in the <i>Endangered Species Act, 2007</i> for the ESA 17 (2) (c) permit have been shared with the MNR.
11.4	Prior to removing a rare community, the proponent shall, in consultation with the MNR, determine the sufficiency of the proposed restorative techniques including the identification of compensation lands.	Information pertaining to the requirements as noted in the <i>Endangered Species Act, 2007</i> for the ESA 17 (2) (c) permit have been shared with the MNR and measures approved in the permit and associated conditions will be complied with.
12.0 Major Biological Feature		
12.1	During the construction of the undertaking, including initial construction, if the proponent or the MNR identifies a new major biological feature upon which the undertaking may have adverse environmental effects, the proponent shall, in consultation with the MNR and any other directly affected agencies and stakeholders, determine the responses, if any, that would prevent, change, mitigate or remedy the adverse environmental effects.	Acknowledged.
12.2	In consultation with the MNR, the proponent shall evaluate the range of possible responses developed in accordance with condition 12.1 and determine which is the preferred response.	Acknowledged.
12.3	Prior to undertaking any work that could affect a new major biological feature, the proponent shall prepare and submit to the MNR a report	Acknowledged.

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	describing the biological feature, the range of responses evaluated, the preferred response, and the results of any consultation that was carried out.	
13.0	Ojibway Prairie Wetland Complex	
13.1	The proponent shall identify the potential impacts (direct and indirect) of the construction and operation of the undertaking on the Ojibway Prairie Wetland Complex during the detail design phase for the portion of the undertaking that would cross the wetland.	Acknowledged.
13.2	The proponent shall develop mitigation measures for any potential impacts to the wetland as part of detail design.	Acknowledged.
13.3	The proponent shall provide the information required under conditions 13.1 and 13.2 to the MNR District Manager and Transport Canada for their review and comment prior to construction in any part of the wetland.	Acknowledged..

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Table 4-2: Summary of Environmental Mitigation and Commitments to Future Work

ID #	EA Environmental Element	Project Phase	Environmental Impact	Environmental Mitigation and Commitments to Future Work	How Commitments to Future Study Have Been Addressed During Detail Design for DCR #1
1	AIR QUALITY	Construction	Dust Dust / Loss of soil	<ul style="list-style-type: none"> Periodic watering of unpaved (unvegetated) areas Limiting speed of vehicular travel Sweeping and/or water flushing of the entrances to the construction zones Use of calcium chloride Use of water sprays during the loading, unloading of materials Periodic watering of stockpiles 	Mitigation measures to address dust generated by construction activities will be included in the contract documents.
2		Operation	Dust / Silt loading	<ul style="list-style-type: none"> Road sweeping practices in accordance with maintenance standards will be employed to reduce silt loading on the Windsor-Essex Parkway during the operations phase 	
3	ARCHAEOLOGICAL RESOURCES	Construction	Damage to archaeological remains	<ul style="list-style-type: none"> Should deeply buried archaeological remains be found on the property during construction activities, the Manager, Cultural Programs unit, Ontario Ministry of Culture, should be notified immediately. In the event that human remains are encountered during construction, the proponent should immediately contact both the Ontario Ministry of Culture and Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Small Business and Consumer Services. The study team will continue to consult with WIFN regarding archaeology work. 	<p>Archaeological investigations in the lands within the construction zone for the works associated with DCR #1 are being completed. WEMG/MTO will implement required mitigation of archaeological resources prior to construction</p> <p>Standard provisions regarding archaeological finds have been included in the contract documents.</p>
4	CULTURAL HERITAGE RESOURCES	Construction	Damage to built heritage resources		No built heritage concerns were identified therefore there will be no impact to cultural landscapes within the project limits.
5	DESIGNATED NATURAL AREAS	Construction	Loss of designated natural areas	<ul style="list-style-type: none"> Mitigation measures for the loss of area or ecological function of designated natural areas are similar to the mitigation measures identified for vegetation and wildlife. 	No Designated Natural Areas (DNA) will be impacted by the construction of the August 2011 Works project.
6		Operation		<ul style="list-style-type: none"> Opportunities to dedicate portions of these lands to appropriate parties for protection will be discussed at later design stages. Lands will be available to be dedicated for protection including provincially rare vegetation communities, habitat for Species at Risk, wildlife corridors and other ecological functions. Consideration of these options would be done in consultation with appropriate regulatory agencies (e.g. DFO, MNR) and with other authorities who may have a role in environmental stewardship, including municipalities, ERCA and WIFN. 	
7	DRAINAGE AND STORMWATER MANAGEMENT	Construction / Operation	Changes to water quality and quantity	<ul style="list-style-type: none"> Stormwater quality control that will be provided with the Windsor-Essex Parkway will lead to an overall enhancement to water quality. The proposed stormwater management strategy consists of utilizing flat-bottomed grassed swales where feasible for surface drainage and stormwater management wet ponds to provide Enhanced Protection Level quality, quantity and erosion control to runoff. Vegetative SWMP's such as enhanced ditches, bio-swales and plunge pools are to be utilized along critical highway areas where access to a Stormwater management pond is limited, as well as to provide localized erosion control measures. Due to the high groundwater level associated with the study area, clay or impermeable liners will be required for swales in areas of high aquifer vulnerability. 	<p>Conditions relating to surface water monitoring will be in compliance with the Conditions as outlined in the MOE Conditions of Approval that are specific to the August 2011 Works project.</p> <p>Drainage design will be undertaken as part of future design stages. Salt Management Plan will be prepared prior to Operations.</p>

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8		Operation	Implementation of Monitoring Plan - no Environmental Impact	<ul style="list-style-type: none"> The need for measurement of baseline conditions in watercourses will be investigated during future design stages in consultation with the appropriate regulatory agencies. A monitoring plan may be required to confirm that the construction and operation of the project will not degrade water quality. This requirement will be investigated during future design stages. 	
9			Can potentially affect wildlife, vegetation, soil and surface water	<ul style="list-style-type: none"> A Salt Management Plan has been developed in accordance with Environment Canada's Code of Practice for the Environmental Management of Road Salts (Environment Canada, 2004). MTO follows best management practices for road salt management, which are consistent with the best practices in North America. MTO partners with stakeholders using the latest technology, tools and methods to keep roads safe for winter driving and to minimize salt usage. <p>Best management practices include advanced weather forecasting, electronic spreader equipment, the use of brines in pre-wetted salt, and varying application rates of road maintenance materials to match weather conditions. MTO will continue to investigate de-icing alternatives to control and reduce salt usage while ensuring highway safety.</p>	
10	ECONOMIC IMPACTS	Design / Construction	Local business	<ul style="list-style-type: none"> For businesses that are temporarily disrupted several forms of mitigation will be used, including: <ul style="list-style-type: none"> The service road network will allow for adequate access to existing commercial corridors; Signage will be considered at certain locations to make motorists aware of businesses/business clusters, as policies permit; and Efforts will be made during the construction phase to ensure access is maintained to operating businesses. 	<p>WEMG is meeting with local businesses and residents to address temporary closure of North Talbot Road.</p> <p>A signage plan has been developed for construction activities associated with this DCR.</p> <p>Throughout construction, mobile and fixed signage will be used to inform the community of local road closures and lane restrictions. Signs will be erected prior to construction to ensure community members are aware of future traffic impacts.</p>
11	EXISTING AND PLANNED LAND USE	Design	Loss of natural land	<ul style="list-style-type: none"> The following municipalities will be consulted; City of Windsor, Town of Tecumseh, Town of LaSalle and Essex County through the development of an integrated Urban Design and Landscape Plan during later design stages. Further consultation between Hydro One and Transport Canada/Public Works and Government Services Canada will be completed during future design phases. 	Landscape Plans will be developed as part of future design and construction stages for The Windsor Essex Parkway. Utility relocations we will addressed by affected utility companies.
12	FISH AND FISH HABITAT	Construction	Alterations to base flow	<ul style="list-style-type: none"> The increases in impervious surfaces and areas of soil compaction should be minimized to facilitate as much infiltration of surface water as possible. Management of stormwater through the development and implementation of a stormwater management plan will address potential reductions in base flow. Methods that encourage infiltration will be investigated. Flows in watercourses will be monitored during dewatering activities and measures will be implemented in the event that base flow is significantly affected. 	<p>No anticipated losses of direct fish habitat associated with works around McKee, Burke, or Titcombe Drains.</p> <p>In-water work timing restrictions will be employed to minimize impact on downstream fish habitat.</p> <p>Construction in drainage features will be carried out 'in-the-dry'.</p>
13			Changes to water quality and quantity	<ul style="list-style-type: none"> Sediments should be prevented from reaching sensitive areas through erosion and sediment controls and exposed soils stabilized as soon as possible. 	
14			Changes to water quality	<ul style="list-style-type: none"> Best construction practices should be employed to reduce the potential for spills and 	Culvert lengths will be minimized and new crossing

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15			and quantity	materials/equipment from entering water. • Maintenance, fuelling and storage should occur at least 30 m from watercourses/drains. • Debris should be prevented from entering watercourses/drains and a spill response plan should be developed.	structures will be constructed using fish friendly designs where applicable and feasible. Sediment and erosion control measures will be employed during construction.
16			N/A	• An environmental inspector should be present on site during critical in-water work activities. • Post-construction monitoring is typically prescribed in the federal Fisheries Act authorization. The terms and conditions of the federal Fisheries Act authorization will be met. • Post-construction monitoring, if prescribed, will determine the effectiveness of environmental protection and compensation measures, identify problem areas and recommend corrective measures. • The performance of any fish passage system (mechanical or manual lifts) should be monitored for at least two years after construction to ensure that they are passing fish as designed. During spring migration (March/April), a fish passage study using mark-recapture or radio telemetry could assist in determining the effectiveness of fish passage.	
17			Barriers to fish passage	Water flow should be maintained during construction.	
18			Mortality of fish species	• The magnitude of effects should be minimized through the employment of timing windows for in-water work, commencing work only when all materials are present and staging of work to minimize duration. • Work should be performed in the dry and isolated fish should be captured and relocated by qualified personnel.	
19		Operation	Barriers to fish passage	• Culverts, designed using fish-friendly methods, and channels, designed using natural channel design principles, should not form barriers to fish passage during operations. • Fish passage options (including mechanical and manual lifts) will be considered at Cahill and Lennon Drains to provide safe fish passage across the Windsor-Essex Parkway. • If the feasibility of maintaining fish passage in Cahill and Lennon Drains is found to be impractical due to costs, maintenance, hazards to roadway, etc., additional habitat creation areas within the Windsor-Essex Parkway area will be examined, in addition to the possibility of offsite compensation for the potential loss of productivity in the form of financial contributions to fund, or help to fund, nearby fish habitat restoration/enhancement projects • Consideration for project funding regarding fish passage options should be done in consultation with appropriate regulatory/environmental agencies (e.g., DFO, ERCA, MNR, municipalities). Walpole Island First Nations have also expressed an interest in the development of solutions to address possible fisheries impacts	
20			Loss of fish habitat	The extent of fish habitat affected can be minimized through engineering structures to fit within the smallest possible footprint areas.	

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21				<p>Culvert lengths and extensions can be minimized through the use of headwalls, wingwalls and guide rails and extensions should match the inverts of the existing culverts and streambeds.</p> <p>New crossing structures should be constructed using fish-friendly designs including appropriate horizontal and vertical clearances, open bottoms, countersinking, etc.</p> <p>Realigned channels should be designed using natural design principles to enhance new habitat over existing habitat.</p> <p>Riparian vegetation should be maintained where possible.</p> <p>A fish habitat compensation plan will be prepared during later design stages to ensure no net loss of the productive capacity of fish habitat.</p>	
22			Effects on Water Quality and Quantity	<p>Stormwater quality control that will be provided with the Windsor-Essex Parkway will lead to an overall enhancement to water quality and a net benefit to fisheries.</p> <p>Stormwater runoff associated with the Windsor-Essex Parkway will be treated in stormwater management wet ponds designed in accordance to the MOE document "Stormwater Management Planning and Design Manual" for Enhanced Protection Level. This will require the removal of 80 per cent of total suspended solids (TSS), as well as providing erosion attenuation of the 25 mm storm for 24 hours.</p> <ul style="list-style-type: none"> In addition, the stormwater management ponds will provide quantity storage to control peak flows from the Windsor-Essex Parkway to pre-development rates. Deck drains are not proposed on the crossing and runoff will be collected to stormwater detention facilities for quality treatment prior to discharging to the river, as necessary and feasible. In addition, the removal of 30 entrance culverts and the plan to provide a natural channel configuration for a significant area of the Wolfe Drain will result in a gain of fish habitat. 	
23			Alterations to base flow	<ul style="list-style-type: none"> A stormwater management plan should be developed and implemented to ensure that reductions in base flow do not occur. 	
24			Changes to water temperature	<ul style="list-style-type: none"> A stormwater management plan will be developed which will address the treatment of run-off. 	
25	GROUNDWATER	Construction	Changes to water quality and quantity	<ul style="list-style-type: none"> A stormwater management plan should be developed and implemented to treat run-off during operations. 	
25	GROUNDWATER	Construction	Groundwater pressure / Soil stability	<ul style="list-style-type: none"> In areas with artesian groundwater pressures, generally west of Malden Road, groundwater pressure mitigation measures may include use of controlled density drilling fluids for installation of deep foundations (e.g. drilled shafts or caissons) so as to minimize or avoid the need for dewatering. Detailed investigations, testing, and analyses will be required during final design to adequately assess the feasibility of dewatering or groundwater depressurization within the bedrock or overlying granular soils, the consequent effects of dewatering/depressurization (if any), and any mitigation measures needed to minimize or avoid the influence of such work on the surrounding area. If a Permit to Take Water is required, Ministry of the Environment (MOE) approval, under the <i>Ontario Water Resources Act</i>, will be sought. 	<p>Dewatering will be required for construction activities associated with the building of North Talbot Road (Bridge 15). The extent of dewatering is expected to exceed 50,000 L/day and will require a permit from the Ministry of the Environment.</p> <p>As prescribed by the Ministry of the Environment, a Permit To Take Water (PTTW) will be obtained for these works to identify:</p> <ul style="list-style-type: none"> Quantity of groundwater required during the construction period, and the

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26			Exposure of contaminated materials	<ul style="list-style-type: none"> As discussed in Section 10.2.6 of the DRIC EA Report, there are potential contaminated sites within the corridor. Where contaminated soils and material are encountered, the procedures outlined in Section 10.2.6 should be followed to minimize the risk of mobilizing contaminants due to dewatering activities. In the event that hydrogen sulphide and any other contaminants are present in the groundwater, an Ontario Water Resources Act approved treatment system may be required before discharging to a watercourse. 	<ul style="list-style-type: none"> Location of water release points. <p>Contaminated soils will be managed in accordance with WEMG's Contamination Management Plan and applicable site specific plans.</p>
27			N/A	<ul style="list-style-type: none"> The proposed works are not expected to result in significant permanent dewatering or changes in groundwater due to the limited permeability of the native soils. As a result, the study team does not anticipate significant permanent effects to adjacent vegetation communities and watercourses. <p>As expressed in the Natural Heritage Impact Assessment, the study team recognizes that further investigation may be required to more definitively establish the interaction between groundwater, surface water and the maintenance of watercourses and adjacent natural heritage areas.</p> <p>The study team agrees that groundwater monitoring wells should be installed and monitored in areas where below-grade works are near sensitive vegetation communities.</p>	
28	MOLLUSCS AND INSECTS	Construction	Loss of molluscs and insects, including Species at Risk and their habitat	<ul style="list-style-type: none"> The area for vegetation removals has been minimized to the extent possible, and areas that should be protected during construction will be delineated prior to construction start. The mitigation measures prescribed for Monarchs will also reduce potential impacts to other insect species. To avoid impacts to Species at Risk and their critical habitat, vegetation removals will be avoided in the vicinity of Species at Risk and their habitat during the growing season. Following construction other disturbed areas that re-vegetate are also likely to self-seed with host plants and create additional Monarch habitat. The construction limits will be delineated with sensitive areas identified prior to the start of construction. 	<p>Areas for vegetation removal to be minimized to the extent possible. Commitments have been made in the overall Landscape Plan to provide "like for like" habitat replacement. Temporary or permanent vegetation treatments will be consistent with Landscape Plan objectives.</p>
29				<ul style="list-style-type: none"> Good housekeeping practices will be employed to prevent the contamination of habitat adjacent to the work area. In the event of an upset or spill, a quick and effective response to contain the spill and clean up the area will be employed. 	
30				<ul style="list-style-type: none"> The areas for restoration and enhancement will result in the creation of new Monarch habitat, as those areas will be intentionally or naturally seeded by host plants. 	
31	NOISE & VIBRATION	Design	Noise	<ul style="list-style-type: none"> The pavement design shall consider the generation of noise from roadway elements which do not exceed the noise levels assumed within the acoustic modeling carried out within this Environmental Assessment for the purposes of identifying impacts to surrounding communities and mitigation strategies. 	Mitigation control measures to reduce noise during construction will be incorporated into the contract documents and employed during construction.
32		Design / Construction	Noise	<ul style="list-style-type: none"> Consultation with communities will continue during the design and construction phases, to provide additional opportunities for input on noise mitigation measures during both the construction and operation stages 	There are no identified vibration impacts identified for the works associated with this DCR.
33		Construction	Noise	<ul style="list-style-type: none"> Ensure that all construction equipment used is in good repair, fitted with functioning mufflers, and complies with the noise emission standards outlined in MOE guidelines 	Complaints protocol will be in place prior to construction.

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34			Noise	<ul style="list-style-type: none"> To the greatest extent possible, limit the most noisy construction activities to daytime hours Where the sequencing of construction permits, permanent noise barriers and/or berms may be built during the early phases of construction in order to reduce construction noise levels at receptor locations Maximize the distance between the construction staging areas and nearby receptors to the greatest extent possible 		
35			Noise	<ul style="list-style-type: none"> Maintain construction haul roads to prevent potholes and ruts to avoid the loud noise caused by construction vehicles traveling over uneven road surfaces 		
36			Local communities	<ul style="list-style-type: none"> Develop a process for receiving, investigating and addressing construction noise complaints received from the public 		
37			Operation	Noise		<ul style="list-style-type: none"> In all cases, for receptors located in areas along the Windsor-Essex Parkway, the proposed 5 m high noise barrier where required is effective in reducing the predicted project noise to within 5 dB of the estimated baseline noise levels. In many cases, especially for receptors on the north side of the Windsor-Essex Parkway a decrease in noise levels compared to future "No-Build" noise levels is predicted.
38			Vibration	<ul style="list-style-type: none"> Based on the field monitoring results, it is expected that the vibration levels as a result of implementation of the Windsor-Essex Parkway will comply with MOE criteria. For this reason, no measures are being proposed to mitigate vibration levels. 		
39	PROTECTION OF COMMUNITY AND NEIGHBOURHOOD CHARACTERISTICS	Design / Construction	Local communities	<ul style="list-style-type: none"> For residents in the Spring Garden area, protect and maintain and landscape as much as possible to enhance the lands between the residences and the facility Assess the need for improvements to Montgomery Drive 	<p>Ontario is in ownership of the lands required for the Works (no additional property is required).</p> <p>A Communications Plan has been developed to address community concerns during construction.</p> <p>The project limits are not in close proximity to the Spring Garden area.</p> <p>Lighting to be installed for the works associated with this DCR will be consistent with requirements of the EA.</p>	
40		Design / Operation		<ul style="list-style-type: none"> For the Windsor-Essex Parkway, illumination will be designed to provide sufficient lighting for the roadways while limiting light trespass beyond the roadways, and full cut-off luminaires will be provided. Additional details of the illumination system will be determined during subsequent stages of design. 		
41		Construction		<ul style="list-style-type: none"> Implement a communication process during construction to manage disruption effects experienced by residents 		
42				<ul style="list-style-type: none"> Develop and maintain regular communications with emergency services, municipalities with regard to changes to the road network, municipal services, etc. 		
43		Construction / Operation		<ul style="list-style-type: none"> Implementation of the "willing seller-willing buyer" property purchase program Fair market value for properties required for the project 		
44	TRANSPORTATION FACTORS FOR THE RECOMMENDED PLAN	Construction	Loss of municipal roads	<ul style="list-style-type: none"> Temporary assumptions of portions of municipal roads will be required to facilitate construction. Assumed portions not required for highway purposes will be transferred back to municipalities upon completion of construction. 	<p>General Transportation Commitments to minimize disruption to the surrounding community and local traffic patterns as much as possible, and to maintain local access to residences and businesses have been addressed through the development of the construction staging plan.</p> <p>Utility relocations by third parties will take place</p>	
45			Local communities	<ul style="list-style-type: none"> The relocation of existing utilities and other municipal services will be required to facilitate construction of the Windsor-Essex Parkway. Relocations and approvals will generally take place in the early stages of construction to minimize risk to construction schedules, but may be included within a design-build 		

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46				<ul style="list-style-type: none"> contract. Complete details and a utility relocation strategy will be prepared during future design stages of the project. Utilities that must be maintained parallel to the Windsor-Essex Parkway will be relocated to utility corridors, where possible and as required. 	<p>prior to construction.</p> <p>Car pool lot to be constructed as part of the works associated with this DCR.</p>
47		Operation	Local communities	<ul style="list-style-type: none"> Future stages of design will include the consideration of renewable energy sources to power portions of the illumination system, including the use of solar panels to power lighting along the trail system. Full illumination will also be provided along the freeway portion of the Windsor-Essex Parkway. Lighting will be designed to minimize light intrusion into surrounding areas, while ensuring adequate lighting for operational requirements. This may involve using full cut-off luminaires, shielding, if necessary, and investigating the use of conventional lighting in place of high mast lighting. Illumination within the tunnel sections of the freeway will be designed to ensure driver's eyes can adjust to the changing lighting conditions between the tunnel and open sections of the freeway. Adaptive lighting will be provided that varies the strength of illumination depending on the time of day and lighting conditions outside the tunnel. 	
48				<ul style="list-style-type: none"> The vertical alignment of the proposed freeway will adhere to general principles as outlined the report. From the plaza to the Huron Church Road corridor, the Windsor-Essex Parkway will be constructed to match the existing profile of E.C. Row Expressway and will be grade separated over Matchette Road, Ojibway Parkway and the Essex Terminal Railway. The freeway will generally be constructed between 4 and 7 m below-grade along the Highway 3/Huron Church Road corridor, except for a stretch at Turkey Creek where the freeway will be between zero and 2 m below grade. Additional study will be completed during future design stages to determine the layout and general feasibility of providing a carpool lot on the Howard Avenue diversion, south of the proposed roundabout at realigned Highway 3. Additional consultation with the public and local municipalities will guide future decisions regarding the proposed trail network. Future design and consultation stages will include a consideration of issues such as winter maintenance of the trail system, illumination, potential connections to the Chrysler Greenway, and the surface treatment to be provided along the trail. In keeping with the concept of creating an Intelligent Border Crossing, the Windsor-Essex Parkway will include an Advanced Traffic Management System (ATMS). The ATMS will help to reduce travel delay and travel time uncertainty, enhance safety, 	

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				reduce the costs associated with cross-border travel, and reduce the negative impacts of the border crossing to surrounding communities.	
49	URBAN DESIGN AND LANDSCAPE PLAN	Operation	Visual and landscape impacts	<ul style="list-style-type: none"> This plan will build upon the concepts and principles established at this stage. The Urban Design Plan will address the visual aspects of the form, finish and materials used in the landscape and open spaces as well as in proposed structures (e.g. bridges, abutments, retaining walls, noise attenuation and safety barriers). The Urban Design Plan will also be closely coordinated with the future Landscape Plan. The Urban Design Plan will be developed as part of a consultation process with local stakeholders. Partnerships will be developed with First Nations, federal, provincial and local stakeholders to provide for the curation of public art associated with potential gateway features. <p>Mitigation measures to reduce or improve visual and landscape impacts will include:</p> <ul style="list-style-type: none"> The development of clear urban design and aesthetic guidelines to guide future design. The use of land forming and vegetation strategies to improve views, aesthetics, ecological function and screening. The inclusion of a multi-use trail system and pedestrian-accessible open space within the facility. 	Landscape Plans will be developed as part of future design and construction stages for the Windsor-Essex Parkway. LMP done and reference DCR #8
50	VEGETATION AND VEGETATION COMMUNITIES	Design / Construction / Operation	Loss of vegetation, including Species at Risk and their habitat	<ul style="list-style-type: none"> The Urban Design and Landscape Plan will include detailed prescriptions for vegetation management including edge management plans, soil management plans, use of native and non-invasive plant materials, prairie disturbance regimes, control of exotic and invasive species and management of Species at Risk. The landscaping plan will be prepared in later design stages. Opportunities will be sought to forge partnerships with parties to relocate species to lands in public ownership, to otherwise restore and enhance these lands with native plants and Species at Risk and to transfer lands within the Windsor-Essex Parkway to parties that can best protect sensitive areas. Consideration of these strategies would be done in consultation with appropriate regulatory agencies (e.g. CWS, MNR) and with other authorities who may have a role in environmental stewardship, including municipalities, ERCA and WIFN. 	<p>All trees not designated for removal shall be protected.</p> <p>The proposed works will not limit the ability to incorporate additional consultation into the final Urban Design and Landscape Plan.</p> <p>WEMG is implementing ESA Permit mitigation measures in accordance with the Conditions of ESA Permit AY-D-001-09.</p>
51		Construction	Loss of vegetation, including Species at Risk and their habitat	<ul style="list-style-type: none"> Areas that should be protected during construction will be delineated prior to construction start and no activities will be permitted in these areas. Permits and approvals required under SARA and ESA 2007 will be obtained prior to construction. Detailed mitigation strategies will be developed in order to obtain the permits. Vegetation removals will be avoided in the vicinity of Species at Risk and their habitat during the growing season. 	Protection measures will be in place prior to construction. SAR removals and mitigation for the work areas will be completed prior to construction
52	WASTE AND WASTE MANAGEMENT	Construction	Exposure of contaminated materials	<ul style="list-style-type: none"> If contamination to soil and/or groundwater is identified, a Site Management Plan may be developed for further investigation, which may include a Phase III ESA. Further evaluations could include risk assessments to determine whether the 	The works associated with this DCR will occur in areas of known or potential contamination. These areas will be managed in accordance with the

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				<p>contamination represents a potential threat to human health or the environment, typically followed by monitoring of natural attenuation (MNA).</p> <ul style="list-style-type: none"> Should any contaminated materials be encountered during construction, caution will be exercised while handling and disposing of contaminated materials. Excess materials will be managed in accordance with normal MTO practices (as governed by OPSS 180, or the most current standard at the time of construction). To evaluate the presence of ACMs, LBP and PCBs, in structures and equipment a Designated Substance Survey (DSS) may be required prior to demolition. 	<p>Contamination Management Plans and site specific plans.</p> <p>DSS has been completed for all buildings to be/have been demolished.</p>
53	WILDLIFE AND WILDLIFE HABITAT	Construction	Loss of wildlife, including Species at Risk and their habitat	<ul style="list-style-type: none"> Permits and approvals ESA 2007 will be obtained prior to construction. Detailed mitigation strategies will be developed in order to obtain the permits. On-going consultation with regulatory agencies such as ERCA, MNR, CWS as well as on-going consultation with First Nations will occur during future design stages. To avoid impacts to Species at Risk and their critical habitat, vegetation removals should not occur during the growing season in specified areas. Areas of habitat to be retained will be clearly marked in the field and protected from construction activities. Wildlife salvage will be carried out prior to clearing/grubbing to reduce the risk of wildlife mortality. A snake barrier will be installed along side portions of the construction area to prevent snakes from entering the work zone and redirect snake movements to safer areas, like the restored habitat. Snakes will be captured and relocated prior to construction as necessary, to avoid mortality. 	<p>MTO Non-Standard Provisions will be followed according to the Migratory Bird Protection – General Provisions.</p> <p>A breeding bird time restriction (<i>Migratory Birds Act</i>) will be in place (from April 1st to July 15th) for the removal of trees in the project area.</p> <p>A temporary snake fence barrier has been installed to prevent snakes from entering the work zone.</p> <p>Targeted salvage of SAR in proposed work area is underway and will be completed prior to construction.</p>
54				<ul style="list-style-type: none"> Habitat restoration and enhancement will be implemented to create new and higher quality habitat. Enhancement and restoration of habitat located along the Windsor-Essex Parkway will offset habitat loss and will establish connections between designated natural areas. The creation of new snake nesting areas and hibernacula will occur to compensate for any losses of habitat. Monitoring of the remaining Butler's arbor snake population and their hibernacula should be undertaken in order to provide for long-term protection of the Butler's garter snake population and their habitat. Eastern fox snake tracking should continue to determine their egg laying sites and hibernacula sites. 	

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5.0 PROJECT MONITORING

Monitoring programs are implemented to ensure compliance with design, conditions of permits and approvals, and assess the effectiveness of mitigation measures and identify the need for additional measures where necessary. Specifically, monitoring for the activities described in this DCR will include:

- Assessment of compliance with design and conditions of permits and approvals by project staff;
- Mitigation measures are providing the expected control and/or protection;
- Additional mitigating measures are provided as required for any unanticipated environmental conditions which may develop during construction;
- Providing documentation for an overall assessment of mitigating measures;
- Inspection by construction staff; and,
- Site visits and review by project environmental staff.

Both WEMG and MTO are responsible for environmental monitoring during construction. The respective monitoring activities are summarized in Sections 5.1 and 5.2 below.

5.1 WEMG Obligations

An essential component of the Environmental Management System (EMS) WEMG has developed for this project will be an Environmental Assessment Compliance Monitoring Plan. This monitoring plan will build on MTO's Compliance Monitoring Plan and incorporate monitoring requirements from environmental permits and approval such as the ESA permit and other monitoring obligations or commitments that will arise during the construction of the Windsor-Essex Parkway.

WEMG's monitoring activities will include the following:

- Conduct inspection and monitoring activities during construction to ensure compliance with the Environmental Assessment commitments, conditions of MOE's Notice of Approval; conditions of permits, e.g., Endangered Species Act permits, project specific plans, and this DCR;
- Conduct daily inspection and monitoring of environmental protection measures and if necessary direct changes to improve environment protection;
- Carry out monitoring of the implementation of restoration and management for the species included in the ESA Permit; to ensure compliance with the plans and to facilitate adaptive management decisions, where necessary;
- Regular reporting - Provide bi-weekly, environmental reports documenting the monitoring activities, successes/failures, and actions taken; and,
- Provide annual compliance reports, as per EA Condition of Approval 4, demonstrating compliance with the conditions of MOE's Notice of Approval.

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5.2 Ministry of Transportation of Ontario (MTO) Obligations

As outlined in the DRIC EA report (2008), MTO has committed to specific obligations for monitoring throughout the Windsor-Essex Parkway project development. During construction, MTO or its agent (in this case WEMG) will ensure that the implementation of the mitigating measures and key design features are consistent with the approvals of the EA and in accordance with the contract. In addition, WEMG will assess the effectiveness of its environmental mitigating measures to ensure the following:

- Individual mitigating measures are providing the expected control and/or protection;
- Composite control and/or protection provided by mitigating measure is adequate;
- Additional mitigating measures are provided as required for any unanticipated environmental conditions which may develop during construction;
- Information is available for the overview assessment of mitigating measures; and,
- Environmental monitoring, after a project is completed, may involve follow-up monitoring of significant measures and /or significant concerns.

During construction, MTO will also ensure that external notification is consistent with any commitments regarding notification and consultation that have been made. Following construction, monitoring will ensure that any follow-up information is provided to external agencies as per any outstanding environmental commitments. The WEMG will be responsible for all monitoring as part of its agreement for maintaining the parkway for 30 years after construction.

5.3 Environmental Assessment Compliance Monitoring

The purpose of compliance monitoring is to ensure compliance with the provisions of the EA and agreed divisions of responsibility between WEMG and MTO. Compliance monitoring will be achieved through the Compliance Monitoring Plan (CMP). The CMP provides guidance on tracking and recording compliance and monitoring efforts on a project. The following provisions are subject to compliance monitoring:

- Mitigation measures;
- Consultation;
- Additional studies and work to be carried out;
- Obtaining necessary Conditions of Approval (CofA) from MOE; and
- All other commitments made during the preparation and review of the EA.

The CMP describes the actions required to address the commitments of MTO and to provide the indicators to be used to verify compliance.

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During construction, the Project will progress through a series of detail design and construction phases, and then to the operation/maintenance phase. For the operations and maintenance phases a commitment was included in the EA requiring that an Environmental Management System be in place.

For each phase, the MTO will ensure that the role of Environmental Compliance Manager will be fulfilled, either by MTO or by its agents or third party proponents.

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APPENDIX A

DRAWINGS

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APPENDIX B

PUBLIC CONSULTATION MATERIALS

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APPENDIX C

COMMENTS FROM PUBLIC AND RESPONSES