



Canada-United States-Ontario-Michigan Border Transportation Partnership

Draft Cultural Heritage Work Plan

**February 2006
Version 2**

PREFACE

The Canada - U.S. – Ontario - Michigan Border Transportation Partnership (The Partnership) is composed of the Federal Highway Administration and Transport Canada representing the federal levels of government, and the Ontario Ministry of Transportation and the Michigan Department of Transportation representing the provincial/state level. The purpose of the Partnership is to improve the movement of people, goods, and services across the United States and Canadian border within the region of Southeast Michigan and Southwestern Ontario.

This international transportation improvement project will require approvals from governments on both sides of the border. The Partnership has developed a coordinated process that will enable the joint selection of a recommended river crossing location that meets the requirements of *Ontario Environmental Assessment Act* (OEA), *Canadian Environmental Assessment Act* (CEAA), and *National Environmental Policy Act* (NEPA).

The goal of the partnership is to:

- obtain government approval for a new or expanded crossing with connections to the provincial highway system in Ontario and the interstate freeway system in Michigan, including provisions for processing plazas to improve traffic and trade movements at the Windsor-Detroit border;
- completion of comprehensive engineering to support approvals, property acquisition, design and construction; and,
- submit environmental assessment documents to request approval by December 2007.

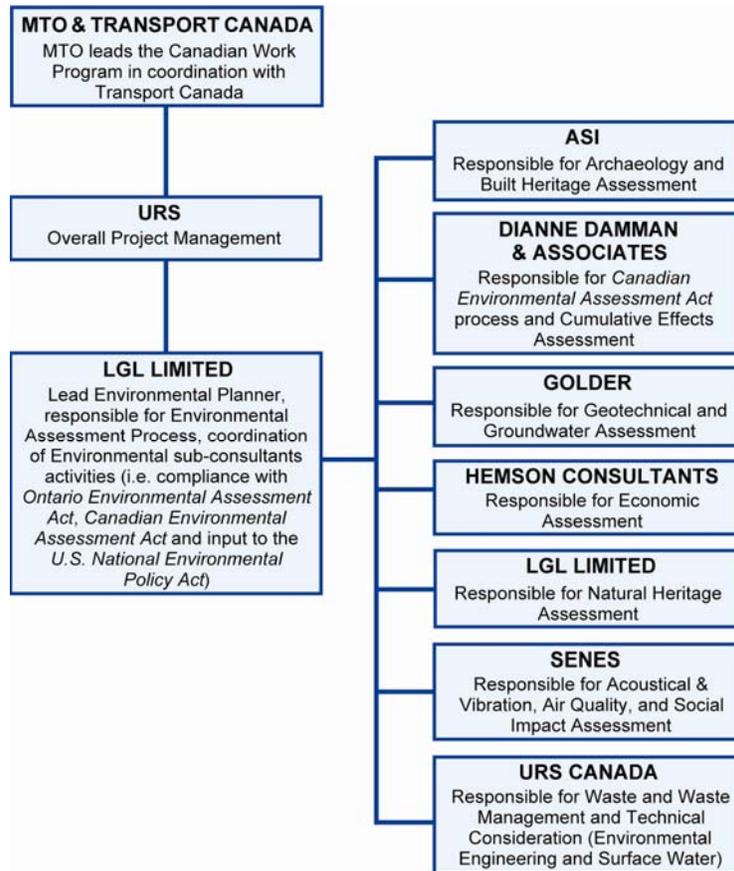
The Partnership completed a *Planning/Need and Feasibility Study* (P/NF) in January 2004 to address cross-border transportation demands for a 30-year planning period. Included in the documentation for that study was an Environmental Overview Report which provided an inventory of the existing condition in a Focused Analysis Area. Subsequently, in accordance with the *Ontario Environmental Assessment Act*, MTO prepared and submitted in May 2004 an environmental assessment Terms of Reference to the Ontario Ministry of the Environment for review and approval. The Terms of Reference was approved by the Ontario Minister of the Environment on September 17, 2004. The Terms of Reference outlines the framework that MTO and Transport Canada will follow in completing the Detroit River International Crossing Environmental Assessment (DRIC EA).

The Ontario Ministry of Transportation (MTO) is leading the Canadian work program in coordination with Transport Canada. The Michigan, Department of Transportation (MDOT), in coordination with the Federal Highways Administration (FHWA), is leading the U.S. work program.

The partnership is moving forward with technical and environmental work leading to the selection of a new or expanded border crossing, to address cross-border transportation demands for a 30-year planning period.

As an initial step in the DRIC EA process and to build upon the work completed, in-depth secondary source data collection has been conducted. This work has been focused within the Preliminary Analysis Area (PAA) identified in the Environmental Overview Report, (as Amended January 2005). The noted data collection effort has been documented in a series of Working Papers. Working Papers have been prepared for the following topics: social impact assessment; economic assessment; archaeological resources; cultural resources; natural heritage; acoustics and vibration; air quality; waste and waste management; and technical considerations. The Working Papers are presented within the Environmental Overview Report (June 2005).

The Canadian Study Team and their tasks are presented below.



The purpose of the Working Papers is to document the secondary source data collection by: describing the data collection/sources used; providing an overview of study area conditions; identifying significance/sensitivity of features in the study area; and, identifying gaps in study area data and developing Work Plans to fill identified data gaps.

In conjunction with the Working Papers, a Work Plan for each discipline has been prepared to structure the filling of identified data gaps. They provide:

- a schedule and order of events for the subject under investigation by phase;
- a rationale for further data collection methodologies;
- data sources;
- methods of assessment, criteria, indicators and measures; and,
- details on the integration of each work plan with the work plans of other disciplines.

The Work Plans have been developed based on current knowledge of existing conditions within the PAA and therefore, should be considered to be living documents which will be subject to agency and public review. The partnership is aware that the assessment and evaluation of alternatives at all phases will require applying the requirements of three pieces of legislation, the OEA, CEAA, and NEPA. Therefore, in preparing the Work Plans, the partnership has sought to integrate the most rigorous requirements from each piece of legislation.

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1. INTRODUCTION

1.1 Planning/Need and Feasibility Study – Existing Environmental Conditions

The Partnership jointly commissioned a Planning/Need and Feasibility Study (P/NF) (Canada-US-Ontario-Michigan Border Transportation Partnership 2004), which identified a long-term strategy to address the safe and efficient movement of people and goods between southeast Michigan and southwest Ontario. Although conducted in a manner consistent with the environmental study processes in both countries, the P/NF Study was not completed within the formal environmental study framework. The findings of the P/NF Study, however, serve as an important basis for governments to move forward in the development and improvement of cross border transportation services, including proceeding with the environmental study processes in the U.S. and Canada for major transportation improvements at the Detroit River International Crossing.

A consultation component was incorporated into the P/NF Study process. Canadian and U.S. government departments, ministries and agencies, local municipalities, First Nations groups, private sector stakeholders in border transportation issues, as well as the general public were engaged in the course of the study. Throughout the P/NF Study, the Partnership affirmed that the findings of the P/NF Study may be used to initiate environmental studies in accordance with the requirements of the U.S. *National Environment Policy Act* (NEPA), *Canadian Environmental Assessment Act* (CEAA) and *Ontario Environmental Assessment Act* (OEAA). This step would be followed by completion of the appropriate environmental impact/assessment studies, design of the approved improvements and ultimately, construction.

During preparation of the P/NF Study, background papers were prepared to establish existing conditions within the Preliminary Analysis Area (PAA). The PAA is roughly bounded by 9th Concession Road in the Town of Lakeshore, County Road 18 in the Town of Amherstburg on its southern extent and by the Detroit River on its western and northern extent. An Environmental Overview Working Paper (Canada-US-Ontario-Michigan Border Transportation Partnership 2005) was prepared to document environmental constraints which may preclude or otherwise constrain the generation of feasible transportation alternatives. The information contained in the Environmental Overview Working Paper was gathered from readily available secondary sources.

Since cultural heritage resources may be impacted adversely by both public and private land development, it is incumbent upon planning and approval authorities to consider cultural heritage resources when making planning decisions. In broad terms, cultural heritage resources includes archaeological, built heritage, and cultural heritage landscape resources; however, this cultural heritage work plan deals specifically with built heritage resources and cultural heritage landscape resources. A separate work plan has been prepared for archaeological resources. Accordingly, where cultural heritage resources are referred to throughout this work plan, this is in reference to built heritage resources and cultural heritage landscape resources.

Cultural heritage resources identified in the Environmental Overview Working Paper included built heritage resources and areas of heritage significance. A summary of the cultural heritage information contained in the Environmental Overview Working Paper is presented below. Information has been supplemented by Archaeological Services Inc.

1.1.1 Built Heritage Resources

The Environmental Overview Working Paper defines historical sites as typically being structures representative or unique to their time, geographical locations where important events have taken place, or which are associated with historically prominent people. Four hundred and sixty-six such historical sites were counted during the preparation of the Environmental Overview Working Paper. During the ongoing analysis of cultural heritage resources, discussion of “historic sites” will be replaced by discussion of “built heritage resources” and “cultural heritage landscapes.”

Built heritage resources are, in brief, individual structures or objects, or groups of such structures or objects, that people have made or modified and that are valued for the contribution they make to our understanding of the history of a place, an event, or a people.

The initial data collection exercise for the PAA resulted in the identification of 837 built heritage resources, including nine National Historic Sites, 14 properties that have heritage easements placed on them, 114 properties designated under Part IV of the *Ontario Heritage Act*, and 700 properties listed in the City of Windsor and the Town of Amherstburg heritage inventories. In addition, it was noted that the Ambassador Bridge is a significant built heritage resource within the PAA.

The Ministry of the Environment has designated nine properties within the PAA as National Historic Sites of Canada. These include the Sandwich First Baptist Church and the Francois Baby House in the City of Windsor, and the Bois Blanc (Boblo) Lighthouse, the Bois Blanc (Boblo) Blockhouse, the Amherstburg Naval Yard, the Bellevue House, the Nazrey A.M.E. Church (museum), the Fort Malden Barracks, and the Fort Malden Earthworks in the Town of Amherstburg.

Fourteen properties have heritage easements held on them in perpetuity by either their local municipality or the Ontario Heritage Foundation. Thirteen of these properties are within the City of Windsor and one of these properties is within the Town of Amherstburg.

One hundred and fourteen properties have been designated under Part IV of the *Ontario Heritage Act*, including 83 in the City of Windsor and 31 in the Town of Amherstburg.

1.1.2 Cultural Heritage Landscapes

Cultural Heritage Landscapes are, in brief, areas of land the use and appearance of which is at least in part the result of human modification, and which are valued for the contribution they make to our understanding of the history of a place, an event, or a people. The identification of cultural heritage landscapes that may be affected by the

proposed undertaking will be carried out during the cultural heritage assessment, as described in this Cultural Heritage Work Plan.

Within the PAA, certain areas have been preliminarily identified as significant because they represent aggregate areas of historic activity and built heritage resources. These areas are: the Ambassador Bridge, the old town of Sandwich (now in the City of Windsor), Highway 18 (Ojibway Parkway), Huron Church Road, the former Town of Windsor (now part of the City of Windsor), Highway 3 (The Talbot Road), Highway 46 (The Middle Road), Amherstburg, and Fort Malden National Historic Park (in Amherstburg).

1.2 Detroit River International Crossing – Terms of Reference

A Terms of Reference was submitted to the Ontario Ministry of the Environment for approval in May 2004. The Terms of Reference identifies the framework that the proponent must follow in completing an individual environmental assessment. The Terms of Reference received approval in September 2004.

The planning process that the Route Planning Study and Environmental Assessment Study will follow is outlined in the Terms of Reference and consists of four stages:

- Stage 1 – Define Study Area;
- Stage 2 – Illustrative Alternatives;
- Stage 3 – Practical Alternatives; and,
- Stage 4 – Concept Design Alternatives.

1.3 Cultural Heritage Work Plan

The Cultural Heritage Work Plan presents the approach and methodology for conducting the Cultural Heritage Investigation for the Detroit River International Crossing Route Planning and Environmental Assessment Study. The proposed approach to completing the Cultural Heritage Investigation is to increase the level of detail used to assess cultural heritage resources progressively as the geographical area of study is sequentially narrowed down. The proposed level of analysis, resolution, and type of data collection at each stage of the study is designed to maximize efficiency. The Cultural Heritage Investigation is also designed to complement the work to be performed in the U.S. A summary of the Cultural Heritage Investigation in relation to the study stages is presented in Table 1.

At each stage of the study process, similar tasks will occur. These tasks include:

Task 1 – Define Area of Investigation - Identify the study area for the purposes of investigating the potential effects of the project.

Task 2 – Data Collection - Identify the type, source, level of detail and methods to be used to obtain information.

Task 3 – Data Analysis - Identify how the information will be interpreted to determine the significance and sensitivity of cultural heritage resources.

Task 4 – Evaluate Alternatives - Identify the cultural heritage criteria and indicators that will be used to compare alternatives.

Task 5 – Conduct Impact Assessment - Identify the range of potential environmental effects to be assessed.

Task 6 – Recommend Environmental Protection Measures - Identify the range of potential environmental protection measures to be assessed. Environmental protection measures typically include avoidance, minimization, mitigation, compensation and monitoring.

These tasks are summarized for each stage of the study process in Table 1.

TABLE 1. CULTURAL HERITAGE INVESTIGATION BY STUDY STAGE

Study Stage ¹	Level of Analysis ²	Task 1 Define Area of Investigation	Task 2 Data Collection	Task 3 Data Analysis ³	Task 4 Evaluate Alternatives	Task 5 Impact Assessment	Task 6 Environmental Protection Measures
Stage 1 – Define Study Area	Historical context and previously listed Built Heritage Resources/properties of potential Heritage Significance Scale of analysis is contingent on data sources, but is anticipated to be at least 1:250,000	Preliminary Analysis Area	<ul style="list-style-type: none"> • Secondary source • Air photo interpretation • Historic mapping 	<ul style="list-style-type: none"> • Prepare contextual history, broadly identifying agents or themes of historical change and cultural heritage landscape development • Identify National Historic Sites, heritage easements, properties designated under the <i>Ontario Heritage Act</i>, Ontario Heritage Bridges, and properties listed on Municipal Heritage Committee (MHC) inventories 	<ul style="list-style-type: none"> • Avoid, where feasible, built heritage resources or properties of heritage significance identified on the basis of secondary source data collection 	<ul style="list-style-type: none"> • Describe potential effects in terms of broadly-defined generic impacts • Opportunities/Constraints Analysis 	<ul style="list-style-type: none"> • Avoidance
Stage 2 – Illustrative Alternatives	Listed Built Heritage Resources/properties of Heritage Significance Scale of analysis is contingent on data sources, but is anticipated to be at least 1:250,000.	Illustrative routes, plazas, plaza extensions and crossings rights-of-way, footprints and adjacent zones of influence	<ul style="list-style-type: none"> • Secondary source 	<ul style="list-style-type: none"> • Continue to update project listing of Built Heritage Resources/properties of Heritage Significance based on ongoing data collection 	<ul style="list-style-type: none"> • Compare potential loss of or disturbance to built heritage resources located within 100 m of the rights-of-way and footprint areas in terms of number of features affected and potential significance of features affected (e.g., national significance, provincial significance, local significance) 	Opportunities/Constraints Analysis	<ul style="list-style-type: none"> • Avoidance

TABLE 1. CULTURAL HERITAGE INVESTIGATION BY STUDY STAGE

Study Stage ¹	Level of Analysis ²	Task 1 Define Area of Investigation	Task 2 Data Collection	Task 3 Data Analysis ³	Task 4 Evaluate Alternatives	Task 5 Impact Assessment	Task 6 Environmental Protection Measures
Stage 3 – Practical Alternatives	Preliminary cultural heritage inventory: identification and evaluation of Built Heritage Features and Cultural Heritage Landscapes from data collection and field review 1:10,000 scale	Practical routes, plazas, plaza extensions and crossings rights-of-way, footprints and adjacent zones of influence	<ul style="list-style-type: none"> • Secondary source, including results of community consultation • Air photo interpretation • Preliminary field review (drive-by) 	<ul style="list-style-type: none"> • Identify built heritage features within the area of investigation, including previously-listed resources and any new features identified during field review • Check accuracy of previous data collection with respect to location and condition of previously-listed built heritage resources within the area of investigation • Identify cultural heritage landscapes within the area of identification • Confirm or determine level of significance (national, provincial, local) and existing protection (if applicable) of built heritage features and cultural heritage landscapes and generically identify potential disruptions (including isolation, encroachment, alteration of setting and nuisance effects) and displacements (including removals and demolitions) 	<ul style="list-style-type: none"> • Compare potential disturbance and disruption of built heritage features and cultural heritage landscapes located and directly adjacent to rights-of-way and footprint areas (number and significance of built heritage features and cultural heritage landscapes) 	Generic Impacts	<ul style="list-style-type: none"> • Avoidance • Minimization • Generic mitigation

TABLE 1. CULTURAL HERITAGE INVESTIGATION BY STUDY STAGE

Study Stage ¹	Level of Analysis ²	Task 1 Define Area of Investigation	Task 2 Data Collection	Task 3 Data Analysis ³	Task 4 Evaluate Alternatives	Task 5 Impact Assessment	Task 6 Environmental Protection Measures
Stage 4 – Concept Design Alternatives	Detailed Cultural Heritage Inventory 1:2,000 scale	Concept design routes, plazas, plaza extensions and crossings rights-of-way, footprints and adjacent zones of influence	<ul style="list-style-type: none"> • Secondary source, including results of community consultation • Air photo interpretation • Detailed field review of identified cultural heritage resources (drive-by and property access, if available) 	Complete inventory Of Built Heritage Features and Cultural Heritage Landscapes, with detailed evaluation of significance and sensitivity to impacts	<ul style="list-style-type: none"> • Compare potential disruptions and displacements of built heritage features and cultural heritage landscapes (number, extent, significance, sensitivity) 	Conceptual Site-Specific Impacts	<ul style="list-style-type: none"> • Avoidance • Minimization • Conceptual site-specific mitigation and monitoring

¹ Detail Design is not currently included in the Detroit River International Crossing Route Planning and Environmental Assessment Study

² Built Heritage Resource – a structure or object that people have made or modified and that is valued for the contribution it makes to our understanding of the history of a place, an event, or a people.

Heritage Significance – reflects conferred heritage status (national, provincial, municipal, or other) and/or the results of evaluation.

Cultural Heritage Landscape – an area of land or a group of such structures or objects, the use and appearance of which is at least in part the result of human modification, and which is valued for the contribution it makes to our understanding of the history of a place, an event, or a people. Cultural heritage landscapes are often aggregate collections of features.

³ Protection – The 2005 Provincial Policy Statement defines protection as “real property designated under Parts IV, V or VI of the *Ontario Heritage Act*; heritage conservation easement property under Parts II or IV of the *Ontario Heritage Act*; and property that is the subject of a covenant or agreement between the owner of a property and a conservation body or level of government, registered on title and executed with the primary purpose of preserving, conserving and maintaining a cultural heritage feature or resource, or preventing its destruction, demolition or loss.

Displacement – removal or demolition of all or part of a cultural heritage resource (built heritage resource or cultural heritage landscape).

Disruption – introduction of physical, visual, audible, or atmospheric elements not in keeping with a cultural heritage resource (built heritage resource or cultural heritage landscape) and/or its setting. This includes the following: isolation of a resource by removal or demolition of all or part of a surrounding, adjacent, or associated cultural heritage landscape or built heritage feature, or by any activity that separates a resource from its setting or that acts as a barrier between a resource and its setting; any activity that encroaches on a resource or its setting; and detrimental (“nuisance”) effects of noise, dust, vibration, etc.

2. STAGE 1 – DEFINE STUDY AREA

A study area will be established to encompass the stated problems, opportunities and range of feasible alternatives. The study area will be generated based on a review of significant physical and environmental constraints that may preclude the development of feasible alternatives and the ability to provide continuous corridors of sufficient area to generate a range of linear transportation facility alternatives.

2.1 Task 1 – Define Area of Investigation

The area of investigation is the Preliminary Analysis Area identified in the amended Environmental Overview Document. In general, this includes the City of Windsor and the Towns of LaSalle, Tecumseh and Amherstburg.

2.2 Task 2 – Data Collection

Cultural heritage information will be collected from readily available secondary sources. A list of the secondary source information to be collected and its source is presented in Table 2.

TABLE 2. CULTURAL HERITAGE INFORMATION FROM SECONDARY SOURCES

Secondary Source Information	Information Source
Listing of National Historic Sites	Parks Canada
Ontario Heritage Properties Database	Ontario Ministry of Culture
Municipal Heritage Committee (MHC) Inventories	City of Windsor Town of Tecumseh (if available) Town of LaSalle (if available) Town of Amherstburg
Ontario Heritage Bridge List	Ontario Ministry of Culture
Readily-available historical summaries	Files of Archaeological Services Inc. or Library/ Archive Research

Recent aerial photography will be obtained from the County of Essex. The location and approximate geographical extent of relatively large areas of particular heritage significance will be preliminarily determined based on air photo interpretation, where appropriate.

2.3 Task 3 – Data Analysis

Based on secondary sources, an historical overview of the PAA will be prepared to broadly identify agents or themes of historical change and cultural landscape development.

A preliminary list of built heritage resources within the PAA will be prepared, based on previously-compiled lists examined during data collection. Built heritage resources will be

divided into National Historic Sites, properties with heritage easements, properties designated under the *Ontario Heritage Act*, properties listed in Municipal Heritage Committee (MHC) inventories, and bridges on the Ontario Heritage Bridge List.

If any areas are determined to have particular significance, based on their having notable concentrations of built heritage resources, these heritage sensitive areas and cultural heritage landscapes be identified and described.

2.4 Task 4 – Evaluate Alternatives

No evaluation of alternatives will be performed at this stage. The potential impacts to cultural heritage resources will be noted in generic terms and any areas of particular sensitivity will be identified to allow for consideration at all stages of planning. The goal will be to avoid, where feasible, National Historic Sites, heritage easements, Ontario Heritage Bridges, and properties designated under the *Ontario Heritage Act*. The second goal will be to avoid, where feasible, municipally-listed cultural heritage properties or features.

2.5 Task 5 – Conduct Impact Assessment

Impact assessment will be carried out using a geographical information system (GIS). Cultural heritage information will be entered into a GIS using geo-referenced polygons and/or points with an attached database. The database will be structured so that new data generated during later phases of the environmental assessment study can be easily added. Information entered into the GIS can be queried and displayed as a table or as a layer on the GIS map.

The individual layers within the GIS will be overlaid to create a composite map. The composite map will be used as a basis for examination of environmental and technical feasibility of opportunity corridors, illustrative and practical alternatives. Cultural heritage resources will be mapped based on geographic coordinates, if available, and on map or air photo interpretation based on comparison with secondary source data or municipal address, if available. The accuracy of data representation in the GIS will depend on the accuracy of the data collected. If geographic coordinates are available, it is anticipated that their location will be accurate at large scale (well above 1:50,000). If municipal address is available, it is anticipated that location will be accurate to within a small number of properties; the scale of accuracy will depend on the size of the properties and will most likely be accurate to 1:250,000 scale. If mapping of cultural heritage resources is available, accuracy will depend on the accuracy and scale of the source—likely at least 1:250,000 scale. It is anticipated that any mapping of preliminarily-identified areas of particular significance and sensitivity, based on air photo or map interpretation, will be accurate to at least 1:250,000 scale.

2.6 Task 6 – Recommend Environmental Protection Measures

Avoidance of cultural heritage resources is the only practical environmental protection measure to be considered at this stage.

2.7 Results

The historical context of cultural heritage resources in the PAA will be understood in broad terms. The PAA will be refined based on a review of cultural heritage opportunities and constraints to the development of a linear transportation facility. Illustrative alternatives will be generated and carried forward for further evaluation.

3. STAGE 2 – ILLUSTRATIVE ALTERNATIVES

Illustrative alternatives represent the full set of alternative highway alignments/crossing locations to be considered. Illustrative alternatives will be generated by identifying routes, plazas, plaza extensions and crossings extending from Highway 401 to the Canada/U.S. border.

3.1 Task 1 – Define Area of Investigation

The area of investigation is illustrative routes, plazas, plaza extensions and crossings within the Preliminary Analysis Area. In general, this includes the City of Windsor and the Towns of LaSalle, Tecumseh and Amherstburg.

3.2 Task 2 – Data Collection

Cultural heritage information collected from secondary sources, including national, provincial, and municipal inventories and lists of special designations, will form the basis for evaluation of illustrative alternatives.

3.3 Task 3 – Data Analysis

The preliminary list of built heritage resources within the PAA will be updated as necessary, based on data collection. Built heritage resources will be divided into National Historic Sites, properties with heritage easements, properties designated under the *Ontario Heritage Act*, and properties listed in Municipal Heritage Committee (MHC) inventories.

If any areas are determined to have particular significance, based on their having notable concentrations of built heritage resources or known historic associations, these cultural heritage areas will be identified and described as heritage sensitive areas and/or cultural heritage landscapes.

Cultural heritage data analysis will be accomplished with the aid of a computerized Geographic Information System (GIS). Cultural heritage resources will be mapped based on geographic coordinates, if available, and on map or air photo interpretation based on comparison with secondary source data or municipal address, if available. Built heritage resources will be represented by point data indicating the location of the features, rather than polygon data indicating the extent of the features. However, areas where there are aggregates of heritage resources or noted historic associations will be identified as heritage sensitive areas and will be represented by polygon data indicating the boundary limits of such areas. A 100-metre buffer (polygon data) will be applied to each individual built heritage resource and heritage sensitive area.

The accuracy of data representation in the GIS will depend on the accuracy of the data collected. If geographic coordinates are available, it is anticipated that their location will be accurate at large scale (well above 1:50,000). If municipal address is available, it is anticipated that location will be accurate to within a small number of properties; the scale of accuracy will depend on the size of the properties and will most likely be accurate to 1:250,000 scale. If mapping of cultural heritage resources is available, accuracy will depend on the accuracy and scale of the source—likely at least 1:250,000 scale. It is anticipated that any mapping of preliminarily-identified areas of particular significance and sensitivity, based on air photo or map interpretation, will be accurate to at least 1:250,000 scale.

3.4 Task 4 – Evaluate Alternatives

Alternatives will be evaluated using comparative criteria. The evaluation of illustrative alternatives will be based on the potential disruption or displacement of previously-listed built heritage resources within rights-of-way and footprint areas. Secondary source information will be used to determine the location and significance of cultural heritage resources. Relative weighting will be assigned to each feature based upon five heritage designation categories:

- 1) National Historic Sites;
- 2) heritage easements;
- 3) *Ontario Heritage Act* designation;
- 4) municipal heritage inventory; and
- 5) heritage sensitive area.

3.5 Task 5 – Conduct Impact Assessment

Impact assessment will be carried out using the geographical information system (GIS). Illustrative alternatives and cultural heritage resources will be overlaid on the base map and potential disruptions and displacements will be recorded for comparative evaluation purposes.

3.6 Task 6 – Recommend Environmental Protection Measures

Avoidance of cultural heritage resources is the only practical environmental protection measure to be considered at this stage.

3.7 Results

The illustrative alternatives will be evaluated to select technically preferred illustrative alternatives. Practical alternatives will be generated and carried forward for further evaluation.

4. STAGE 3 – PRACTICAL ALTERNATIVES

Practical alternatives represent the set of illustrative alternatives that, upon evaluation of impacts and benefits, are carried forward for further consideration. Practical alternatives are generated through more detailed design (although still at a preliminary level) to better identify property requirements, infrastructural implications, construction staging impacts and mitigation measures. The set of practical alternatives are all contained within an area known as the Area of Continued Analysis (ACA).

4.1 Task 1 – Define Area of Investigation

The area of investigation is practical routes, plazas, plaza extensions and crossings within the technically preferred illustrative alternative(s). This area is known as the Area of Continued Analysis (ACA) and is illustrated in Figure 1.

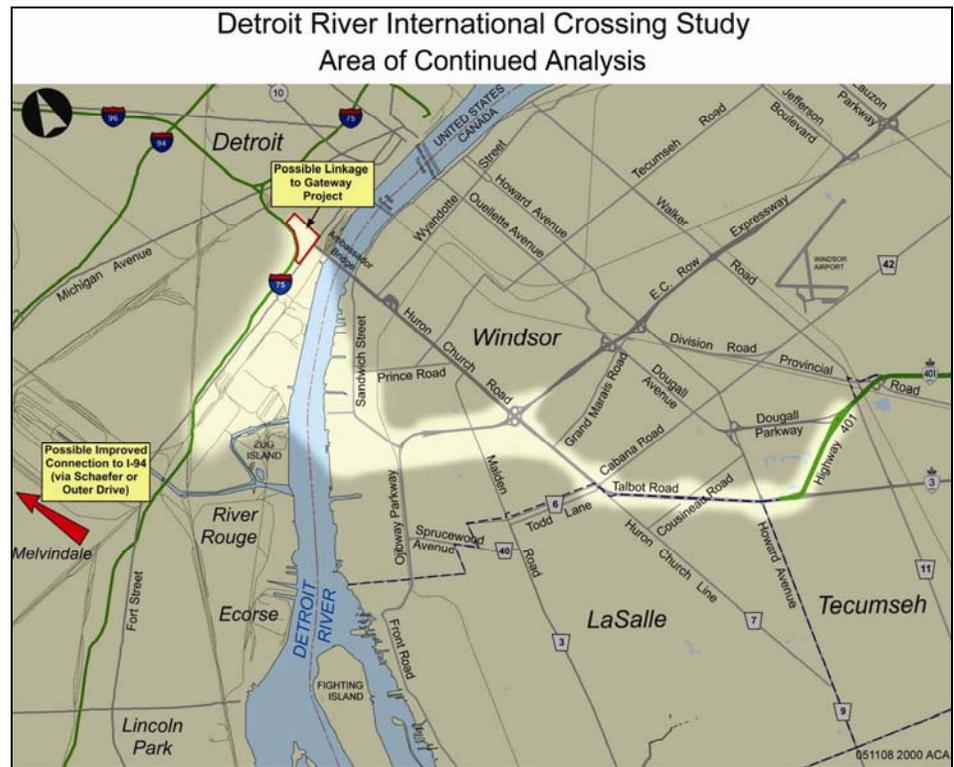


FIGURE 1. KEY PLAN OF THE AREA OF CONTINUED ANALYSIS.

4.2 Task 2 – Data Collection

Cultural heritage information collected previously from secondary sources will be supplemented with information gathered during consultation with stakeholders and with preliminary drive-by field review of the areas of practical routes, plazas, plaza extensions and crossings within the practical alternatives. The field review will be used to confirm the location and condition of previously-listed built heritage features, to preliminarily identify built heritage resources not recorded by secondary sources, and to identify potential cultural heritage landscapes.

4.3 Task 3 – Data Analysis

The results of the preliminary field review will be used to confirm or update the data collected from secondary sources. The collected data, including the results of the preliminary field review, will be used to create the preliminary inventory of cultural heritage resources within the ACA. Preliminarily-inventoried cultural heritage resources, including built heritage features and cultural heritage landscapes, will be evaluated in terms of significance (national, provincial, local), and the level of protection (if any) already given to cultural heritage resources will be described. Typical potential impacts to identified cultural heritage resources, including generic types of disruptions and displacements, will be described.

4.4 Task 4 – Evaluate Alternatives

Alternatives will be evaluated using comparative criteria. The evaluation of practical alternatives will be based on: the potential disruption or displacement of built heritage resources and cultural heritage landscapes within and directly adjacent to rights-of-way and footprint areas. Secondary and preliminary primary information will be used to determine the number of built heritage resources and cultural heritage landscapes, together with their significance.

4.5 Task 5 – Conduct Impact Assessment

Impact assessment will be based on generic impacts typically resulting from the development of linear transportation facilities. For mapping and analysis purposes, the boundaries/locations of built heritage resources and cultural heritage landscapes will be accurate to at least 1:10,000 scale.

4.6 Task 6 – Recommend Environmental Protection Measures

Environmental protection measures to be incorporated at this stage include avoidance of built heritage resources and cultural heritage landscapes, minimization of the disruption

and displacement of cultural heritage resources, and generic mitigation measures typically incorporated into the design of linear transportation facilities.

4.7

Results

The practical alternatives will be evaluated to select a technically preferred practical alternative(s). Concept design alternatives will be generated and carried forward for further evaluation.

5. STAGE 4 – CONCEPT DESIGN ALTERNATIVES

Concept design alternatives represent the set of practical alternatives that, upon evaluation of impacts and benefits, are carried forward for further consideration. Concept design includes the consideration and development of specific engineering and environmental issues to further understand very particular implications of the recommended alternative. The level of engineering detail is sufficient to develop environmental protection measures in consultation with the appropriate agencies and to secure environmental assessment approvals.

5.1 Task 1 – Define Area of Investigation

The area of investigation is concept design routes, plazas, plaza extensions and crossings within the technically preferred practical alternative(s) of the ACA (Figure 1).

5.2 Task 2 – Data Collection

Cultural heritage information collected previously from secondary sources and preliminary field review will be supplemented with detailed field review of identified built heritage resources and cultural heritage landscapes. Detailed field review will be conducted from the roadside unless on-site property access is available. Some historical research may also be undertaken at this stage, if required to properly evaluate the nature and significance of cultural heritage resources.

The field review will be used to confirm the extent of cultural heritage landscapes, to determine the nature and extents of any surroundings that provide context for built heritage resources or cultural heritage landscapes, to determine the number, location, and extents of any landscapes or structures directly associated with identified built heritage resources (e.g., property limits, outbuildings, fences), and make a preliminary determination of the condition and sensitivity of the identified cultural heritage resources.

This data will form the basis of the cultural heritage resource inventory.

5.3 Task 3 – Data Analysis

The inventory of built heritage features and cultural heritage landscapes will be finalized and inventory pages will be prepared for each identified cultural resource within the impact zone of the alternatives being considered during concept design.

Cultural heritage resources will be evaluated on a case-by-case basis, to identify the significance of each feature or landscape area and to determine each resource's sensitivity to impacts.

5.4 Task 4 – Evaluate Alternatives

Alternatives will be evaluated using comparative criteria. The evaluation of concept design alternatives will be based on: the potential disruption or displacement of built heritage resources or cultural heritage landscapes within the rights-of-way and footprint areas; and, the potential disruption or displacement of built heritage resources or cultural heritage landscapes within adjacent zones of influence. Secondary and detailed primary information will be used to determine the extent, significance, and sensitivity of cultural heritage resources together with their relationships to their surroundings (e.g., other aspects of the landscape, the surrounding community, the adjacent properties).

5.5 Task 5 – Conduct Impact Assessment

Impact assessment will be based on conceptual site-specific impacts resulting from the proposed project. For mapping and analysis purposes, the boundaries/locations of built heritage resources and cultural heritage landscapes will be accurate to at least 1:2,000 scale. Conceptual site-specific impacts to be considered at this stage are presented in Table 3. A cumulative effects assessment will be conducted in accordance with the requirements of the *Canadian Environmental Assessment Act*.

TABLE 3. ENVIRONMENTAL IMPACTS AND PROTECTION MEASURES TO BE ADDRESSED AT THE CONCEPT DESIGN ALTERNATIVES STAGE

Cultural Heritage Component	Environmental Impacts	Environmental Protection Measures
Built Heritage Features	Loss of Built Heritage Feature due to displacement during construction.	<ul style="list-style-type: none"> • Avoidance • Minimize footprint area • Design modifications including innovative construction techniques • Relocation • Compensation
	Disruption of Built Heritage Feature due to alteration of the environment and/or historic context(s)	<ul style="list-style-type: none"> • Minimize footprint area • Design modifications including innovative construction techniques • Restoration/enhancement • Monitoring and contingency measures
	Disruption of Built Heritage Feature due to nuisance effects: noise, dust, vibration	<ul style="list-style-type: none"> • Environmental protection strategies including minimizing changes to air quality and enforcing strict traffic controls • Best management practices • Monitoring and contingency measures

TABLE 3. ENVIRONMENTAL IMPACTS AND PROTECTION MEASURES TO BE ADDRESSED AT THE CONCEPT DESIGN ALTERNATIVES STAGE

Cultural Heritage Component	Environmental Impacts	Environmental Protection Measures
Cultural Heritage Landscapes	Loss of Cultural Heritage Landscape due to displacement during construction.	<ul style="list-style-type: none"> • Avoidance • Minimize footprint area • Design modifications including innovative construction techniques • Relocation • Compensation
	Disruption of Cultural Heritage Landscape due to alteration of the environment and/or historic context(s)	<ul style="list-style-type: none"> • Minimize footprint area • Design modifications including innovative construction techniques • Restoration/enhancement • Monitoring and contingency measures
	Disruption of Cultural Heritage Landscape due to nuisance effects: noise, dust, vibration	<ul style="list-style-type: none"> • Environmental protection strategies including minimizing changes to air quality and enforcing strict traffic controls • Best management practices • Monitoring and contingency measures

5.6

Task 6 – Recommend Environmental Protection Measures

Environmental protection measures to be incorporated at this stage include avoidance of built heritage resources and cultural heritage landscapes, minimization of the disruption or displacement of cultural heritage resources, and conceptual site-specific mitigation, and monitoring measures for the proposed project. Conceptual site-specific environmental protection measures to be considered at this stage are presented in Table 3. At this stage of the analysis, compensation measures will be identified. Monitoring and contingency measures will also be identified to ensure compliance with environmental legislation and regulations, to determine the accuracy of impact predictions and to assess the effectiveness of mitigation measures. Contingency measures will be recommended to address unforeseen or intensified impacts or mitigation measures that prove ineffective. Follow up monitoring to assess on-going impacts will also be recommended.

5.7

Results

The concept design alternatives will be evaluated to select a technically preferred concept design alternative(s). Detail design is not included in the current scope of work for the Detroit River International Crossing Route Planning and Environmental Assessment Study.