

**GTA
West**

GTA West Corridor
Environmental Assessment
Terms of Reference and Environmental Assessment Study



**GTA West Corridor
Environmental Assessment
Terms of Reference**

June 2007
As Amended July 2007



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GLOSSARY AND LISTING OF ABBREVIATIONS

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Document A Federal/Provincial Co-ordination Process
Document B Activities Following Approval of the EA Report and Other Approvals Required
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1. INTRODUCTION

Over the last several decades Central Ontario has evolved from a Toronto based employment centre to a large geographic region with many centres of economic activity and employment and population. Travel demand is now more dispersed, with travel occurring between many employment and residential areas within and outside the Greater Toronto Area (GTA). Future population and employment growth in major urban centres will result in an increase in travel demand for both people and goods movement between these centres that are spread across the Greater Golden Horseshoe (GGH).

As one of the Province's efforts to deliver a long-term sustainable plan for transportation and better transit in the GTA-Hamilton, a Greater Toronto Transportation Authority has been established to create a seamless and more convenient transportation network.

Additionally, the Minister of Public Infrastructure Renewal released the *Growth Plan for the Greater Golden Horseshoe* (the *Growth Plan*) in June 2006. The *Growth Plan* outlines a set of policies for managing growth and development and guiding planning decisions in the Greater Golden Horseshoe over the next 30 years. This plan represents a planning "vision" for the Province of Ontario (the Province). *The Places to Grow Act* (2005) requires that planning decisions made by the Province, municipalities and other authorities to conform to the policies contained in the *Growth Plan*.

The Province also established the *Greenbelt Plan* (2005) through the *Greenbelt Act 2005*. Together, the *Greenbelt Plan* and the *Growth Plan* provide clarity and certainty about urban structure, where and how future growth should be accommodated, and what must be protected for current and future generations in the Greater Golden Horseshoe area.

The *Greenbelt Plan* identifies where urbanization should not occur to protect the agricultural land base and the ecological features and functions occurring on this landscape. The *Greenbelt Plan* includes lands within, and builds upon the ecological protections provided by, the *Niagara Escarpment Plan* (NEP) and the *Oak Ridges Moraine Conservation Plan* (ORMCP). The *Greenbelt Plan* also supports infrastructure which achieves the social and economic aims of the *Greenbelt* and the *Growth Plan* while seeking to minimize environmental effects.

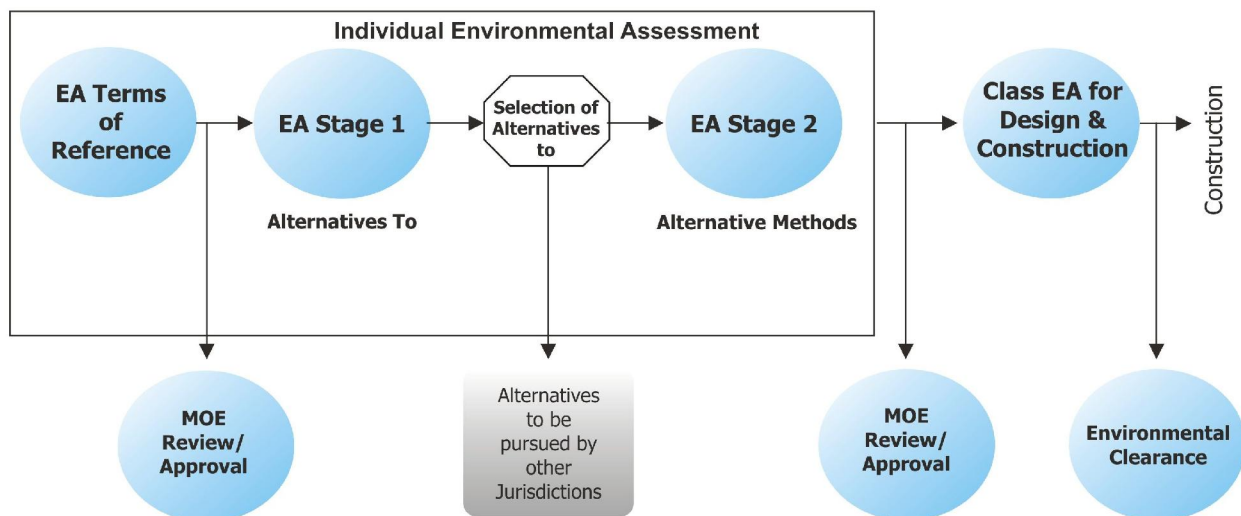
It is important that MTO takes a comprehensive and long-term approach in planning for future transportation infrastructure. The study will reflect the government policy objectives as outlined in the *Growth Plan*. These policy objectives call for a transportation network that links *Urban Growth Centres* through an integrated system of transportation modes characterized by efficient public transit, rail and a highway system for moving people and goods with improved access to inter-modal facilities, international gateways (e.g. airports, border crossings, etc.), airports and transit hubs. As identified in the *Growth Plan* the *Urban Growth Centres* within the GTA West Corridor Preliminary Study Area include Downtown Guelph, Downtown Milton, Brampton City Centre and Vaughan Corporate Centre.

To realize the Growth Plan's policy directions, MTO has commenced the study of people and goods movement in the GTA West Corridor through the environmental assessment (EA) process. The EA process will identify and validate the transportation problems and opportunities and evaluate a variety of alternatives to address them. MTO will coordinate with the GTTA, other ministries and municipalities as the EA study moves forward.

The first phase of this process is the preparation of an *Environmental Assessment Terms of Reference* (EA ToR). This document, the draft “GTA West Corridor Environmental Assessment Terms of Reference” outlines the framework for completing this EA study. This EA ToR document will be submitted to the Ministry of the Environment (MOE) under Section 6 (2)(a) of the Ontario *Environmental Assessment Act* (OEAA). If the EA ToR is approved by MOE, the subsequent EA study will follow a structured planning process as reflected in **Exhibit 1-1**, including:

- an identification of problems and opportunities;
- development and selection of Alternatives to the Undertaking (see Chapter 5 for details);
- development and selection of Alternative Methods to implement the Alternatives to the Undertaking (see Chapter 6 for details); and
- recommendations for specific infrastructure, as required, including the associated effects and mitigation measures.

Exhibit 1-1: EA Process



The OEAA requires proponents to examine two types of alternatives. The first types of alternatives are ‘Alternatives to the Undertaking’. These are defined as functionally different ways of addressing the identified problems and opportunities. This is presented as Stage 1 in **Exhibit 1-1**. Sometimes these types of alternatives are referred to as transportation system alternatives because an ‘Undertaking’ is not fully identified until the end of the process. The second types of alternatives are ‘Alternative Methods of Carrying Out the Undertaking’ (such as, specific design and location alternatives). This is presented as Stage 2 in **Exhibit 1-1**. These are defined as different ways of carrying out the undertaking once the preferred ‘Alternative(s) to the Undertaking’ has been selected. For the purpose of the ToR these terms (‘Alternatives To the Undertaking’ and ‘Alternative Methods of Carrying Out the Undertaking’) have been used even though an Undertaking has not been identified. An Undertaking will be identified through the planning process identified in this ToR.

It should be noted that this ToR identifies, at a minimum, what the MTO (the proponent) will do during the subsequent EA process. Although the ToR will be used as a guide to the subsequent EA study, enhancements to the EA process and work tasks will be

considered by the MTO over the course of the study, based on public and agency input, any changes to Provincial policy, and the availability of new information. MTO will therefore undertake the EA based on the legislative requirements, policies, procedures and protocols that are in place at the time that the work is being done. If the preferred alternative(s) to the undertaking is a transportation mode or solution that is outside the jurisdiction of MTO, MTO will refer the planning alternative to the appropriate agency or jurisdiction for further review and action.

Exhibit 1-2 highlights the Preliminary Study Area. This Study Area illustrates an initial indication of the area in which problems and opportunities will be studied and alternatives will be considered. This study area will be refined as the process evolves and is not intended to be a fixed area at this time. As such, boundaries of the area are approximate and subject to refinement as the study progresses. The Preliminary Study Area was modified slightly during the consultation undertaken to prepare the ToR. The modifications were largely made to address comments related to potential constraints in the north-west and north-east sections. Supporting Document C provides additional context of the Preliminary Study Area.

It is recognized that transportation issues in the Preliminary Study Area are related to and influenced by a much broader area. Therefore, travel demand analysis of the study will be carried out in a much broader context including the consideration of major transportation infrastructures in the proximity to the Preliminary Study Area, and linkages to/from other transportation hubs and gateways. **Exhibit 1-3** highlights this relationship. It is recognized that the results of analysis during the study could also affect the Preliminary Study Area.

1.1 Background

Prior to approval of the Province's *Growth Plan for the Greater Golden Horseshoe* (February 2006), a number of studies, including MTO's *Central Ontario Strategic Transportation Directions* (Draft 2002) indicated that MTO should examine the long-term transportation needs to address a number of areas including future growth in the GTA from Highway 400 westerly to the Guelph area. The GTA West Corridor, identified in the *Growth Plan* as a "Future Transportation Corridor", represents a strategic link between the *Urban Growth Centres* in the west of the GTA such as Downtown Milton, Brampton City Centre, Vaughan Corporate Centre and out to Downtown Guelph. This is illustrated in the extract from the *Growth Plan* as presented in **Exhibit 1-4**.

As economic activities in the Greater Golden Horseshoe evolve from a Toronto Central Business District-based condition to an economy of multiple centres, the Guelph - Kitchener/Waterloo - Cambridge triangle is becoming an important area in addition to Toronto's downtown and the several economic centres that surround Downtown Toronto. This is highlighted in **Exhibit 1-5** which presents a historic comparison of the area's urban centres.

The concentration of population and employment in the Guelph - Kitchener/Waterloo - Cambridge triangle introduces new transportation challenges in the western portion of the Greater Golden Horseshoe since it is important that these economic centres be better linked. This is true not only for the continuing needs of commuter travel which provide the economic workforces, but also for the increasing needs of goods movement between these centres.

Exhibit 1-2: Preliminary Study Area

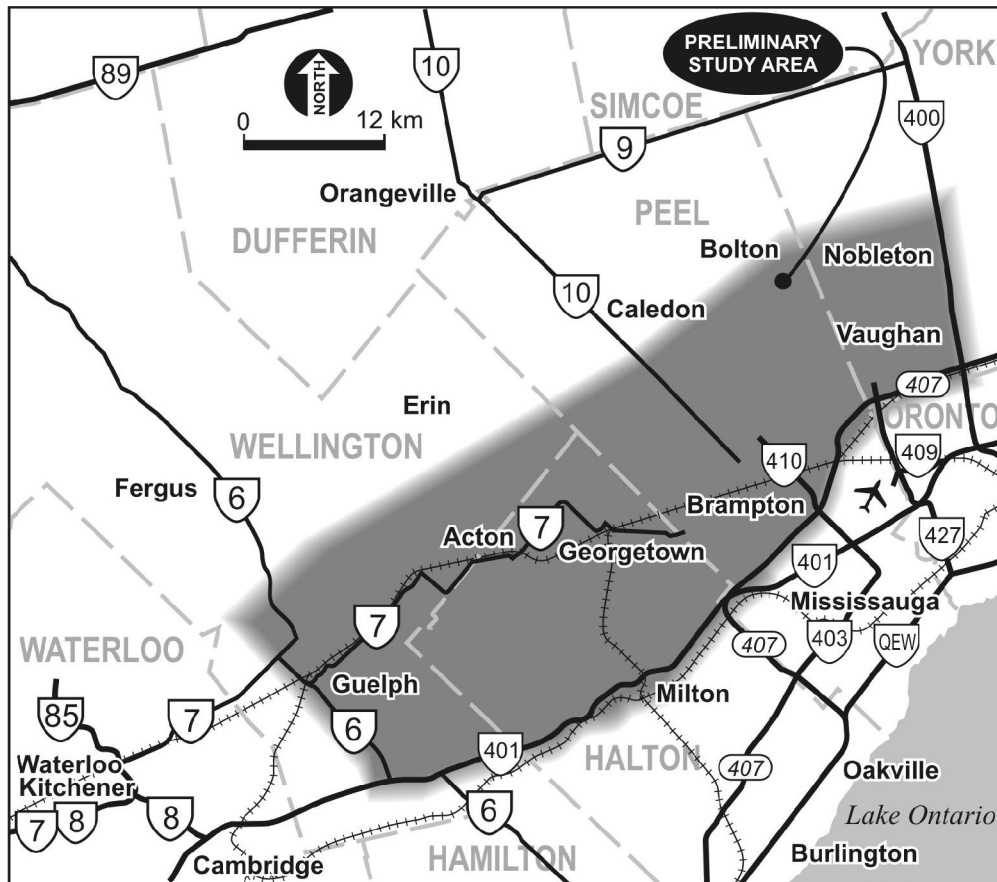


Exhibit 1-3 : Influence Area

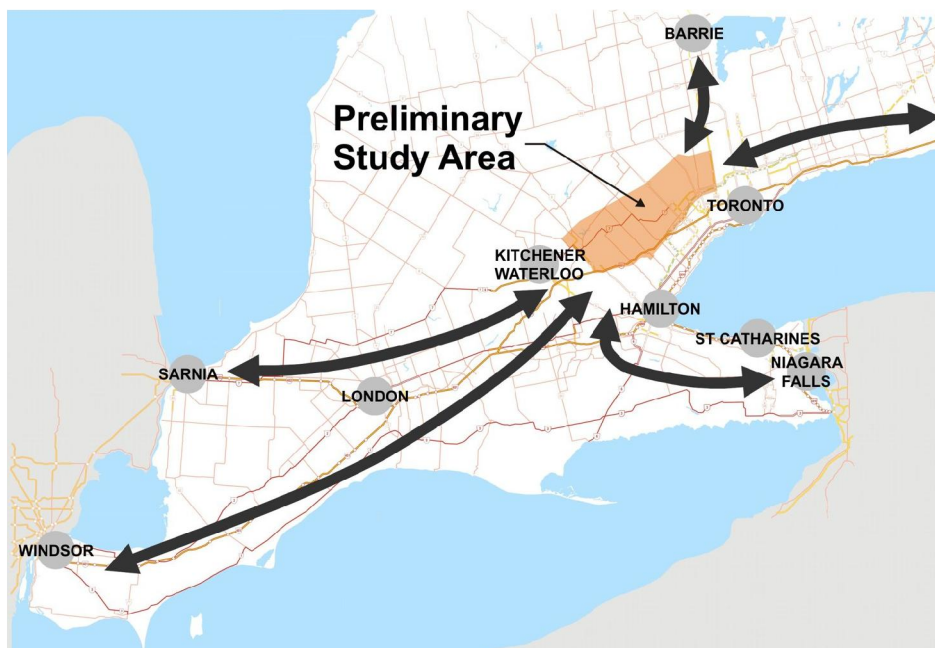
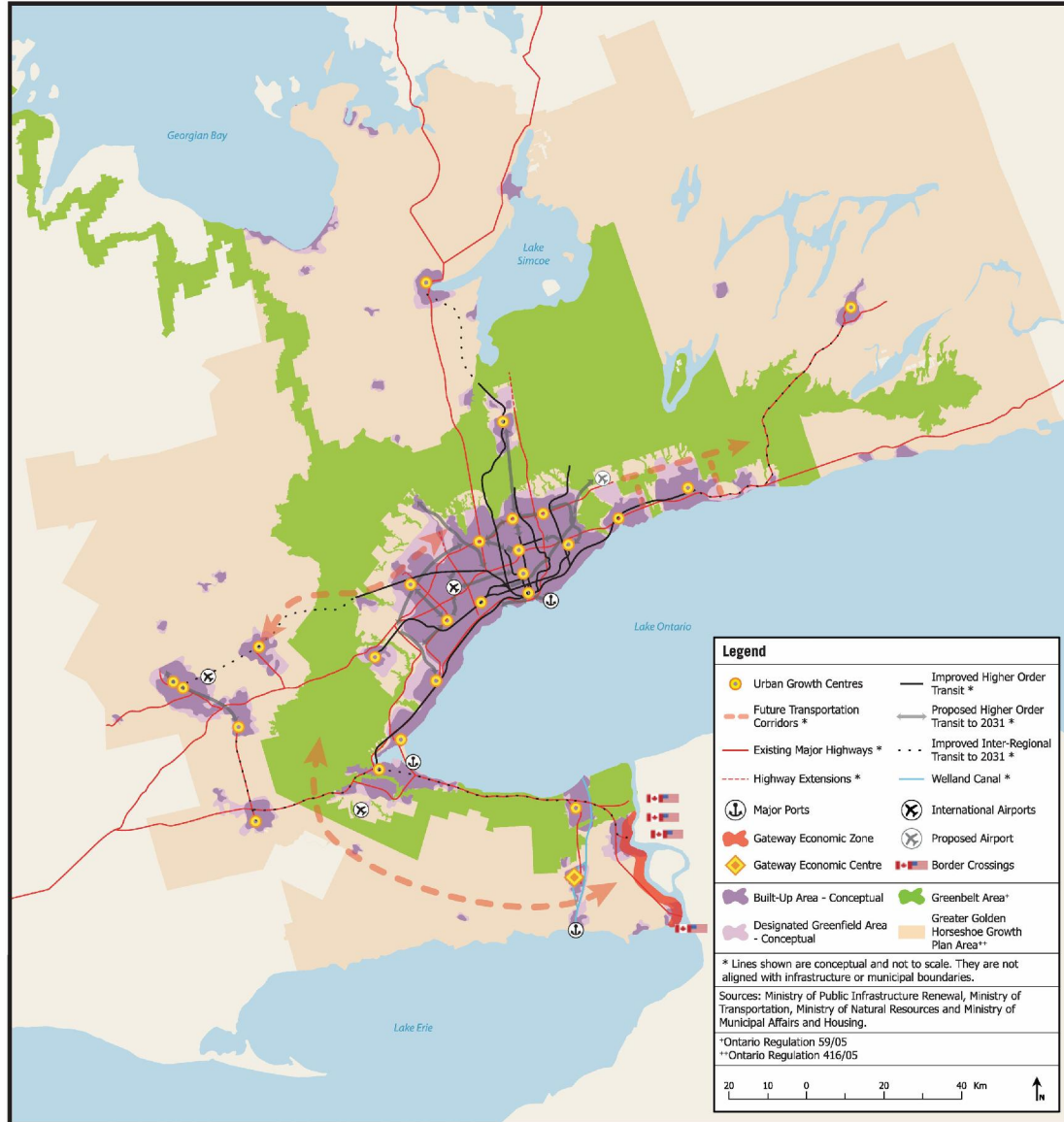


Exhibit 1-4: Growth Plan



Ontario
PLACES TO GROW
 GROWTH PLAN FOR
 THE GREATER GOLDEN HORSESHOE, 2005

**SCHEDULE 2
 Places to Grow Concept**

Legend

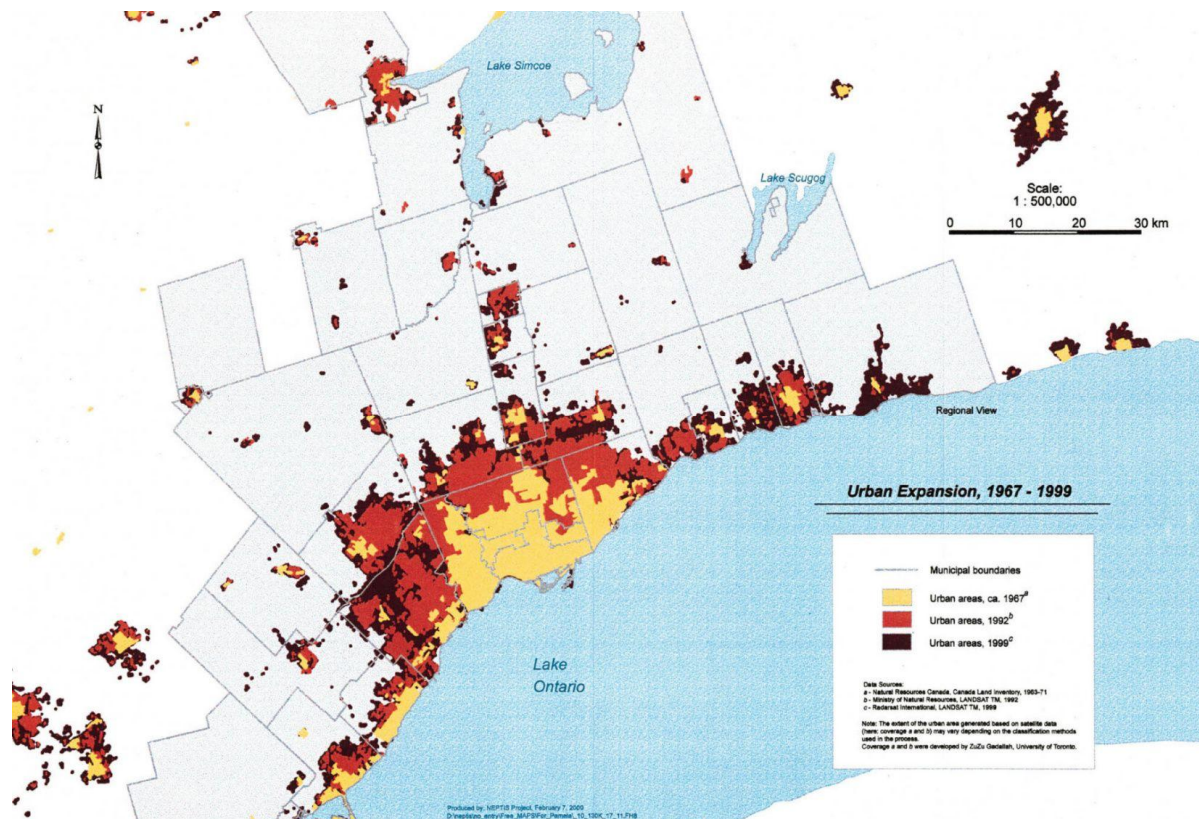
| | |
|---|---|
| ● Urban Growth Centres | — Improved Higher Order Transit * |
| - - - Future Transportation Corridors * | — Proposed Higher Order Transit to 2031 * |
| — Existing Major Highways * | - - - Improved Inter-Regional Transit to 2031 * |
| - - - Highway Extensions * | — Welland Canal * |
| Ⓛ Major Ports | ⊗ International Airports |
| ⊗ Gateway Economic Zone | ⊗ Proposed Airport |
| ◆ Gateway Economic Centre | ⚑ Border Crossings |
| ■ Built-Up Area - Conceptual | ■ Greenbelt Area* |
| ■ Designated Greenfield Area - Conceptual | ■ Greater Golden Horseshoe Growth Plan Area** |

* Lines shown are conceptual and not to scale. They are not aligned with infrastructure or municipal boundaries.
 Sources: Ministry of Public Infrastructure Renewal, Ministry of Transportation, Ministry of Natural Resources and Ministry of Municipal Affairs and Housing.
 **Ontario Regulation 59/05
 **Ontario Regulation 416/05

20 10 0 20 40 Km
 ↑ N

Note: The information displayed on this map is not to scale, does not accurately reflect approved land-use and planning boundaries, and may be out of date. For more information on precise boundaries, the appropriate municipality should be consulted. For more information on Greenbelt Area boundaries, the Greenbelt Plan 2005 should be consulted. The Province of Ontario assumes no responsibility or liability for any consequences of any use made of this map.

Exhibit 1-5: Historic Urban Centres



Source: Neptis Foundation, February 2000

1.2 Planning and Environmental Assessment Process

The planning for all major infrastructure projects in the Province of Ontario is conducted in a similar manner. Accordingly the steps in the planning process include:

- Preliminary identification of existing and future transportation problems and opportunities;
- Development of an EA Terms of Reference; and
- Undertake an Environmental Assessment.

The overall planning process includes significant public consultation and involvement by appropriate municipal, provincial and federal government agencies from the earliest stages of planning. It also includes consultation and engagement with First Nations.

The overall EA process for the GTA West Corridor is outlined in **Exhibit 1-1**. Two formal Minister of the Environment (MOE) approvals are required. The first is for the ToR. The second is at the conclusion of the EA study when the EA Report is submitted.

Once the EA ToR is approved, the process includes two stages whereby the Alternatives to the Undertaking are examined in Stage 1. If one component of the preferred alternative(s) requires an Individual EA and MTO is the proponent then the examination

of Alternative Methods of Carrying Out the Undertaking is completed in Stage 2. This process is further described in Chapters 4, 5 and 6.

At the conclusion of the EA, a formal approval process is initiated to ensure that a reasonable solution has been provided. For an Individual EA such as is being initiated with the GTA West Corridor, the Ministry of the Environment (MOE) considers the request for EA Approval.

If the EA is approved, additional engineering and environmental studies are undertaken to further refine the design and develop detailed mitigation measures, obtain specific permits and approvals required under other legislation, and prepare contract documents for construction. For major improvements to existing infrastructure or for the construction of new infrastructure, these subsequent studies are often carried out in smaller sections for design and construction and a staged approach to construction is often used.

The process for preliminary and/or detail design outlined in the *Class Environmental Assessment for Provincial Transportation Facilities* (MTO Class EA) is utilized during these subsequent studies to ensure MTO's requirements under the OEAA are addressed.

One of the features of the OEAA is the requirement for the preparation, submission and approval of an EA Terms of Reference before further work begins on the study. As part of the formal submission and approval process, the EA Terms of Reference is submitted to the Ministry of the Environment for public and government agency comment and review. If approved by the Minister of the Environment, the EA Terms of Reference sets out a framework that will guide 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.

As per the OEAA, the EA study will be consistent with the requirements set out in Section 6.1 (2) of the OEAA. The EA will address 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 of Carrying Out the Undertaking;
- A description of:
 - The environment that will be affected or might reasonably be anticipated 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;
 - The actions necessary or that might 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.

The specific activities to be carried out as part of the EA are described in more detail in Chapters 2 – 8 of this document.

A Consultation Record that summarizes the consultation undertaken during the preparation of this EA ToR has been completed and made available under separate cover.

Consultation that will be undertaken during the course of the EA is documented in Chapter 8.

1.3 Federal/Provincial Environmental Assessment Coordination

1.3.1 Need for Federal/Provincial EA Co-ordination

This study is subject to the requirements of the Ontario *Environmental Assessment Act* (OEAA) as described above. The requirements of the *Canadian Environmental Assessment Act* (CEAA) may also apply. The proponent (MTO) intends to work in a coordinated way with provincial and federal governments. Both governments have agreed to coordinate their respective EA processes as outlined in the *Canada-Ontario Agreement on EA Cooperation* (November, 2004).

1.3.2 Co-ordinated EA Process for MTO Projects

The federal/provincial co-ordination process chart outlined in **Document A** of the **Supporting Documentation** will guide MTO. This proposed approach is designed to address the information requirements of both federal (CEAA) and provincial (OEAA) environmental assessment acts.

1.3.3 Application of the Co-ordinated EA Process

It is recognized by both the Canadian Environmental Assessment Agency, (CEA Agency) (on behalf of the federal authorities), and MTO that dialogue on the information or data analysis requirements should be held at key points as the project progresses. As such, it may be necessary for MTO to acquire additional or more detailed information as the EA process proceeds. The intent is to produce a single body of documentation on environmental effects to meet all of the information needs of both the federal and provincial governments. To the extent practical, MTO has integrated federal/provincial information requirements regarding potential evaluation factors to be used in considering alternatives during the study. General information requirements under CEAA can be found in the **Supporting Documentation (Document A)** of this EA ToR.

1.4 Statement of Proponency

The **Ontario Ministry of Transportation** is the proponent for this Environmental Assessment Terms of Reference for the GTA West Corridor.

1.5 Submission Statement

The preparation of an EA Terms of Reference for the GTA West Corridor, and subsequent submission to the Minister of the Environment for review and a decision regarding approval, is a requirement of the Ontario *Environmental Assessment Act*.

This ToR has been prepared in accordance with Section 6 (2)(a) of the Ontario *Environmental Assessment Act* and specifically addresses the following:

- Identification of the Proponent (Chapter 1 of this document);
- The purpose of the study (Chapter 2);
- Description of the existing environment and potential effects (Chapter 3);
- The process for selecting a preferred Alternative(s) to the Undertaking (Chapter 5);
- The process for selecting a preferred Alternative Method(s) (Chapter 6);
- A commitment to carry out compliance monitoring (Chapter 7);
- A description of the Consultation Plan proposed for the Environmental Assessment (Chapter 8); and,
- Activities following approval of the EA Report and other approvals required (**Supporting Document B**).

This EA ToR provides flexibility to address new circumstances that may be identified as the study progresses. This EA ToR describes an approach to address at least the minimum requirements of the required Individual EA process. The consultation process, range and types of alternatives to be considered, the specific evaluation factors, criteria and measures have the flexibility to be modified and refined based on study findings and stakeholder comments received during the EA study.

The additional documentation submitted with this EA ToR, for which approval is not being sought, includes an appendix and a series of supporting documents. A separate document is also submitted entitled "Record of Consultation During Preparation of the EA ToR".

2. PURPOSE OF THE EA STUDY

The Ontario Ministry of Transportation is working to provide for the efficient movement of people and goods within the context of the Province's *Growth Plan for the Greater Golden Horseshoe* released by the Ministry of Public Infrastructure Renewal in February 2006. To support policy directions in the *Growth Plan*, MTO has commenced a planning study and the formal environmental assessment process for the GTA West Corridor.

The purpose of this study is to examine long-term transportation problems and opportunities and consider alternative solutions to provide better linkages between *Urban Growth Centres* in the GTA West Corridor Preliminary Study Area. The focus will be on developing an integrated, multi-modal transportation system that offers choices for the efficient movement of people and goods.

As briefly noted in Chapter 1, the linkage between the GTA west economic centres and those in the Guelph - Kitchener/Waterloo - Cambridge area are becoming important and will require efficient transportation infrastructure to provide for commuting workforces and goods movement. Given the importance of this corridor to the local, regional, provincial and national economies, the Ontario government must take all responsible steps to ensure that the transportation network in this area operates well in the future and supports the growth that is envisaged.

As this study will confirm through further analysis, significant future growth in the Greater Golden Horseshoe area over the next 30 years will further strain the transportation network in this area with greater goods movement and commuter, tourist and recreational travel.

A preliminary identification of transportation problems and opportunities within the GTA West Corridor is included in this EA ToR document. **Exhibit 1-2** shows the Preliminary Study Area in which problems and opportunities will be studied and alternatives will be considered.

The following sections in this chapter provide the context for the purpose of this study. A more complete consideration of transportation problems and opportunities will be developed in the early stages of the EA study, in consultation with stakeholders.. As noted previously, this will be done by examining a much broader area (**Exhibit 1-3**). It is recognized that the results of analysis during the study could also affect the Preliminary Study Area. The consideration of transportation problems and opportunities will be based on the approved government policies and planning objectives that are in place at that time. This detailed consideration of transportation problems and opportunities will be documented in the *GTA West Corridor Transportation Needs Assessment Report*, which will be made available for public and government agency review.

2.1 Policy Framework and Other Government Initiatives

The following provincial, federal, regional and local policy documents establish the policy framework within which transportation problems and opportunities and potential solutions will be identified as part of the EA study. The final, approved versions of these policy documents (as well as other pertinent provincial, regional and local government planning and policy documents) will be utilized during the EA study. Where policy directions / proposed projects listed in the following documents differ or seem contrary, the most current policy direction will be taken:

- *Growth Plan for the Greater Golden Horseshoe*, Ministry of Public Infrastructure Renewal, February 2006;
- *Greenbelt Act* and *Greenbelt Plan*, Ministry of Municipal Affairs and Housing, February 2005;
- The new *Provincial Policy Statement*, (March 1, 2005);
- *Central Ontario Strategic Transportation Directions*, MTO, (Draft) February 2002;
- *Southwest Ontario Strategic Transportation Directions*, MTO, (Draft) February 2002;
- Official Plans applicable to area municipalities;
- *Straight Ahead – A Vision for Transportation in Canada*, Transport Canada, February 2003;
- *Niagara Escarpment Plan (June 2005)*; and
- *Oak Ridges Moraine Conservation Plan (2002)*.

It is recognized that in the Province's effort to deliver a long-term, sustainable plan for transportation and better transit in the GTA-Hamilton, a Greater Toronto Transportation Authority has been established to create a seamless and more convenient transportation network.

In general, there are a number of consistent themes and principles embodied in the above documents and other relevant planning, transportation and policy documents that relate to the provision of transportation services within the Province, regionally and locally. These themes and principles will be used to guide the assessment and selection of Alternatives to the Undertaking. These common themes and principles are:

Growth Management and Land Use Planning

- Manage economic growth and accommodate the future employment and population growth forecasted for the Greater Golden Horseshoe;
- Discourage urban sprawl;
- Develop a network that is consistent with municipal land use policies as outlined in approved Official Plans; and
- Coordinate transportation planning with the land use objectives of the *Growth Plan for the Greater Golden Horseshoe* (June 2006).

Transportation Planning

- Make effective and efficient use of existing and already proposed transportation infrastructure;
- Develop a network that results in the safe and efficient movement of people and goods;
- Make public transit a priority when generating and assessing Alternatives to the Undertaking;
- Emphasize improved goods movement by linking inter-modal facilities, international gateways and communities within the Greater Golden Horseshoe (GGH);
- Ensure effective co-ordination with other transportation planning initiatives throughout the GGH; and,

- Develop an integrated multi-modal transportation network that provides choice for users.

Environmental Planning

- Develop a transportation network that fosters a clean and healthy environment;
- Coordinate provincial and municipal land use, transportation and environmental objectives;
- Identify natural heritage features and areas that complement, link or enhance natural heritage systems; and,
- Protect natural heritage, water, agricultural, mineral and cultural heritage resources for their economic, environmental and social benefits by avoiding, or where unavoidable, appropriately mitigating effects.

Expanding on the details as presented in Chapter 1, the *Growth Plan* suggests the need to consider solutions to potential future transportation deficiencies in the GTA West Corridor area through the York/Peel/Halton and Wellington/Guelph areas. The consideration of alternatives and the implementation of individual and combination infrastructure solutions need to be examined within the framework of the Ontario *Environmental Assessment Act*, as described in this EA ToR document.

In addition to the policies and initiatives noted in the section, there is a considerable body of legislation and guidelines relating to various aspects of the natural, socio-economic and cultural heritage environments and reference will be made to these documents and their requirements throughout the EA as appropriate.

2.2 Overview and Outlook

Consideration of the Purpose of the Undertaking for a transportation project requires a clear understanding of the problems and opportunities within the area of analysis and within the planning horizon timeframe (30 years in this case). This chapter outlines a number of preliminary findings related to transportation problems and opportunities. During the subsequent EA study that follows the EA ToR approval, a significant amount of additional technical work will be undertaken to define and document transportation problems and opportunities. Together this will form the rationale for any proposed improvements and hence the rationale for the undertaking. This work will be based on the most recent available planning policies, population, employment, growth, economic and travel data.

2.3 Preliminary Transportation Problems and Opportunities

Geographical Context

The Preliminary Study Area (**Exhibit 1-2**) under consideration includes lands inside the Regions of York, Peel, Halton, County of Wellington and the City of Guelph. These municipalities are home to over 2.3 million people and 1.2 million jobs¹.

The transportation connections from the eastern boundary of the City of Guelph to the western part of The City of Vaughan in the GTA function as important links between the GTA and the emerging economic triangle of the Guelph - Kitchener/Waterloo - Cambridge area, and as south-central Ontario's gateway to points west in Ontario and the United States.

¹ *Growth Plan* Schedule 3

Provincial highways, municipal roads, GO Transit and other forms of transportation services accommodate diverse travel needs in this area. These services accommodate the transportation demands of local commuters to inter-regional/inter-provincial travel as well as international trade and tourism movement throughout the Greater Golden Horseshoe Area and to our border gateways to the United States in southwestern Ontario.

As one of the natural features in GTA West Preliminary Study Area, the Niagara Escarpment is a major natural heritage feature in south central Ontario. The Niagara Escarpment is an internationally significant ecosystem and was designated as a World Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1990. The Niagara Escarpment Commission as guided by both the *Niagara Escarpment Planning and Development Act* and the *Niagara Escarpment Plan (2005)*, regulates development on the escarpment. **Exhibit 2-1** presents the context of the Niagara Escarpment and it is presented in the context of the Preliminary Study Area in **Supporting Document C**.

The Oak Ridges Moraine (ORM) is another major natural heritage feature along the north perimeter of the GTA West Corridor Preliminary Study Area, as is also presented in **Exhibit 2-1**. This feature is described further in Chapter 3.

Furthermore, the Government of Ontario has recently defined greenbelt lands in the Greater Golden Horseshoe and established policies for their protection and use in the *Greenbelt Plan (2005)*. The *Greenbelt Plan* addresses environmental and agricultural protection, recreation and tourism development, and issues involving rural communities, infrastructure and natural resources. The *Greenbelt Plan* includes lands covered by the *Niagara Escarpment Plan* and the *Oak Ridges Moraine* and is also presented in **Exhibit 2-1**.

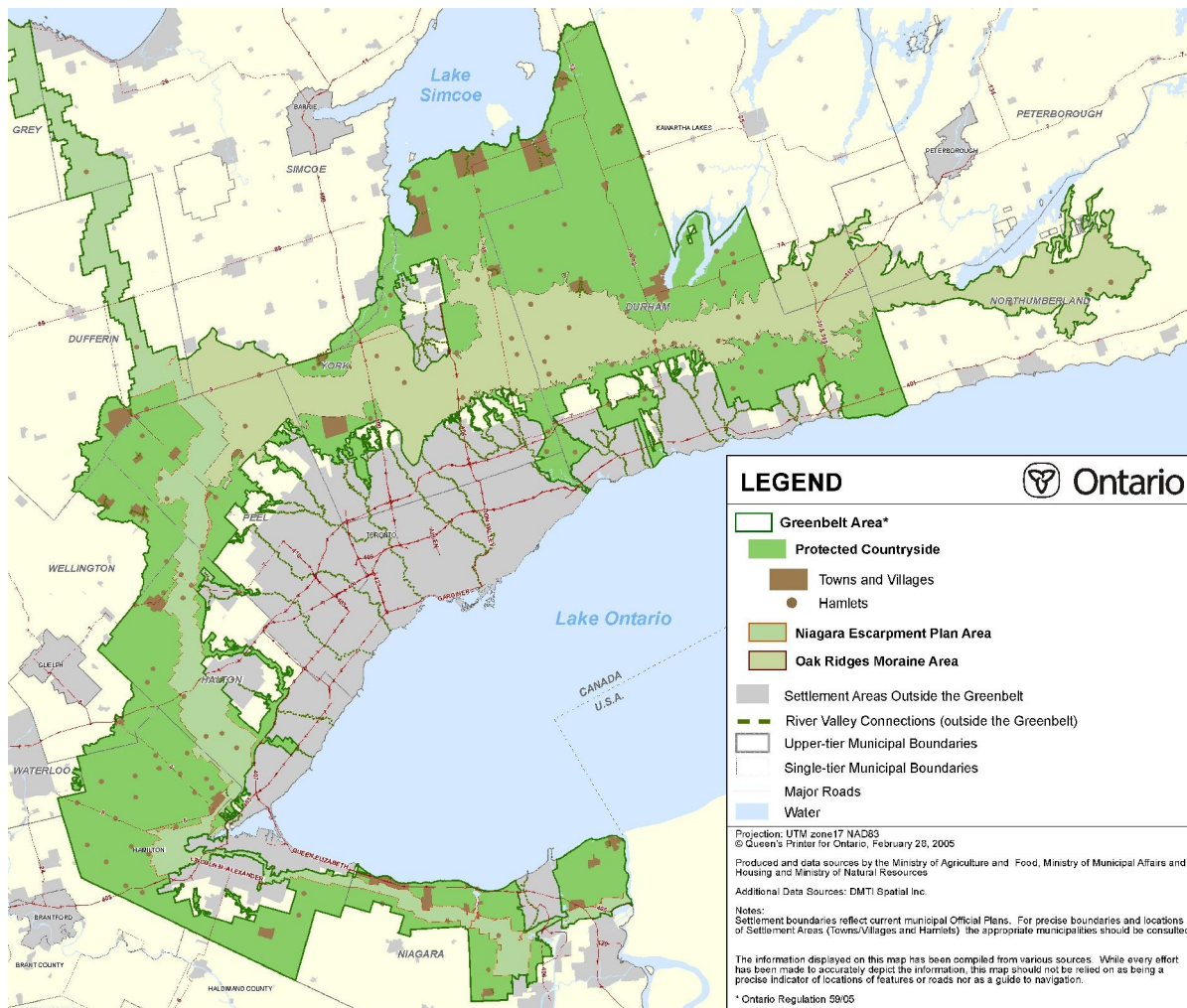
The above-noted plans all contain policies that provide for new and expanded essential infrastructure, such as transportation facilities, that are subject to and approved under the OEAA.

Population and Employment Growth

Almost two-thirds of Ontario's residents (7.8 million in 2001) live in the Greater Golden Horseshoe. By the year 2031, the Greater Golden Horseshoe is forecasted to grow by 3.7 million, bringing the total population in the GGH to 11.5 million. As a result of increases in population and continued economic growth through trade with the United States, the level of employment will also grow from 3.8 in 2001 to 5.6 million jobs or 47% by 2031. Approximately 75 percent of the growth (3 million people) in the Greater Golden Horseshoe (GGH) is projected to occur in the GTA and Hamilton.

In the Preliminary Study Area, the projected population and employment growth for the municipalities within the GTA West Corridor, (Regions of York, Peel, Halton, County of Wellington and the City of Guelph in their entirety), are included in **Table 2.1**. Over the next 30 years, the population in this area is expected to grow from 2.3 million to 4.2 million, an increase of 82%, with the number of jobs increasing from 1.2 million to 2.2 million, an increase of 83%. Both population and employment growth in these municipalities is expected to grow significantly higher than the average growth rate for the entire GGH, which is around 47%.

Exhibit 2-1: Niagara Escarpment, Oak Ridges Moraine, Greenbelt



Source: Schedule 1 – Greenbelt Plan Area, *Greenbelt Plan*, 2005

Table 2.1: Distribution of Population and Employment 2001-2031 (figures in 000s)

| Distribution of Population and Employment 2001-2031 (figures in 000s) ² | | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Municipality | Population | | | | Employment | | | |
| | 2001 | 2011 | 2021 | 2031 | 2001 | 2011 | 2021 | 2031 |
| Region of Peel | 1,030 | 1,320 | 1,490 | 1,640 | 530 | 730 | 820 | 870 |
| Region of York | 760 | 1,060 | 1,300 | 1,500 | 390 | 590 | 700 | 780 |
| Region of Halton | 390 | 520 | 650 | 780 | 190 | 280 | 340 | 390 |
| County of Wellington | 85 | 91 | 269 | 321 | 36 | 41 | 137 | 158 |
| City of Guelph | 110 | 132 | | | 63 | 76 | | |
| Total | 2375 | 3123 | 3709 | 4241 | 1209 | 1717 | 1997 | 2198 |

Source: Schedule 3 – Distribution of Population & Employment for the GGH 2001-2031, *Growth Plan for the Greater Golden Horseshoe*, 2006

² Growth Plan – Schedule 3

Economic Development, Trade and Tourism

Inter-regional and international trade and goods movement to the GTA is critical to the regional, provincial and national economies. Canada and the United States enjoy the largest bi-national trading relationship in the world, at about \$556 billion in 2004 for all freight modes. In 2005, approximately 84% (\$365.7B of \$435.8B) of Canadian exports and 89% (\$178.3B of \$200.7B) of Ontario's exports went to the United States³.

International trade across southwest Ontario, through the GGH and to the GTA and other economic centres, is of vital importance to the economic health of communities and industry in the province and the country. The efficiency of the transportation system throughout the GGH area is therefore essential to maintaining Ontario's economy and competitive trade position.

Highway 401 is Ontario's and Canada's primary truck route linking the GTA and the United States through southwest Ontario. The GGH / GTA lies within the eastern edge of Southwestern Ontario. The movement of goods between the GGH / GTA and Southwestern Ontario is strong, with 46% of commodities (by value) or 48% of the truck trips related to Southwestern Ontario having either origins or destinations in the GTA. There is also a substantial level of travel through the GGH / GTA to/from Quebec and the Maritime Provinces. Annually, more than \$11B worth of goods travel between Southwestern Ontario and Quebec through the GTA⁴.

The GTA West Preliminary Study Area is one of the fastest growing economic regions in Ontario and plays an important role in supporting Ontario's economy. The area is home to a diverse variety of manufacturing, agriculture/agri-business, service and high technology enterprises. Several automobile assembly plants and supporting auto parts manufacturing industries including plastic, steel, chemical and textile enterprises are either located in or on the fringe of the Preliminary Study Area. Uniquely the area is home to major CN and CPR intermodal terminals which connect to our global economy.

Tourism is Ontario's 7th largest industry and is recognized for its importance as an economic generator and contributor to a higher quality of life in the Province of Ontario. Within the GTA West Preliminary Study Area, the Oak Ridges Moraine and the Niagara Escarpment are part of Ontario's recognized Greenbelt and provide many recreation opportunities, including trails and parklands.

It is also recognized that agriculture is a dominant land use in the preliminary study area and important to the Provincial economy. In planning a transportation system it will be important to minimize impacts on existing local land uses, such as agriculture.

Municipal Land Use Policies

Regional and local municipalities have planning aspirations regarding land use, infrastructure, growth and municipal services. Transportation problems, opportunities and potential solutions to be considered during the EA study will need to have regard for municipal planning objectives (as outlined in approved regional and local Official Plans).

Transportation Problems

There are two fundamental problems that have been identified as critical and should be addressed in this study. Firstly, the continuing growth of the GGH and in particular, growth in the vicinity of the preliminary study area for the GTA West Corridor, is

³ MTO 1999 – 2001 Commercial Vehicle Survey Data – Calibrated to 2002

⁴ MTO 1999 – 2001 Commercial Vehicle Survey Data – Calibrated to 2002

outpacing transportation infrastructure capacity. This is seen to be the underlying reason that ever increasing traffic congestion is occurring in this area. Secondly, the congestion that has resulted and continues to worsen has a negative effect on the economy and growth potential of the broader area.

Congestion is currently seen to occur during peak periods on many sections of the provincial highway network in the eastern portion of the GTA West corridor throughout the Regions of York and Peel (i.e. Highways 401, 427, 410, 400, 10 and 7). It is also occurring on the 407 Express Toll Route (ETR). As population and employment grows in the GTA and surrounding municipalities, levels of traffic congestion on existing highways and municipal roads will continue to increase. Congestion is also experienced on other municipal roads in the area, which can be attributed in part to spill-over from the highway congestion.

Presently, a significant component of travel through the GTA West Corridor is accommodated by Highway 401, which serves commuter, tourist and commercial trips by various vehicle modes (automobiles, buses and trucks). This provincial highway has different peak characteristics depending on the time of day, the day of the week and the time of year and can be found to be operating at, near or over capacity conditions as a result of these different users and significant truck volumes. In addition to Highway 401, extensive use is made of Highway 7. Highway 7 in the area east of Guelph provides connection between Kitchener-Waterloo/Guelph and Acton, Georgetown and Brampton. It provides relatively direct connection between these urban areas and is primarily used for short distance trips. This highway is also experiencing congestion particularly between Guelph and Georgetown. The Highway 7 Individual EA for a new highway facility between Kitchener and Guelph was recently approved by the Minister of the Environment. The County/Regional arterial road system used for short to intermediate trips as well as for longer-distance trips accessing Highway 401 are also important to the overall accessibility to and from the area. The 407 ETR also accommodates a significant proportion of travel in the corridor.

There are inter-regional transit services (GO Rail / Bus, VIA Rail and AMTrak Rail) servicing some areas in the GTA West communities.

The Georgetown GO Train line provides commuter rail service from Georgetown into Toronto Union Station with GO Train stations in Brampton and the northwest area of Toronto. The Georgetown GO Station currently has four inbound trains during the weekday AM peak period and four outbound trains during the weekday PM peak period.

The Milton GO Train line provides commuter rail service from Milton into Toronto Union Station with GO Train Stations in Mississauga and the west area of Toronto. The Milton GO Station currently has six inbound trains during the weekday AM peak period and six outbound trains during the weekday PM peak period.

In addition to the commuter rail services noted above, GO Transit operates an extensive network of bus services as far west as Guelph, Milton and Hamilton. The GO Transit bus service to Guelph provides seven trips in each direction on weekdays, operating along the Highway 7 corridor through Rockwood and Acton to the Georgetown GO Station and continuing through Brampton and on to York Mills Subway Station in Toronto. This route also operates on Saturdays and Sundays with selected trips extended to the University of Guelph.

It is anticipated that inter-regional transit will have a significant role in providing for the transportation needs in this area.

Given the forecasted population and employment growth within the 30-year planning horizon, it is anticipated that the demand for travel will increase significantly. This will lead to undesirable levels of congestion on the existing transportation system and unacceptable travel time for goods carriers, commuters and other users of the system. Increased demand for travel within and through the GTA West Preliminary Study Area will result in: increased travel time, congestion, potential for increased frequency of collisions, excess fuel consumption and declining air quality.

A particular challenge in the GTA West Corridor is the fact that Highway 401 provides the only major east-west provincial freeway linking the GTA to the Guelph - Kitchener/Waterloo - Cambridge area. Many communities and industrial centres north of Highway 401 throughout the region are dependent on connections to this highway, as there are no other continuous provincial highways in the northeast part of the GGH (Highway 7 is a King's highway between west of Georgetown and east of Guelph). As a result, the transportation system is susceptible to significant failure during adverse incidents (e.g. weather, collisions, construction or other incidents). Transit is also present but services are currently very limited across the area. The 407 ETR is an alternate highway route to Highway 401, however there are toll implications to this choice for both auto and commercial vehicle users.

Failure to address these east-west transportation deficiencies and north-south network interconnectivity could result in excessive travel delays that would be costly to industry, and would deter economic growth, as well as recreational and tourist travel. The reduction in mobility and access will restrict the ability of the broader region to attract new business and promote economic growth.

These transportation deficiencies will continue to worsen and/or increase in duration, extent or severity if higher population, tourism or economic growth scenarios occur.

Additional verification and definition of transportation problems and opportunities will be undertaken during the Environmental Assessment study and will include a breakdown by issue (goods movement, tourism travel, commuting / community mobility etc.).

Transportation Opportunities

Over the last several decades Central Ontario has evolved from a Toronto based employment centre to a large geographic area with many centres of economic activity and concentrations of employment and population. Travel demand for the movement of people and goods is now more dispersed, moving between many employment and residential areas within and outside the Greater Toronto Area (GTA).

Efficient economic links are required for improved interaction related to both people and goods movement as growth occurs in this area including Guelph - Kitchener/Waterloo - Cambridge in conjunction with growth in the west end of the GTA.

International trade and goods movement through this area and into Canada's economic centre is critical to the local, regional, and provincial economies. The efficiency and reliability of the provincial transportation system is therefore essential to the economic prosperity that the area has and is expected to experience.

Existing transportation options other than the private automobile are limited to those provided by private bus operators, VIA Rail and connections to existing GO Transit services. Existing services tend to focus on travel to Toronto's central business district and not on travel to other significant destinations either within or outside the GTA. Many of the key transportation links serving the current and future travel demands in the GGH have capacity limitations. As growth continues into the 21st century, there is both a need

and opportunity to examine the viability of expanding commuter and other transit services to areas within the GGH to provide alternatives to travel by the private automobile.

Various transportation opportunities may be identified during the EA study including (but not limited to) provision of a balanced and integrated transportation system. These could include opportunities for higher order transit, improved linkages to urban growth centres, inter-modal facilities and connections to international gateways to the south and the southwest.

It is recognized that the transportation community in the Greater Golden Horseshoe continues to be proactive in addressing the transportation problems that are evident in the area. All levels of government have been focusing on transportation problems as a priority for decades and many initiatives are underway or planned and will be considered in the EA study.

The *Growth Plan* and other provincial government strategies will be used during the Individual EA study to help establish the framework within which transportation opportunities will be identified. Consultation with federal and provincial government agencies, municipalities and transportation service providers will also be key in identifying potential transportation opportunities in the GTA West Corridor.

2.4 Summary of the Purpose of the EA Study

The Growth Plan sets out policy directions to identify and support a transportation network that links *Urban Growth Centres* through an integrated system of transportation modes characterized by efficient public transit, rail and highway systems for moving people and goods with improved access to intermodal facilities, airports and transit hubs.

The purpose of this study is to examine long-term transportation problems and opportunities to the year 2031 and consider alternative solutions to provide better linkages between *Urban Growth Centres* (as identified in the *Growth Plan*) within the GTA West Corridor.

The specific need for any proposed undertaking(s) and a description of the proposed undertaking(s) will be determined during initial phases of the EA study and will be based on the approved government policies and planning objectives that are in place at that time. This work supporting the need for any proposed undertaking(s) and a description of the proposed undertaking(s) will be documented in a *Transportation Planning Needs Report*, which will be made available for public and government agency review.

3. OVERVIEW OF ENVIRONMENTAL CONDITIONS AND POTENTIAL EFFECTS

The proposed EA Study will utilize a study process that seeks to avoid, minimize or prevent detrimental environmental effects. For the purposes of this study, the term "environment" reflects the definition in the Ontario *Environmental Assessment Act*, which includes natural, social, economic and cultural features. Specific mitigation measures and the approaches for management of environmental effects will be developed and addressed during the EA study once the potential transportation improvements are better understood.

Overview of Existing Environmental Conditions

Secondary source environmental research was undertaken during the course of preparing the EA ToR. This information has led to a reasonably sound understanding of the existing environment and major environmental features in the GTA West Corridor Preliminary Study Area. The following provides a brief overview of the major environmental features and conditions in this area.

Further environmental investigations, including secondary source reviews and field investigations, will occur during the EA study to inventory the existing environment as defined by the OEAA and as set out in the EA ToR.

The Preliminary Study Area is outlined in **Exhibit 1-2**. It is situated in the Regions of York, Peel, and Halton, the County of Wellington, and the City of Guelph as illustrated in **Supporting Document B**. This area is characterized by a mix of urban and rural communities and includes a number of designated urban growth centres in Vaughan, Brampton, Milton and Guelph, as well as numerous rural residential clusters and settlements in Caledon, Halton, York and Wellington.

Natural Environment

From a natural environment perspective, the Preliminary Study Area encompasses portions of five physiographic regions and is complex in terms of geomorphic features, hydrogeology and hydrology, all of which exert on, and influence, ecological conditions including soils, vegetation, flora and fauna. These physiographic regions are the Niagara Escarpment, the Oak Ridges Moraine (ORM), the Flamborough Plain, the South Slope (of the ORM) and the Peel Plain.

The two most prominent landform features are the Niagara Escarpment and the Oak Ridges Moraine. These are highlighted in **Exhibit 2-1**.

The Niagara Escarpment is recognized as a World Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Stretching 725 km in length from Niagara to Tobermory, it encompasses a large range of habitats, physiographic regions and land uses. The Niagara Escarpment parallels the southern and western shores of Lake Ontario and ranges in distances from one to several kilometres south of the lake. Originating in Queenston Heights near Niagara Falls, and extending through the City of Hamilton and north towards Halton Region, running diagonally through the Town of Halton Hills, the Town of Milton and Town of Caledon, its size and location in the middle of the Preliminary Study Area make it a key feature.

Adjacent to the northeast boundary of the Preliminary Study Area, the Oak Ridges Moraine is an irregular ridge of sandy hills stretching 160 kilometres from the Trent River in the east to the Niagara Escarpment in the west, dividing the watersheds draining

south into Lake Ontario and those draining north into Georgian Bay, Lake Simcoe and the Trent River system. It crosses 32 municipalities in three regions (Peel, York and Durham), four counties (Dufferin, Simcoe, Peterborough and Northumberland) and the City of Kawartha Lakes.

Unique land features, carved out by retreating glaciers or glacial deposits, include kettle lakes, kame hills, moraines, drumlins, eskers and outcrops. Examples of these include the Hillsburgh sand hills, Caledon and Guelph moraines, the Brampton Esker, and the kettle lakes around Rockwood. In the Town of Caledon, rolling pasture contrasts with the uniqueness of the Cheltenham (Chingacousy) Badlands.

Other significant features in the Preliminary Study Area include: the Ballinafad Swamp, Halton Forest (North and South), Heart Lake Forest and Bog, Credit Forks and Credit River Lowlands and Marshes, Puslinch Lake Bog and Wetlands, Terra Cotta Forest, Huttonville Valley, and Creditview Woods.

There are numerous designated natural environment features within the study area including, for example: Life Science and Earth Science Areas of Significant Natural and Scientific Interest (ANSIs), Provincially Significant Wetlands (PSWs), Locally Significant Wetlands (LSWs) and Environmentally Sensitive Areas (ESAs).

The GTA West Corridor contains an abundance of surface water features including large headwater areas, watercourses inland lakes and wetlands. The Preliminary Study Area includes portions of the following major watersheds from west to east: Grand River, Bronte Creek, Sixteen Mile Creek, Credit Valley, Etobicoke Creek, Mimico Creek, and Humber River Watersheds. The Preliminary Study Area is within the jurisdiction of four Conservation Authorities: Grand River (GRCA), Halton (CH), Credit Valley (CVC), and Toronto and Region (TRCA).

In addition to surface water quality and quantity, the watersheds are important to the maintenance and optimization of groundwater recharge and discharge capabilities in the area.

A large percentage of lands within the Preliminary Study Area is designated prime agricultural areas. The area also includes significant resources for mineral aggregates.

Socio-Economic Environment

The GTA West Preliminary Study Area encompasses a vast area of diverse land uses including designated *Urban Growth Centres*, rural communities, agricultural lands and natural features.

The **Region of York** covers an area of 11,776 square kilometres from Lake Simcoe in the north and to the City of Toronto's northern boundary in the south. With a population of 945,967 (as of October 31, 2006), York Region is one of the most diverse regions in Canada, diverse in industry and business, in landscape and in a multicultural population⁵.

To the east end of the GTA West Corridor, the City of Vaughan is the one of the largest and fastest growing urban centre in the GTA West Corridor Preliminary Study Area.. The Vaughan Corporate Centre, identified in the *Growth Plan* as a designated *Urban Growth Centres*, is a planned new downtown area that will incorporate business offices, recreational and cultural facilities, and pedestrian shopping areas. The Vaughan Enterprise Zone consists of more than 1,000 hectares in the City's west end that has

⁵ York Region Website - Business

been designated as employment lands⁶. Vaughan is also home to the CPR inter-modal terminal located east of Highway 50 north of Rutherford Road.

Located immediately north of the City of Vaughan, King Township comprises 19 percent of York Region's land and has a population nearing 20,000. The rolling hills of the Oak Ridges Moraine are the Township of King's most prominent geographical features boasting forests, world-class horse and dairy agricultural operations as well as the Holland Marsh, a designated specialty crop area. Nearly 70% of the Township lands are situated in the protected area of the Oak Ridges Moraine⁷.

The **Region of Peel** consists of the municipalities of the Town of Caledon, the cities of Brampton and Mississauga. The Region of Peel covers approximately 1,225 square kilometers and is home to over 1.2 million people.

The Town of Caledon is the most northerly of the three area municipalities in The Region of Peel and comprises 55% of the total land area in the Region. Located in the north-west part of the GTA, the Town exhibits the characteristics of a distinct rural area under increasing pressure from the expanding urban area⁸.

Located south of Caledon and north of Mississauga, the City of Brampton has experienced the 2nd highest rate of growth among the 20 largest cities in Canada, and has the 3rd largest population (434,000 in 2006) in the GTA. The City of Brampton is highly urbanized and continues to develop at a rapid pace with future growth primarily in its eastern and northwestern parts. Brampton is home to the Daimler-Chrysler Brampton Assembly Plant which employs over 4,000 people. One of CN's major Inter-modal terminals is located in eastern Brampton at Airport Road and Intermodal Drive. The *Growth Plan* designates Brampton City Centre as an *Urban Growth Centre*.

The City of Mississauga is the southern most municipality within Peel Region. With a population of 700,000 (2005), Mississauga is Canada's 6th largest city and is home to Toronto Pearson International Airport, Canada's largest international airport. The *Growth Plan* designates Mississauga City Centre as an *Urban Growth Centre*.

The **Region of Halton** is comprised of four municipalities. The Town of Oakville and City of Burlington make up the urban area in the southern portion of the region while areas to the north consisting of the Town of Halton Hills and the Town of Milton are comprised of a mix of rural and small but growing urban areas.

Surrounded predominantly by a natural rural area with two urban areas - Georgetown and Acton, the Town of Halton Hills is home to 51,300 people. The Niagara Escarpment runs on the diagonal through the Town of Halton Hills, with Acton resting above the escarpment and Georgetown below the escarpment. The Bruce Trail, Ontario's longest footpath, follows along the Escarpment from Niagara to Tobermory. The Regional Official Plan projects the population to increase by 20,000 from the population in 2001, to 70,000 by 2021. The number of jobs is expected to increase to 29,410 in 2021⁹.

The Town of Milton is located on the west edge of the GTA. The Niagara Escarpment runs on the diagonal through the Town. Below the escarpment is urban area surrounded by agricultural land. Above the escarpment is an extensive rural area comprised of agricultural operations, natural areas, quarry operations, estate residential development and the hamlets of Campbellville, Brookville and Moffat. The population of the Town of

⁶ City of Vaughan Website

⁷ King Twp Website – Community Information

⁸ Caledon OP – Page 1-1

⁹ Town of Halton Hills Official Plan

Milton has nearly doubled in the 5 years since 2001. The Statistics Canada Census shows the Town's population was 31,471 in 2001. The Ministry of Finance estimated that the population reached 65,000 in 2006¹⁰. The Growth Plan designates Downtown Milton as an Urban Growth Centre.

The **County of Wellington** is a community of 85,000¹¹ living in an area of over 2,600 square kilometres. The County incorporates many small towns over rural countryside west of the GTA and east of the Kitchener-Waterloo area. Located at the southern end of the County of Wellington, surrounding the southeast boundary of the City of Guelph, the Township of Puslinch is a community of several smaller villages with a total population of 5,885 in 2001¹². Surrounding the northwestern boundary of the City of Guelph, the Township of Guelph-Eramosa is a community of approximately 12,600 people¹³. The Town of Erin is located north of the Township of Guelph-Eramosa and has a population of approximately 11,785 people in 2007, concentrated in the communities of Erin and Hillsburgh¹⁴.

The **City of Guelph** is geographically within southern Wellington and at the west end of the Preliminary Study Area. The City is one of the fastest growing economic regions in Central Ontario, with one of the premier research universities, and a diverse variety of manufacturing, service, and high technology enterprises¹⁵. The *Growth Plan* designates Downtown Guelph as an *Urban Growth Centre*.

Cultural Environment

From a cultural perspective, the area through the Regions of York, Peel, Halton, Wellington and the City of Guelph hosts a rich history in terms of First Nations and Euro-Canadian settlements. Various archaeological sites, areas of archaeological potential, cultural heritage landscapes and heritage buildings/structures are present throughout the area.

In addition, within the Preliminary Study Area there are numerous sites of cultural heritage value or interest, provincial and local parks, and conservation / recreational areas and trails.

Identifying Environmental Conditions, Effects and Mitigation During the EA

Further environmental investigations, including secondary source reviews and field investigation, will occur during the EA study.

The environmental work will be undertaken to further identify environmental conditions and to develop extensive mapping describing the environmental features in more detail. This will assist the assessment of Alternatives to the Undertaking and the generation and evaluation of Alternative Methods of Carrying Out the Undertaking (Alternative Methods). As the study progresses and the range of alternatives become more focused, more detailed environmental investigations will be undertaken.

¹⁰ Milton Website – Community Profile

¹¹ Growth Plan – Schedule 3

¹² Statistics Canada 2001

¹³ County of Wellington Official Plan

¹⁴ The Town of Erin Official Plan

¹⁵ City of Guelph Website

¹⁵ For more information on cumulative effects assessment please refer to the Canadian Environmental Assessment Agency's operational policy statement on cumulative effects, http://www.ceaa-acee.gc.ca/013/0002/cea_ops_e.htm

In generating, assessing and evaluating alternatives and selecting a preferred alternative(s), the main objective is to avoid, minimize or prevent significant adverse environmental effects while developing a transportation solution that addresses the identified problems and opportunities.

This document outlines issues that will be considered during the generation of alternatives to minimize adverse environmental effects and also describes how effects associated with alternatives will be assessed. **Table 6.1** of this document lists the various environmental and technical considerations that will be used to generate Alternative Methods. **Table 6.2** outlines a set of evaluation criteria to be used to assess effects (both short-term and long-term) to each component of the environment (i.e. natural environment, socio-economic environment, cultural environment and technical requirements/considerations) associated with the Alternative Methods. The evaluation criteria provide an indication of the potential environmental effects. Various technical studies will be undertaken to assess these potential environmental effects. Once a preferred alternative(s) has been identified it will be developed to Concept Design level of detail in order to describe the Undertaking, assess the potential effects and develop specific mitigation measures. This will be documented in the EA Report.

4. DESCRIPTION AND STATEMENT OF RATIONALE FOR ALTERNATIVES

A two-staged approach will be utilized to examine alternatives. Stage 1 of the EA study will focus on the purpose and rationale for the Undertaking and the identification and assessment of Alternatives to the Undertaking. Subsequent to the assessment and selection of the preferred Alternative(s) to the Undertaking, the Preliminary Study Area may be revised. If one component of the preferred Alternative to the Undertaking is a project which requires MTO to complete an Individual EA, the Study will progress to Stage 2. In Stage 2, Alternative Methods will be generated and assessed and a preferred Alternative Method(s) will be selected. The two-staged EA process is schematically illustrated in **Exhibits 4-1a** and **4-1b** and fully described in Chapters 5 and 6.

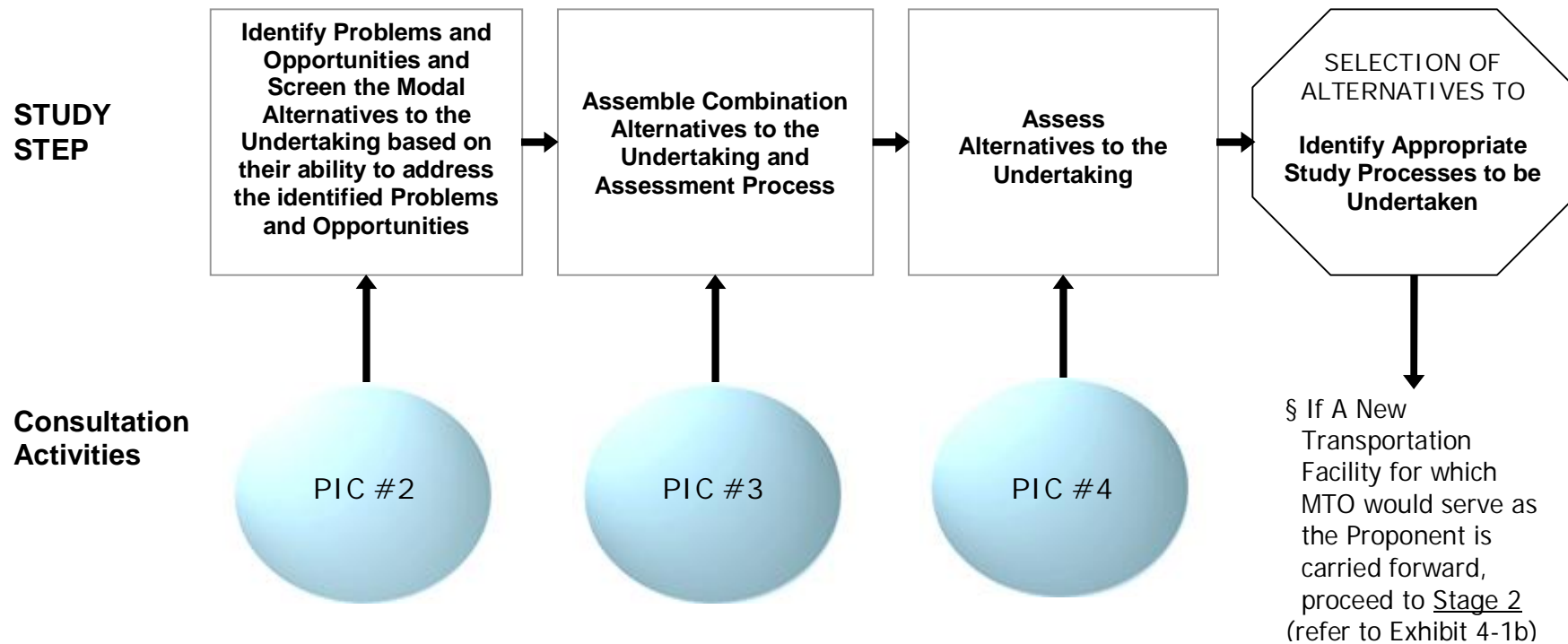
Alternatives will be identified and assessed in consultation with the public, federal and provincial government agencies, municipalities and First Nations.

The planning framework is based on a phased sequence of decision-making in which these two types of alternatives are assessed at an increasing level of detail as they become more focused. Impact assessment will be conducted at a more general and strategic level, based primarily on secondary source information and verified by air photo interpretation and reconnaissance level investigations, when comparing Alternatives to the Undertaking. As Alternative Methods of Carrying Out the Undertaking are developed, the level of engineering and environment investigation will increase. The information collected previously will be supplemented with field data and additional research. Once a preferred Alternative Method is selected, more focused data will be collected. The level of detail of the data collected will be sufficient and appropriate to allow for a thorough understanding of the potential effects of the Alternative Methods on environment.

The process of collecting additional environmental data as the project becomes more focused ensures that current information is sought and used throughout the study process.

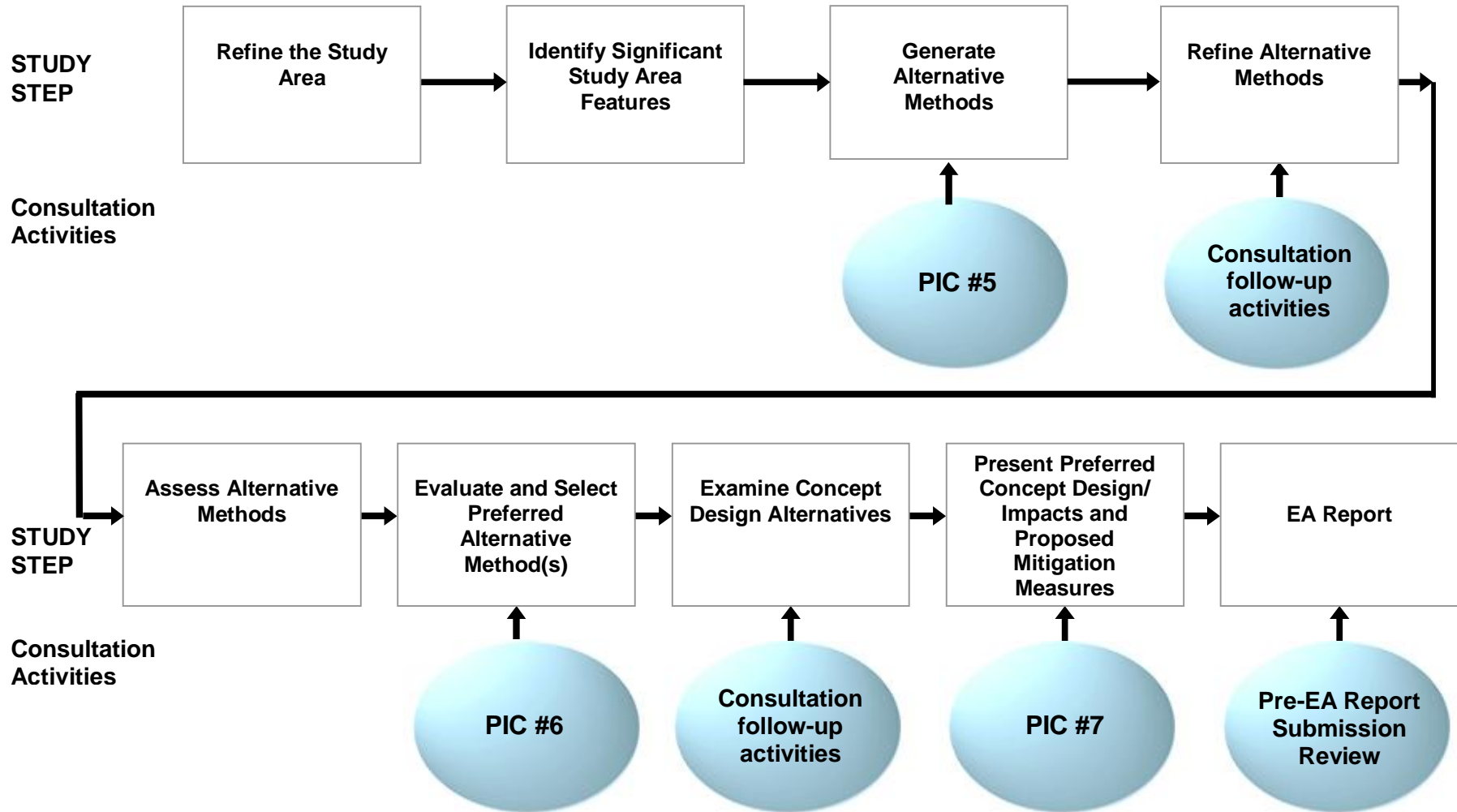
During the EA study, MTO will work closely with the affected agencies and the public to refine issues/concerns in an attempt to develop acceptable measures for resolving concerns.

Exhibit 4-1a: EA Process Stage 1



Note: PIC #1 (Public Information Centre #1) was held to assist in developing the EA ToR. The above study steps and consultation activities represent a framework to guide the future EA study. The process outlined may be refined as determined appropriate during the EA to reflect study findings and input received through consultation.

Exhibit 4-1b: EA Process Stage 2



Note: The above study steps and consultation activities represent a framework to guide the future EA study. The process outlined may be refined as determined appropriate during the EA to reflect study findings and input received through consultation.

5. ALTERNATIVES TO THE UNDERTAKING

Alternatives to the Undertaking are defined as functionally different ways of addressing the identified problems and opportunities. This is presented as Stage 1 in **Exhibit 1-1**. Sometimes these types of alternatives are referred to as transportation system alternatives. This term has been used to be consistent with the Environmental Assessment Act even though an “Undertaking” is not fully identified until the end of the process. In addition to ‘doing nothing’, alternatives to address deficiencies in the transportation network capacity typically include those that increase network capacity, reduce transportation demand or combinations thereof. Given the complex nature of the transportation problems and size of the study area it is anticipated that a multi-modal transportation development strategy, comprised of a number of specific alternatives, will be required.

Once the transportation problems and opportunities have been clearly identified, the Preliminary Study Area will be reviewed and modified if required to better address the problems and opportunities.

In Section 2.1 there was reference to themes and principles for transportation planning to be considered when developing the specific Alternatives to the Undertaking. These principles are summarized below:

- Make effective and efficient use of existing infrastructure;
- Develop a network that results in the safe and efficient movement of people and goods;
- Make public transit a priority when generating and assessing Alternatives to the Undertaking;
- Emphasize improved goods movement by linking inter-modal facilities, international gateways and communities within the Greater Golden Horseshoe (GGH);
- Ensure effective co-ordination with other MTO planning initiatives throughout the GGH; and
- Develop an integrated multi-modal transportation network that provides choice for users.

The specific alternatives that can be derived from this list include continued use of existing road and rail infrastructure, additional road and/or rail infrastructure to improve the transportation network, improving public transit, improving links between inter-modal facilities, international border crossings and communities through road and/or rail infrastructure and multi-modal opportunities. Putting these into context, the Alternatives to the Undertaking to be considered in the EA study will include, but are not limited to:

- **Do Nothing** – “Do Nothing” is considered the status quo, where the transportation system would be limited to maintenance of current transportation infrastructure and the implementation of approved Provincial, Regional and local Municipal initiatives.
- **Travel Demand Management (TDM)** – TDM strategies include measures implemented to improve the operation of the current transportation system by managing travel demand independent of actually expanding or constructing new infrastructure. The emphasis of TDM strategies is to reduce overall demands on the network, shift demands to time periods outside of the critical congestion periods, and shift demands to alternative modes of transportation, principally transit, cycling and walking;

- **Transportation Systems Management (TSM)** – The objective of TSM is to improve the efficiency and safety of the transportation system and optimize the use of existing and planned infrastructure through a wide range of strategies and technology policies and initiatives. Measures include initiatives such as transit priority facilities, ITS (intelligent transportation system) strategies, carpooling, High Occupancy Vehicle (HOV) lanes and Reserved Bus Lanes (RBL), Park and Ride facilities and intersection improvements;
- **Improved Air Transport Service** – Modifications to existing air transport services and any associated structural modifications/new infrastructure can potentially result in a change in travel patterns for both passenger and freight;
- **Improved and/or New Goods Movement by Rail** – Increased freight rail services for goods movement within existing rail corridors and/or along new rail corridors will encourage the diversion of freight from trucks. The ability to expand rail service and divert longer haul goods to rail may provide some relief to network congestion both on regional arterials and on the provincial highway network;
- **Improved and/or New Passenger Rail Service** – Increased or new passenger rail service (i.e. for commuter and tourist travel) within existing rail corridors and/or along new rail corridors;
- **Improved and/or New Transit Services** – Expanding the capacity of the transit system through increased services within the existing transportation network and/or accommodating new transit services on new corridors may relieve congestion and increase the performance of the transportation network;
- **Improved and/or New Roadways/Transitways** – The provision of improved capacity and operations on existing facilities and/or accommodating required capacity on new corridors may increase the performance of the transportation network. Congestion may be relieved through additional capacity on existing roadways/transitways or by introducing capacity in new corridors for provincial highways, transitways or both; and
- **Combinations of the above** – In addition to the individual Alternatives to the Undertaking noted above, it is proposed to establish additional "combined" Alternatives to the Undertaking that represent creative combinations of the above ways of adding capacity or reducing trips.

As previously noted, the above list represents a preliminary listing of Alternatives to the Undertaking that will be examined within the EA. The process for identifying and assessing Alternatives to the Undertaking (as described in this ToR) is flexible to accommodate the identification and assessment of other alternatives to the undertaking that may be identified during the EA study.

One of the above Alternatives to the Undertaking, namely "Combinations of the above", is a complex alternative to consider since it is not a specific infrastructure improvement but rather, is a number of them in combination.

5.1 Assessment of Alternatives to the Undertaking

Alternatives to the Undertaking provide an opportunity to examine fundamentally different ways of addressing transportation problems. In recognition of these fundamental differences among the Alternatives to the Undertaking, it is appropriate to examine the effectiveness of each type of alternative to address the problems and take advantage of opportunities at a functional level.

The assessment of Alternatives to the Undertaking at a functional level will consider broad factors and criteria that reflect objectives in addressing the stated transportation problems, while considering potential effects on the environment. Given the complex nature of the transportation problems and size of the study area it is anticipated that a multi-modal transportation development strategy, comprised of a number of specific alternatives, will be required. The first step will examine the ability of individual modal alternatives to meaningfully address the transportation problems and opportunities. The second step will assemble and assess a number of combination alternatives based on the listing of proposed factors and criteria identified in **Table 5.1**.

It should be noted that **Table 5.1** represents the minimum number of considerations for identifying the advantages and disadvantages of Alternatives to the Undertaking. This listing is subject to refinement and modifications based on input received during the EA study. Specific measures will be developed during the EA study. As such, all stakeholders will be provided the opportunity to review and provide comments on the factors and criteria used to identify a preferred Alternative to the Undertaking or preferred combination of Alternatives to the Undertaking.

5.2 Evaluation and Selection of the Preferred Alternative(s) to the Undertaking

The advantages and disadvantages of the various alternatives will be compared to select the preferred alternative(s). A detailed rationale for the selection of the preferred alternative(s) will be provided in the EA report.

It is recognized that each alternative will result in a unique set of advantages and disadvantages. In order to select a preferred alternative(s), the Project Team will examine the significance of the specific potential effects. This will assist the Project Team in focusing on key decision-relevant information when providing a clear rationale for the selection of a preferred alternative(s). When comparing the advantages and disadvantages and developing the rationale for the preferred alternative(s), the Project Team will consider:

- Government legislation, plans, policies and guidelines;
- Municipal policy (e.g. approved Official Plans);
- First Nation's issues and concerns;
- Public, Agencies, Consultation Groups, and other stakeholder issues and concerns; and
- Project Team (staff from MTO and their Consultants) expertise.

Opportunities for stakeholder input into this process are outlined in Chapter 8.

The rationale will be documented clearly and concisely in a format that can be easily understood by all stakeholders.

To determine the "next steps", the selected Alternative(s) to the Undertaking will be placed into one of the following four categories:

1. If the Preferred Alternative to the Undertaking is "Do Nothing" – the EA process is complete and no further study will be initiated.

Table 5.1: Proposed Factors and Criteria for Assessing Alternatives to the Undertaking

| CRITERIA |
|--|
| Factor: Transportation |
| The degree to which the proposed transportation system modification: <ul style="list-style-type: none"> • supports federal/provincial/municipal transportation policies/goals/objectives; • improves system capacity & efficiency for the movement of people and goods; • improves system capacity & efficiency to reduce growth in peak travel demand; • makes effective and efficient use of the existing road and transit system through the use of Transportation Demand Management and Transportation System Management strategies; • improves system reliability and redundancy during adverse conditions; • improves traffic safety through congestion reduction; • enhances goods movement by linking inter-modal facilities, international gateways and communities within the Greater Golden Horseshoe; and • improves mobility and accessibility through enhanced modal integration/choice and a more balanced transportation system. |
| Factor: Land Use |
| The degree to which the proposed transportation system modification supports existing and planned future land use and growth including recognition of growth management plans and policies as articulated in provincial policies and municipal official plans. |
| Factor: Economy |
| The degree to which the proposed transportation system modification supports provincial, regional and municipal: <ul style="list-style-type: none"> • manufacturing and trade; • tourism and recreation; and • agriculture. |
| Factor: Environment |
| The degree to which the proposed transportation system modification: <ul style="list-style-type: none"> • impacts natural features (e.g. aquatic ecosystems, terrestrial ecosystems, groundwater, surface water, air quality); • impacts socio-economic features (e.g. land use, communities, resources); • impacts cultural features (e.g. properties of cultural heritage value, archaeological and First Nations sites); and • reduces or limits impacts such as higher noise levels, greenhouse gas emissions and the effects of air emissions on local/regional air quality |

2. If the Preferred Alternative to the Undertaking is a transportation mode or solution that is outside the jurisdiction of MTO – the current EA process will be halted; MTO will refer the planning alternative to the appropriate agency or jurisdiction for further review and action.
3. If the Preferred Alternative to the Undertaking is entirely within the jurisdiction of MTO (MTO as the proponent) – the EA process continues and MTO will proceed to the Alternative Methods stage as outlined in this EA ToR document, or to the appropriate MTO Class EA process, as will be determined during the EA study.
4. If the Preferred Alternative to the Undertaking is a combination of solutions that are within the jurisdiction of MTO and modes/solutions that are outside the jurisdiction of MTO – the EA process continues; MTO proceeds to the Alternative Methods stage as outlined in this EA ToR document or to the appropriate MTO Class EA Process.

Alternatives to the Undertaking that are outside MTO jurisdiction are referred to the appropriate agency for further review and action.

Subsequent to the selection of preferred alternative(s), MTO will contact MOE to seek guidance on the intended course of action, as appropriate.

6. ALTERNATIVE METHODS

The process outlined in this chapter is applicable to transportation solutions that fall within the mandate of the Ministry of Transportation that require an Individual EA. As described in Chapter 5, should the assessment of Alternatives to the Undertaking identify other/additional solutions, an appropriate study process would be pursued by the pertinent agency/proponent(s).

After determining the Preferred Alternative(s) to the Undertaking, Stage 2 of the EA study can commence.

Stage 2 of the EA (as presented in **Exhibit 1-1**) will focus on the following study steps:

- Refining the study area;
- Identifying significant study area features;
- Generating Alternative Methods;
- Refining Alternative Methods;
- Assessing Alternative Methods (including the refinement of evaluation criteria / measures);
- Evaluating and selecting a Preferred Alternative Method(s);
- Preparing the concept design of the selected Preferred Alternative(s) (including the identification of potential effects and development of mitigation measures); and
- Preparing and submitting an EA Report.

The process for generating and evaluating Alternative Methods within the broader context of the EA study process is schematically illustrated in **Exhibit 4.1b**.

6.1 Process for Refining the Study Area

Based on the results of the evaluation of Alternatives to the Undertaking the Preliminary Study Area will be refined to ensure that a reasonable range of alternatives can be generated. It is fundamental to note that the study area does not limit the potential to examine environmental effects outside of its boundaries.

The MTO Project Team will refine the study area through consultation with interested stakeholders. The following inputs will be used to guide the generation of study area limits:

- Identified transportation problems and opportunities;
- Significant natural, socio-economic and cultural environmental features (as identified through secondary source data and consultation);
- Current government land use planning policies and initiatives; and
- Existing transportation infrastructure.

During the EA study, the study area limits may be refined or modified as required to accommodate any reasonable alternatives that may be developed.

6.2 Generating and Evaluating Alternative Methods

The process for generating and evaluating Alternative Methods is schematically illustrated in **Exhibit 4.1b**.

The process for generating and evaluating Alternative Methods is flexible and can accommodate the consideration of revisions / enhancements to the criteria for identifying and assessing Alternative Methods (as listed in this EA ToR) during the EA study.

The underlying principle regarding the alternative generation process is to start with a broad perspective and narrow to the more focused as the study progresses. The starting point is a broad EA Study Area that can accommodate a reasonable range of alternatives. At this stage environmental information, (based largely on secondary sources) field reviews and consultation input, will be collected to identify significant environmental features.

This principle will be applied as follows:

- Upon refining the EA Study Area, Alternative Methods will be generated, refined and examined in greater detail as the study progresses to determine potential environmental effects.
- Alternative Methods will be comparatively evaluated to determine the best alternative(s) (preferred alternative(s)) and mitigation measures will be identified.
- The preferred alternative(s) (the Undertaking) will be more fully developed to determine the best Concept Design in order to fully document potential environmental effects (both within and outside of the defined study area where appropriate) and allow mitigation measures to be developed in greater detail.

Under this process, as alternatives are developed, study area information is supplemented with field data and additional research as required. When a Preferred Alternative(s) is selected, concept design proceeds with even more focused data that will include detailed field surveys. The EA Report will be submitted to MOE for an approval decision once concept design is completed.

This process continues on into preliminary design and subsequently detail design (and will be undertaken in accordance with the MTO Class EA). The process of collecting additional environmental data as the project becomes more focused ensures that current information is sought and used throughout planning and design. The detail design phase requires the most exacting field survey data and detailed environmental research to fine-tune the designs and finalize mitigation measures to address environmental effects.

This approach is based on MTO's existing policies and protocols and has been used on other EA studies in Ontario by MTO and other proponents.

6.3 Process to Generate Alternative Methods

Once the EA Study Area has been refined, Alternative Methods will be generated. Data necessary to support the generation of alternatives will be collected primarily from secondary sources such as aerial photography and large-scale constraint mapping (e.g., Geographic Information System data) compiled from information provided by the Provincial Plans (i.e. Growth Plan, Niagara Escarpment Plan, Greenbelt Plan and Oak Ridges Moraine Conservation Plan), external agencies and from Municipal Official Plans (and approved Master Plan documents), as well as information collected during

previous MTO studies. This information will be supplemented, as required, by data collected from interested groups and individuals, discussions with ministries, agencies and the public, and preliminary field reviews.

Alternative Methods will be generated based on the following guiding principles:

- **Utilize existing infrastructure efficiently and effectively** - Taking advantage of existing transportation and other linear corridors may reduce effects to the natural, social and economic environments;
- **Minimize effects to existing and future planned (approved) land uses;**
- **Avoid or where this is not possible, minimize effects to natural systems, with particular emphasis on natural features, functions, systems and communities;**
- **Avoid or where this is not possible, minimize impacts to prime agricultural areas and individual agricultural operations;**
- **Minimize effects to urban/rural areas** - Such areas generally provide a focus for cultural, recreational, social and economic activities; and
- **Resolve transportation problems and take advantage of existing and future opportunities recognizing project need** - As determined during the initial stages of the EA study.

The objectives and rationale for generating alternatives will ensure not only that alternatives are efficient/direct and meet technical objectives/design requirements, but also minimize/avoid potential effects to significant environmental and study area features to the extent possible. **Table 6.1** outlines the environmental and technical considerations that will be considered to address the objective to minimize/avoid potential environmental effects to the extent possible. It should be noted that these represent the minimum environmental considerations concerning generating alternatives and are subject to refinement and modification during the EA based on study findings and input received from stakeholders.

The alternatives will then be reviewed with agencies and the public through the consultation process. This consultation phase is critical to developing a reasonable set of alternative methods. Local residents can add valuable information to the database gathered by the Project Team. Refinements to the alternatives will be integrated where warranted and a final set of alternative methods will be brought forward to the evaluation process.

The preferred alternative(s) will be identified through the evaluation process described in Section 6.5.

Table 6.1: Environmental and Technical Considerations During the Generation of Alternative Methods

| COMPONENT | Features / Considerations |
|----------------------|---|
| Natural Environment | <ul style="list-style-type: none"> • Fisheries and Aquatic Ecosystems • Terrestrial Ecosystems • Groundwater • Surface Water • Air Quality |
| Cultural Environment | <ul style="list-style-type: none"> • Historical, Archaeological and Cultural Sites • National, Provincial and Local Parks, and Conservation/Recreational Areas |

| COMPONENT | Features / Considerations |
|-----------------------------|---|
| Social/Economic Environment | <ul style="list-style-type: none"> • First Nations use of land and resources for traditional purposes • Agricultural Lands • Areas of Residential / Commercial / Institutional / Agricultural Development • Landfills and Hazardous Waste Sites • Petroleum, Mineral and Aggregate Resources |
| Technical | <ul style="list-style-type: none"> • Adherence to Applicable Design Standards • Efficiency • Compatibility with the Transportation Network • Utilization of existing linear corridors (e.g. hydro) where feasible |

Specific objectives or guiding principles for each of the above components / considerations will be developed during the EA in consultation with stakeholders.

6.4 Refinement of Alternative Methods

It is anticipated that during consultation events, comments and suggestions will be provided regarding modifying / refining Alternative Methods. The process for assessing the refinements suggested during these consultation events will be based on the factor specific environmental inputs.

The objectives and rationale employed for generating alternatives will form the basis for determining whether suggested refinements should be carried forward. Refinements will be examined based on consideration of the natural, socio-economic, cultural environments and technical generation criteria.

6.5 Evaluation and Selection of Alternative Methods

After the various Alternative Methods are generated and refined based on consultation, the evaluation of the alternatives will commence.

The evaluation of Alternative Methods is a two-step process. The first step (assessment) entails the identification of advantages and disadvantages of the various alternatives under consideration. At this stage, each environmental feature is examined to determine the extent of potential effect. Net effects will be identified; these refer to the effects on the environment that remain after standard mitigation measures have been applied to reduce the extent of the effect.

The second step is the evaluation itself. This step builds upon the information obtained from the impact assessment stage and involves a comparative analysis of the advantages and disadvantages of the alternatives considered to select a preferred alternative method(s). At this stage, the relative importance of the environmental features and significance of the effects are determined. A "Do Nothing" scenario will be carried forward to represent a base case for comparison to the preferred alternative(s).

Evaluation Method

The evaluation of alternatives is an integral component of the EA. A sound evaluation process is based on five key principles:

- The evaluation of alternatives must be **comprehensible and systematic**;
- The process must be **rational and understandable**;

- The results must be **replicable**;
- The data must be **traceable**; and
- The entire process must be **participatory**, with broad but not duplicative opportunities from the public, regulatory agencies, municipalities, First Nations etc.

The Ontario Ministry of the Environment recommends that the evaluation approach should be clearly described and government ministries, municipalities, agencies, First Nations and the public should be asked for their comments early in the EA study. The method(s) used to predict net environmental effects and evaluate advantages and disadvantages should clearly identify the relative differences amongst alternatives and the logic chain behind the selection of a preferred alternative(s).

MTO is proposing two complementary evaluation approaches to assist in the selection of a preferred alternative(s) for this undertaking. A Reasoned Argument method will be the primary tool used to identify a preferred alternative(s). An Arithmetic (weighting-scoring) method will be the secondary tool and will be used to verify the results of the Reasoned Argument method.

The Reasoned Argument evaluation component will provide a clear presentation to stakeholders of the key differences between the various alternatives and the reasons why one alternative is preferred over another. The Arithmetic evaluation provides a means to compare the Alternative Methods based on a numerical scaling with weights assigned by MTO and other stakeholders as determined through the EA Study consultation. A numerical approach is a good sensitivity analysis tool to determine if the conclusions of the reasoned argument approach are valid and appropriate. During the EA study, the decision making process will be clearly documented to support a traceable process and to ensure that it is understandable to those who may be affected by the decisions. Opportunities for stakeholder input into this process are outlined in Chapter 8. Details on the Reasoned Argument and Arithmetic evaluation methods are outlined as follows:

Reasoned Argument Method

This method will be the primary evaluation method employed to select a preferred alternative(s). This method highlights the differences in net effects associated with the various alternatives. Based on these differences, the advantages and disadvantages of each alternative are identified. The relative significance of the effects are examined to provide a clear rationale for the selection of a preferred alternative(s). The rationale that favours the selection of one alternative over all others will be derived from the following sources:

- Government legislation, plans, policies and guidelines;
- Municipal policy (e.g. approved Official Plans);
- First Nation's issues and concerns;
- Public, Agencies, Consultation Groups, and other stakeholder issues and concerns; and,
- Project Team (staff from MTO and their Consultants) expertise.

Arithmetic Evaluation Component

The Arithmetic Evaluation component will be the secondary method of evaluation and will incorporate both the level of importance of each environmental attribute (referred to

as the weight) and the magnitude of the effect (or benefit) associated with an alternative (referred to as the score). Numerical values are derived for both the level of importance (weight), and the magnitude of the effect (score) associated with each alternative.

The weight is multiplied by the score to obtain a total for each factor. The totals for each alternative are compared to determine the preferred alternative method(s). This evaluation method also allows for sensitivity testing as numerous weighting scenarios can be developed using scoring and weighting as described below.

- *Scoring (degree of effect)*: The score assigned to each environmental attribute is relative to the effect generated. Relative effects can range from those that are positive (benefit the environment) to negative (detrimental to the environment). The assessment of effects will be derived from field measurements, results of prediction models, secondary data sources (as appropriate) and other means as necessary (including drawing on past experiences from other projects).
- *Weighting (level of importance)*: Generally, more weight is assigned to those features which are felt to be more important in assessing effects generated by alternatives, and less weight is given to those features which are considered to be less important.

Weighting scenarios will be developed in consultation with the public, regulatory agencies, First Nations and municipalities. It should be noted that weighting scenarios may vary for different regions of the refined Study Area. In addition, numerous sensitivity tests can be run to reflect input received from stakeholders and the public. Such input will provide the Project Team with an understanding of community values with respect to the relative importance of each environmental feature.

The results of the weighting scenarios will be reviewed and compared to the results of the Reasoned Argument component.

The specific mathematical tool to be used for the arithmetic evaluation will be determined during the EA Study when the details regarding the Alternative Methods are known.

Implementation of Evaluation Approaches

As previously noted, the Reasoned Argument method will be the primary evaluation tool used to select a preferred alternative(s) with the Arithmetic Evaluation method used to substantiate the findings. The two evaluation approaches will be implemented concurrently. For example, the Project Team's assumptions and rationale behind its assessment of the level of importance of environmental attributes will be documented along with the corresponding arithmetic value assigned to the effect. In addition, input from stakeholders will be co-ordinated through Public Information Centres and other public consultation activities to ensure that the issues, concerns and the magnitude of potential effects are properly identified and understood by the Project Team.

The results of the two approaches will be compared and the differences identified. The results of the Arithmetic Evaluation will be re-analyzed to determine the key weight-score combinations in the Arithmetic Evaluation. Similarly, the rationale for each trade-off decision will be revisited to determine if the Project Team's decision was appropriate. If the rationale supporting the trade-off decisions is valid and appropriate, the preferred Alternative Method(s) identified by the Reasoned Argument method will stand. However, if the results of the Arithmetic Evaluation lead to modifications to the trade-off decisions' rationale, the preferred alternative method(s) resulting from the Reasoned Argument approach may be revised. The decision making process will be clearly

documented and presented for stakeholders to comment on. During the EA, additional evaluation methodologies may be utilized to ensure that the nature and magnitude of potential effects (of significant community and/or environmental value) are accurately identified and mitigated.

Data necessary to support the evaluation of Alternative Methods will be collected through consultation with ministries, agencies and other stakeholders from secondary sources, prediction models and site-specific field investigations. Some of the existing information sources are identified in the supporting documentation and will be expanded upon initiation of the EA Study and in consultation with the stakeholders. The precise nature and scope of field investigations will be determined during the EA Study and outlined in workplans for review and comment by stakeholders. This information will be supplemented based on input received from interested stakeholders.

6.5.1 Factor Specific Environmental Inputs to the Evaluation of Alternatives

The data collected on the study area will assist in identifying the types of effects each alternative may have on each component of the environment. Environmental components include:

- Natural Environment;
- Socio-economic Environment; and
- Cultural Environment.

In addition, technical requirements and costs will be considered in the evaluation of Alternative Methods. Data collection for each of the environmental disciplines will be conducted consistent with the most up-to-date provincial policies and procedures. Each of these components will be defined by a set of evaluation criteria. Effects will be quantified according to the list of criteria shown in **Table 6.2**. The necessary technical studies will be undertaken to assess the potential effects. These criteria are intended to assist the factor specific environmental specialists in determining the overall effect of the various alternatives on the natural, socio-economic and cultural environment. In determining the overall effect, the specialists will consider how the various factors and criteria interact and function together. The evaluation criteria listed represent the minimum requirements in the process of evaluating alternative methods. A description of the rationale and data sources associated with the evaluation criteria/indicators is outlined in **Appendix A**. The evaluation factors/criteria are subject to refinement and modification during the EA based on study findings, provincial policy and input received from stakeholders. Specific measures will be developed during the EA study. As such, all stakeholders will be provided with the opportunity to review and provide comments on the factors, criteria and measures used to identify a preferred Alternative Method(s). Factor specific work plans for assessing potential environmental effects will be completed during the EA study.

6.6 The Undertaking - Concept Design

Once a preferred alternative(s) has been identified it will be developed to Concept Design level of detail in order to describe the Undertaking, assess the potential effects and develop specific mitigation measures (based on the criteria presented in Table 6.2 and refined as appropriate during the EA). The technical studies for the various components of the environment will be undertaken to assess potential effects and develop detailed mitigation measures. At a minimum, a Reasoned Argument evaluation

method will be employed to facilitate the identification of relative advantages and disadvantages of concept design alternatives considered during the EA.

In addition, approval requirements, mitigation or compensation measures and enhancement opportunities will be addressed with agencies and other stakeholders at this study stage. The process for generating, assessing and selecting the preferred concept design alternative(s) will be confirmed during the EA.

The identification of mitigation measures will be developed in the context of all relevant technical guidelines. Appropriate technical and economically feasible mitigation measures will be developed for specific characteristics and sensitivities of the environmental features and the related significance (e.g. magnitude, duration, certainty) of the potential effect.

Mitigation measures will be developed in consultation with appropriate agency staff and stakeholders to confirm the environmental analyses, issues and effects, and subsequently to review the assessment of effects and proposed mitigation measures. Mitigation measures will also include recommendations for a monitoring program.

6.7 EA Report Preparation and Submission

An Environmental Assessment Report will be prepared at the conclusion of the EA to document all phases of the study. At a minimum, the EA Report will document all items as described under the OEAA, including the purpose and rationale (need) for the undertaking, alternatives considered (Alternatives to the Undertaking and Alternative Methods), consultation undertaken, a description of the undertaking (the Concept Design) and advantages and disadvantages of proceeding with the undertaking and any alternatives, environmental effects and proposed mitigation measures associated with the Concept Design, commitments to compliance monitoring, and future commitments to be satisfied at subsequent design stages. The EA Report will also include an executive summary, reports and maps in accordance with the requirements of Ontario Regulation 334 under the OEAA.

A draft Environmental Assessment Report will be made available to the public, federal and provincial government agencies, municipalities and First Nations for review prior to formal submission to the Ministry of the Environment. The documentation will be available at government offices, public libraries and on the project web site.

Subsequent to the pre-submission review and consideration of any comments received, the EA Report will be formally submitted to the Minister of the Environment for an approval decision of the undertaking. After submission, MOE will undertake a formal public and agency review process for the EA Report. MOE is responsible for review and consideration of comments received on the EA and will consider all comments when making a decision whether to approve, approve with conditions, refer to a tribunal or for mediation or not to approve the EA Report.

In addition to the EA Report, various working and technical papers will be prepared at appropriate stages of the EA to document technical work that is undertaken to support the decision making process.

Activities following the approval of the EA Report and other approvals required are described in **Supporting Document B**. Other approval requirements will be outlined in the EA Report.

Table 6.2: Summary of Evaluation Factors and Sub-Factors for Alternative Methods

| FACTORS | SUB-FACTORS |
|--|---|
| 1. NATURAL ENVIRONMENT | |
| 1.1 Fisheries and Aquatic Ecosystems | 1.1.1 Fish Habitat |
| | 1.1.2 Fish Community |
| 1.2 Terrestrial Ecosystems | 1.2.1 Wildlife Habitat |
| | 1.2.2 Wildlife |
| | 1.2.3 Wetlands |
| | 1.2.4 Woodlands and other Vegetation |
| | 1.2.5 Designated/Special/Natural Areas |
| 1.3 Groundwater | 1.3.1 Areas of Groundwater Recharge or Discharge |
| | 1.3.2 Groundwater Source Areas and Wellhead Protection Areas |
| | 1.3.3 Large Volume Wells |
| | 1.3.4 Private Wells |
| | 1.3.5 Groundwater-Dependent Commercial Enterprises |
| | 1.3.6 Groundwater-Sensitive Ecosystems |
| 1.4 Surface Water | 1.4.1 Watershed / Subwatershed Drainage Features/Patterns |
| | 1.4.2 Surface Water Quality and Quantity |
| 1.5 Air Quality and Climate Change | 1.5.1 Local and regional air quality impacts; greenhouse gas emissions |
| 2. LAND USE / SOCIO-ECONOMIC ENVIRONMENTAL | |
| 2.1 Land Use Planning Policies, Goals, Objectives | 2.1.1 First Nation Land Claims |
| | 2.1.2 Provincial / Federal Land Use Planning Policies/Goals/Objectives |
| | 2.1.3 Municipal (local and regional) Land Use Planning Policies / Goals / Objectives |
| | 2.1.4 Development Objectives of Private Property Owners |
| 2.2 Land Use – Community | 2.2.1 Indian Reserves |
| | 2.2.2 First Nation Sacred Grounds |
| | 2.2.3 Urban and Rural Residential |
| | 2.2.4 Commercial/Industrial |
| | 2.2.5 Tourist Areas and Attractions |
| | 2.2.6 Community Facilities / Institutions |
| | 2.2.7 Municipal Infrastructure and Public Service Facilities |
| 2.3 Noise Sensitive Areas (NSA's) | 2.3.1 Transportation Noise |
| 2.4 Land Use - Resources | 2.4.1 First Nation Treaty Rights and Use of Land and Resources for Traditional Purposes |
| | 2.4.2 Agriculture |
| | 2.4.3 Recreation |
| | 2.4.4 Aggregate and Mineral Resources |
| 2.5 Major Utility Transmission Corridors | |
| 2.6 Contaminated Property and Waste Management | |
| 2.7 Landscape Composition | 2.7.1 Scenic Composition |
| | 2.7.2 Sensitive Viewer Groups |
| | 2.7.3 Scenic Value of Views/Vistas From the Transportation Facility |

| FACTORS | SUB-FACTORS |
|--|--|
| 3. CULTURAL ENVIRONMENT | |
| 3.1 Cultural Heritage – Built Heritage and Cultural Heritage Landscapes | 3.1.1 Built heritage - These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions |
| | 3.1.2 Heritage Bridges - These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions |
| | 3.1.3 Areas of Historic 19 th Century Settlement |
| | 3.1.4 Cultural Heritage Landscapes - These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions |
| | 3.1.5 First Nation Burial Sites |
| | 3.1.6 Cemeteries |
| 3.2 Cultural Heritage – Archaeology | 3.2.1 Pre-Historic and Historic First Nations' Archaeological Sites |
| | 3.2.2 Historic Euro-Canadian Archaeological Sites |
| 4. TRANSPORTATION | |
| 4.1 System Capacity & Efficiency | 4.1.1 Movement of People |
| | 4.1.2 Movement of Goods |
| | 4.1.3 System performance during peak periods |
| 4.2 System reliability / redundancy | |
| 4.3 Safety | 4.3.1 Traffic Safety |
| | 4.3.2 Emergency Access |
| 4.4 Mobility & Accessibility | 4.4.1 Modal integration and balance |
| | 4.4.2 Linkages to Population and Employment Centres |
| | 4.4.3 Recreation and Tourism Travel |
| | 4.4.4 Accommodation for pedestrians, cyclists and snowmobiles |
| 4.5 Network Compatibility | 4.5.1 Network connectivity |
| | 4.6.2 Flexibility for future expansion |
| 4.6 Engineering | 4.6.1 Constructability |
| | 4.6.2 Compliance with design criteria |
| 4.7 Construction Cost | |
| 4.8 Traffic Operations | |

7. MONITORING STRATEGY

During the EA, MTO will commit to developing a monitoring program for the implementation of the selected preferred alternative(s). The EA Report will include a comprehensive list of all commitments made during the study to guide future environmental work and consultation as well as effects and compliance monitoring. In addition the EA Report will demonstrate how ToR commitments were addressed during the EA Study. All monitoring will be consistent with MTO requirements and developed in consultation with the relevant stakeholders.

7.1 Project Technical Monitoring

During Stage 2 of the study, a monitoring strategy will be developed to reflect how MTO proposes to ensure that the implementation of proposed mitigating measures and key design features are consistent with project commitments outlined in the EA Report and any subsequent environmental study documentation.

An environmental effects and compliance monitoring program is necessary to identify potential non-conformance with environmental design, and environmental protection requirements (as identified during the EA). The monitoring program is also necessary to initiate corrective action to bring the work into compliance with environmental requirements committed to in the EA Report and any subsequent environmental documentation for this undertaking.

MTO will ensure that appropriate commitments to compliance monitoring are reflected in study documentation.

The duration of the monitoring and follow-up programs will vary and will depend on the conditions of permits and approvals granted by regulatory agencies.

7.2 EA Process Monitoring

During the planning and design processes, the proponent will ensure compliance with EA process commitments prior to project implementation. If the preferred alternative(s) includes a construction phase, the proponent will ensure that external notification and consultations are consistent with any commitments that may have been made earlier in the EA Report or other environmental documentation. Following construction, monitoring will ensure that any follow-up information is provided to external agencies as per any outstanding environmental commitments.

8. CONSULTATION PLAN FOR THE EA

Consultation is an integral component of the Environmental Assessment process. The purpose of the consultation program is to provide input to assist MTO in making decisions throughout the EA process. Consultation provides opportunities for two-way communication with interested stakeholders. Consultation activities also enable the identification of potentially significant environmental issues early in the decision making process and ensure that they are given appropriate consideration. The consultation program for the EA is based on the following principles:

- **All reasonable efforts will be made to ensure that potentially affected or interested parties are given the opportunity to participate in the consultation process;**
- **Stakeholders may provide input at any time during the study; however, structured opportunities for input will occur at key study stages;**
- **MTO will constructively address input received during the consultation process;**
- **MTO will make reasonable efforts to resolve concerns; and**
- **Consultation plans and process will be sufficiently flexible to permit responses to new issues that may arise as the study proceeds.**

Consultation undertaken to assist in the preparation of this ToR is outlined in the Consultation Record (under separate cover).

Various forms of consultation will take place throughout the different study steps. Consultation activities may not necessarily be limited to that described in this section. The Project Team may consider additional enhancements to the EA consultation plan if deemed to be of value to the study.

The purpose of this chapter is to present the proposed plan for stakeholder consultation during the EA. Stakeholders can be defined as any individual or group who has an interest in the study, who could be affected by the study or who can provide pertinent information regarding the study. Generally stakeholders include public/interest groups, regulatory agencies, First Nations and area municipalities. The stakeholders consulted in preparation of this ToR will form a starting point for establishing stakeholder contact lists during the EA. A list of stakeholders consulted in preparation of this document is provided in the Consultation Record (under separate cover).

8.1 Overall Process for Stakeholder Consultation During the EA

Consultation with affected parties is an essential part of the EA process and provides a mechanism for the proponent to define and respond to issues.

It is recognized that the identification and resolution of issues during each of the following stages of the EA will be important. To this end, the public, agency / municipal and First Nations consultation process outlined in this section is focused on facilitating meaningful dialogue with stakeholders to identify and address study issues as they arise. Various consultation tools and approaches (including meetings, presentations, workshops, focus groups and interviews) will be utilized to identify and discuss study issues raised by stakeholders.

Recognizing that the stakeholders that are expected to participate in this study process may have differing views, values, opinions and interests, the Ministry of Transportation will consider various means of identifying and addressing / resolving issues. In addition to the proposed methods outlined in the following sections of this ToR, such tools as mediation and other alternative dispute resolution (ADR) techniques requested by stakeholders can be considered during the EA, at the discretion of MTO, to address specific study issues.

It is anticipated that consultation activities will coincide with the Stage 1 and Stage 2 EA processes outlined in Chapter 4.

Stage 1 of the EA

Consultation activities during Stage 1 of the EA, are expected to be structured around obtaining input on the following study steps:

a. Problems/Opportunities and Preliminary Analysis of Alternatives

Stakeholders will be asked to comment on transportation problems and opportunities and the initial screening of Alternatives to the Undertaking to be considered.

b. Input to assist in the Analysis of Alternatives to the Undertaking:

Stakeholders will be asked to comment on the detailed Alternatives to the Undertaking to be considered, and criteria for assessing these alternatives.

c. Identification and Selection of Alternatives to the Undertaking:

Stakeholders will be asked to comment on the assessment and selection of Alternative(s) to the Undertaking and process for undertaking subsequent studies.

If the Alternative(s) to the Undertaking entails a transportation solution that is within the jurisdiction of MTO (MTO serving as the proponent), the EA process continues and MTO will proceed to the Alternative Methods stage (Stage 2 of the EA) as outlined in this ToR document, or to the appropriate MTO Class EA process, as determined during the EA.

Stage 2 of the EA

Consultation activities during Stage 2 of the EA, are expected to be structured around obtaining input on the following study steps:

a. Refinement of the Study Area, Identification of Study Area Features and Generation of Alternative Methods

Stakeholders will be asked to comment on the refinement of the study area, development of alternatives and provide input on existing conditions. Criteria to evaluate and select a preferred alternative(s) will also be presented for comment.

b. Refinement, Assessment / Evaluation of Alternative Methods and Selection of a Preferred Alternative(s)

Stakeholders will have the opportunity to provide input on refining alternatives to minimize environmental effects and will also be asked to comment on the evaluation and the rationale for the selection of the preferred alternative(s).

c. Concept Design and Mitigation of the Preferred Alternative(s)

This final step will be to consider Concept Design details and refinements and address specific effects of the preferred alternative(s) that will require mitigation during design, construction and post-construction. Participants in the EA will be

asked to comment on the evaluation and the rationale for the selection of the preferred Concept Design alternative(s).

8.2 Public Consultation During the EA

The public has a major role and responsibility in determining the success of a public consultation program. The extent to which the public participates, the issues they raise and how such issues are resolved all influence the effectiveness of the consultation process.

The consultation plan will be designed such that the public will be provided reasonable timeframes for reviewing and providing comments on documentation and information made available during the EA. The proposed consultation plan encourages proactive communication, which will allow comments and views of the public to assist MTO in the decision making process.

Public Notification

The first component of the Consultation Plan will be to develop contact lists, which will include interested individuals, ratepayer groups, recreational groups, agricultural groups, etc. located in the analysis / study area. The mailing list developed during the EA ToR will be the starting point for this stakeholder list. These stakeholders will be notified by letter/email of project activities including study start-up, Public Information Centres, and follow-up activities (as appropriate). In addition, MTO will publish newspaper advertisements for study commencement, each round of PICs and the formal Environmental Assessment Report submission in the following newspapers:

| | |
|---|---|
| The Caledon Enterprise | Halton Compass |
| Brampton Guardian | King Township Sentinel |
| Le Metropolitan | The Milton Canadian Champion |
| Caledon Citizen | The Mississauga News |
| The Erin Advocate | Toronto Star |
| Georgetown Independent/ Acton Free Press | Vaughan Citizen/York Region Business Times |
| The Guelph Mercury | Tekawennake New Credit Reporter |
| The Guelph Tribune | Turtle Island News |

The above list of publications will be refined during the EA. During the EA, additional notification tools and techniques will be considered and utilized, where appropriate.

Public Information Centres and Follow-up Activities

During the EA, it is proposed that six rounds of Public Information Centres (PICs) will be held to coincide with the study steps depicted on **Exhibits 4.1a** and **4.1b**. These PICs will be supplemented by follow-up activities where appropriate. Each round of PICs will include individual events held throughout the identified study area. The precise locations/venues and timing of each PIC will be determined during the EA based on the project study area, project needs/issues, input from municipalities and the availability of venues.

The PICs will be arranged as drop-in centres (open house format) to allow the public to see results, exchange information, and ask one-on-one questions of the Project Team. The format of each round of PICs will depend on the nature of the information being presented and input sought. The PICs serve an important function in providing for two-way communications on specific local conditions, issues and concerns regarding the study.

Follow-up consultation activities will be held as necessary throughout the project. It is expected that these activities will be very helpful to facilitate additional dialogue and attempt to resolve any outstanding concerns and issues during the EA process. Follow-up activities will be arranged to address specific project issues and concerns as they arise. The format of these activities will be flexible to reflect the type of Project Team - stakeholder interaction required to address a particular issue but could include stakeholder group meetings, workshops, kitchen table meetings, presentations, surveys, and other consultation activities.

Summary Reports for Public Information Centres, follow-up activities and other consultation events will be prepared and posted on the project website in a timely manner.

Community Advisory Group

For Stage 1 of the EA, a Community Advisory Group (CAG), which includes representatives from affected communities, will be established. Selected community representatives from the Regions of York, Peel, and Halton, the County of Wellington, and the City of Guelph will be welcomed to participate in the advisory group. The specific approach to selecting representatives, mandate, roles, responsibilities, and operating procedures will be developed during the EA study. MTO is also committed to engaging other community groups that may be established by affected municipalities.

Should the study extend into Stage 2, the membership of the Community Advisory Group will be modified to reflect the EA study area at that point.

Project Web Site

A website will be maintained throughout the course of the EA. The website will host pertinent and up-to-date information regarding the project such as: notices of study commencement, notices of public events, project documents for information/review, the project process/schedule and opportunities for involvement. The website will also include a "contact us" feature to accommodate easy communication with members of the project team and facilitate feedback from interested parties. The website address is www.gta-west.com.

8.3 Regulatory Agency Consultation During the EA

Government agencies provide valuable input related to compliance issues (laws, regulations, policies and programs) and other areas of concern within their jurisdiction. These groups can offer valuable input and professional expertise and are often knowledgeable regarding local issues and can assist in the identification of local interest groups that should be consulted.

A Regulatory Agency Advisory Group (RAAG) will be assembled which includes potentially affected provincial ministries, agencies and federal departments and conservation authorities. Notification letters distributed early in the EA study will solicit participation in the advisory group. Ministries and agencies will be kept apprised of

project activities through scheduled meetings and be sent notices regarding all consultation activities.

Consultation with provincial ministries and agencies will involve reviewing, commenting and providing input to the environmental assessment studies, the technical analysis and the ongoing comment/input to the consultation process. Provincial ministries and agencies will be given a minimum of 90 days to provide comments on project documentation at the following key milestones: i) Identify Preferred Alternative(s) to the Undertaking, ii) Identify Alternative Methods, iii) Select Preferred Alternative Method(s) and iv) draft EA Report. Liaison with representatives of provincial ministries and agencies will be arranged to obtain information on study area features, exchange pertinent study information and obtain input on project issues pertaining to each agency's mandate.

Regulatory Agency Advisory Group Meetings will be held to coincide with key study stages/milestones. Additional meetings will be held with individual agencies during the EA as required.

Meeting summaries will be prepared and posted on the project website in a timely manner.

Involvement with federal agencies in this project is required to identify issues of federal jurisdiction, effectively address *Canadian Environmental Assessment Act* (CEAA) requirements during the EA process and coordinate provincial and federal approvals.

Further detail regarding Federal/Provincial EA coordination is outlined in Section 1.3 and in **Supporting Document A**.

8.4 Consulting with Transportation Service Providers

As detailed in Chapters 4 and 5 of this ToR, the EA study will include a determination of the need for transportation improvements, and an assessment and evaluation of Alternatives to the Undertaking. It is recognized that this initial stage of the EA study will require consultation with all the transportation service providers (e.g. GO Transit, CN, CPR, 407 ETR, VIA Rail, etc.) that may offer alternatives to address the specified need for transportation improvements. These transportation service providers will be consulted at the outset of the EA to identify an appropriate forum for further discussion on study issues.

During Stage 1 of the EA process, MTO commits to consulting with appropriate transportation service providers to assist with the following:

- Identification of Alternatives to the Undertaking that address the identified need for improvements;
- Assessment and evaluation of Alternatives to the Undertaking; and,
- Selection of the preferred Alternative(s) to the Undertaking.

Given the linkage between transportation and land use planning and the relationship between MTO and GO Transit, MTO will engage GO Transit throughout the EA in order to identify considerations and implications concerning GO Transit Services and will invite the Ministry of Public Infrastructure Renewal to participate directly on the project team.

Consultation with transportation service providers will continue as appropriate should the study extend into Stage 2 of the EA.

8.5 Engaging First Nations During the EA

It is recognized that there may be a range of First Nation issues associated with this project. Accordingly, MTO will strive to provide appropriate and meaningful consultation and engagement, with respect and good faith, that provides First Nations with the opportunity to be informed, and to have their opinions heard and seriously considered.

Issues that may be of particular interest, which will be discussed with First Nations include but are not limited to the following:

- Effects on land used for traditional hunting or fishing;
- Effects to areas used for the harvesting of traditional foods;
- Effects to locations of medicinal plants;
- Effects to sacred grounds;
- Effects to known burial sites; and
- Implications to Land Claim areas and treaty rights.

It is recognized that the above noted issues are of particular importance during Stage 2 of the EA, when the study area has been refined and specific alternatives are generated. MTO will be proactive and responsible for identifying and making initial contact with potentially affected First Nations communities. MTO will consult with First Nations both on the need for an undertaking as well as the identification and assessment of Alternatives to the Undertaking.

Communication with First Nations will continue as the study proceeds into the assessment and evaluation of alternative methods to determine issues and the relative significance of identified features, and into the Concept Design process to ensure that appropriate mitigation strategies (as necessary) are developed to appropriately address the environmental effects of the preferred alternative(s).

Where requested, MTO will make presentations to the Chief and Elected Council of each affected First Nation (or such other groups or committees as requested by the Chief) prior to each round of Public Information Centres. Proactive follow-up actions will likely be needed to address any concerns highlighted by an individual First Nation.

First Nations will be provided the opportunity to review and comment on a draft EA Report prior to submission to the Minister of the Environment for formal review and approval of the undertaking.

Indian and Northern Affairs Canada (INAC) as well as the Ontario Secretariat for Aboriginal Affairs (OSAA) will be consulted concerning potential First Nation issues and to assist in the identification of relevant land claims and other issues.

8.6 Municipal Consultation During the EA

Based on the geographic context of the preliminary study area, the Regions of York, Peel, and Halton, the County of Wellington, and the City of Guelph, will be key players in the formal consultation process. However, the determination of the affected municipalities to be included in the consultation program will be made as the study area is defined and further refined.

Affected municipalities will be consulted through all phases of the EA to obtain information on study area features, exchange study information and obtain input on project issues pertaining to each municipality. In addition, municipalities will be consulted to determine the appropriate method and timing for project team involvement with regional and local councils.

Municipalities

Focused municipal consultation will be required to address specific technical and local issues. It is expected that the representatives on the Municipal Advisory Group (MAG) established for the EA Terms of Reference will continue their role during the EA study. Operating procedures and membership of this group will be re-examined at the start-up of the EA.

During the EA, consultation with municipalities will involve reviewing, commenting and providing input to the environmental assessment documentation while providing ongoing comment/input to the consultation process. Municipal staff will be given a minimum of 90 days to provide comments on project documentation at the following key milestones: i) Identify Preferred Alternative(s) to the Undertaking, ii) Identify Alternative Methods, iii) Select Preferred Alternative Method(s) and iv) draft EA Report. In addition, input from municipal staff will be sought as to the appropriate methods for consultation with their respective councils.

Municipalities will be kept apprised of project activities and be sent notices regarding all public consultation activities. It is expected that Municipal Advisory Group meetings will be held to coincide with the key study steps shown on **Exhibits 4.1a** and **4.1b**.

Meetings will provide the opportunity for effective two-way communication between the Project Team and local/regional municipalities to identify issues and gain a better understanding of environmental conditions, gain input on the process and criteria (including their relative level of significance) to be used in the evaluation of alternatives and gain input on potential effects associated with the preferred alternative(s).

MTO will make presentations to Upper-Tier and Single-Tier Municipal Councils, as required, at key decision-making points during the EA. MTO will consider requests for presentations to Lower-Tier Council's and will accommodate the requests in the project schedule as much as possible. Council endorsement will be sought for the preferred alternative(s) prior to submission of the EA Report.

Meeting summaries will be prepared and posted on the project website in a timely manner.

8.7 Pre-Submission Review of the Draft Environmental Assessment Report

The draft Environmental Assessment Report will be available for a municipal / agency / public / First Nations review prior to formal submission to the Ministry of the Environment. A minimum of 90 days will be provided for this review. The final meeting for all advisory groups will be used to present a draft EA Report for review prior to submission for formal review and approval. The documentation will be available at government offices, public libraries and on the project web site.

Subsequent to the pre-submission review and incorporation of any comments received, the EA Report will be formally submitted to the Minister of the Environment for a decision about the proposed undertaking. MOE is responsible for review and consideration of comments received on the EA and will consider all comments when making a decision

whether to approve, approve with conditions, refer to a tribunal or for mediation or not to approve the EA Report.

8.8 Consultation Undertaken to Assist In the Preparation of this ToR

Extensive consultation was undertaken to assist in the preparation of this ToR. The detail of this consultation is included in the Consultation Record which is bound under separate cover.

**GTA West Corridor
Environmental Assessment Terms of
Reference**

**Listing of Abbreviations, Glossary,
Appendix and
Supporting Documents**

List of Main Abbreviations Used in the Terms of Reference

| | |
|-----------|---|
| ANSI | Area of Natural and Scientific Interest |
| CA | Conservation Authority |
| CEAA | <i>Canadian Environmental Assessment Act</i> |
| CPR | Canadian Pacific Railway |
| CVC | Credit Valley Conservation Authority |
| DFO | Department of Fisheries and Oceans |
| EA | Environmental Assessment |
| ESA | Environmentally Sensitive Areas |
| EAAB | Environmental Assessment and Approvals Branch (MOE) |
| ETR | Electronic Toll Road |
| FA | Federal Authorities |
| FEAC | Federal Environmental Assessment Coordinator |
| GGH | Greater Golden Horseshoe |
| CH | Conservation Halton |
| GHG | Green House Gas |
| GRCA | Grand River Conservation Authority |
| GTA | Greater Toronto Area |
| HOV lanes | High Occupancy Vehicle Lanes |
| IBA | Important Bird Area |
| INAC | Department of Indian and Northern Affairs |
| LACAC | Local Architectural Conservancy and Advisory Committee |
| LOS | Level of Service |
| MAG | Municipal Advisory Group |
| MCL | Ministry of Culture |
| MMAH | Ministry of Municipal Affairs and Housing |
| MOE | Ministry of the Environment |
| MPIR | Ministry of Public Infrastructure Renewal |
| MTO | Ministry of Transportation |
| NHIC | Natural Heritage Information Centre |
| NRVIS | MNR database |
| NTS | Not to Scale |
| NEC | Niagara Escarpment Commission |
| NEP | Niagara Escarpment Plan |
| OBM | Ontario Base Map |
| OEAA | <i>Ontario Environmental Assessment Act</i> |
| OMAFRA | Ontario Ministry of Agriculture, Food and Rural Affairs |
| (O)MNR | (Ontario) Ministry of Natural Resources |
| ORM | Oak Ridges Moraine |
| OSSA | Ontario Secretariat for Aboriginal Affairs |
| PCB | PolyChlorinated Biphenyl |
| PIC | Public Information Centre |
| PSW | Provincially Significant Wetland |
| RA | Regulatory Authorities |
| RAAG | Regulatory Agency Advisory Group |
| RAP | Remedial Action Plan |
| SARA | Species at Risk Act |
| SWHTG | Significant Wildlife Habitat Technical Guide |
| TAC | Transportation Association of Canada |
| TDM | Traffic Demand Management |
| ToR | Terms of Reference |
| TRCA | Toronto and Region Conservation Authority |
| TSM | Traffic Systems Management |

Glossary of Terms Used in the Terms of Reference

| Term | Explanation |
|--|--|
| Alternatives To | Functionally different ways of solving a documented transportation deficiency or taking an advantage of an opportunity. |
| Alternative Method | Ways of carrying out the selected alternative. |
| Alvar | Naturally open areas of thin or no soil over essentially flat limestone, dolostone or marble rock, supporting a sparse vegetation of mostly shrubs and herbs. |
| Archaeological Site | Any property that contains an artifact or any other physical evidence of past human use or activity that is of cultural heritage value or interest. (Ontario Regulation 170/04 of the <i>Ontario Heritage Act</i>) |
| Areas of Archaeological Potential | Areas with the likelihood to contain archaeological resources. Criteria for determining archaeological potential are established by the Ministry of Culture but municipal approaches which achieve the same objectives may also be used. Archaeological potential is confirmed through archaeological fieldwork undertaken in accordance with the <i>Ontario Heritage Act</i> . |
| Areas of Natural and Scientific Interest | Areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education. |
| Built Heritage Resources | One or more significant buildings, structures, monuments, installations or remains associated with architectural, cultural social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation easement under the <i>Ontario Heritage Act</i> , or listed by local, provincial or federal jurisdictions. |
| Connectivity | The degree to which key natural heritage or key hydrologic features are connected to one another by links such as plant and animal movement corridors, hydrologic and nutrient cycling, genetic transfer and energy flow through food webs. |
| Cultural Heritage Landscape | A defined geographical area of heritage significance, which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples include heritage conservation districts designated under the <i>Ontario Heritage Act</i> ; and villages, parks, gardens, battlefields, main streets and neighbourhoods, cemeteries, trail ways and industrial complexes of cultural heritage value. |
| Detail Design | The final stage in the design process in which the engineering and design components of preliminary design are refined and details concerning, for example, property, drainage, utility relocations and quantity estimate requirements are prepared and contract drawings and documents are produced. |
| Do Nothing Alternative | In the context of a transportation project, the "Do Nothing" alternative would mean that only normal operations, maintenance and repairs of existing facilities would be carried out, however, no major improvements or undertakings would be initiated. |
| EA Act (OEAA) | <i>Ontario Environmental Assessment Act</i> (as amended by S.O. 1996 c. 27), RSO 1980 |
| Ecological Function | The natural processes, products or services that living or non-living environments provide or perform within or between species, ecosystems and landscapes, including hydrologic functions and biological, physical, chemical and socio-economic interactions. |
| Ecological Value | The value of ecology in maintaining the health of key natural heritage or key hydrologic features and the related ecological features and functions, as measured by factors such as diversity of species and habitats etc. |
| Endangered Species | Species that is listed or categorized as "Endangered Species" on the Ontario MNR official species at risk list. |
| Environment | As defined in Section 1 (c) of the EA Act. (i) air, land or water (ii) plant and animal life including man (iii) the social, economic and cultural conditions that influence the life of man or a community (iv) any building structure, machine or other device or thing made by man (v) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from the activities of man or (vi) any part of combination of the foregoing and the inter-relationships between any two of more of them, in or of Ontario. |

| Term | Explanation |
|-------------------------------------|---|
| Environmentally Sensitive Areas | Those areas identified by any agency or level of government which contain natural features, ecological functions or cultural, historical or visual amenities which are susceptible to disturbance from human activities and which warrant protection. |
| External Agencies | Includes Federal departments and agencies, Provincial ministries and agencies, conservation authorities, municipalities, Crown corporations or other agencies other than MTO. |
| Freeway | Freeways are controlled access median divided highway facilities with grade separated crossings and interchanges (i.e. a vertical separation between a road/road or road/rail crossing.) |
| Fish Habitat | As defined in the <i>Fisheries Act</i> c. F-14, means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes. |
| Flood Plain | For river, stream and small inland lake features means the area, usually low lands adjoining a watercourse, which has been or may be subject to flooding hazard. |
| Greater Golden Horseshoe | The geographic area designated as the Greater Golden Horseshoe Growth Plan Area in Ontario Regulation 416/05. This generally includes the geographical area represented by the single-tier municipalities of Barrie, Brantford, Guelph, Hamilton, Kawartha Lakes, Orillia, Peterborough and Toronto; the upper-tier municipalities of Brant, Dufferin, Durham, Haldimand, Halton, Niagara, Northumberland, Peel, Peterborough, Simcoe, Waterloo, Wellington and York and the lower-tier municipalities within. |
| Groundwater Feature | Refers to the water-related features in the earth's sub-surface, including recharge / discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrological investigation. |
| Habitat | The place or type of site where an organism or population naturally occurs. Species may require different habitats for different uses throughout their lifecycle. |
| Higher Order Transit | Transit that operates in its own dedicated right-of-way, outside of mixed traffic and therefore can achieve a frequency of service greater than mixed-traffic transit. Can include heavy rail, light rail and buses in dedicated right-of-ways. |
| Highways | Roadways under the jurisdiction of MTO including King's highways, secondary highways and tertiary roads. This includes all components within the associated right-of-way, e.g. structures, drainage works, traffic and safety devices. |
| Hydrologic function | Means the functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of the water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and waters interactions with the environment including its relationship to living things. |
| Individual Environmental Assessment | An environmental assessment for an undertaking to which the EA Act applies and which requires formal review and approval under the EA Act. |
| Infrastructure | Means physical structures (facilities and corridors) that form the foundation of development. Infrastructure includes: sewage and water systems, waste management systems, electric power generation and transmission, communications and telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities. |
| Inter-modal Facility | A location where transfers between modes can be made, as part of a single journey. For example, a typical freight inter-modal facility is a rail yard where containers are transferred between trucks and trains. |
| Mitigation Measure | A measure that is incorporated into a project to reduce, eliminate or ameliorate detrimental environmental effects. |
| Listed Wildlife Species | Species at risk listed under the federal Species at Risk Act (SARA). The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either extirpated, endangered, threatened, or a special concern. Once listed, the measures to protect and recover a listed wildlife species are implemented. Under SARA, wildlife species that are listed on Schedules 2 and 3 must be assessed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) within a given timeframe. |
| Multi-modal Transportation System | A transportation system which may include several forms of transportation such as automobiles, walking, trucks, cycling, buses, rapid transit, rail (such as commuter and freight), air and marine. |
| Natural Heritage Features and Area | Features and areas, including significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant |

| Term | Explanation |
|----------------------------------|--|
| | valleylands south and east of the Canadian Shield, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area. |
| Natural Heritage System | A system made up of natural heritage features and areas, linked by natural corridors that are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state. |
| Petroleum Resources | Oil, gas, and brine resources which have been identified through exploration and verified by preliminary drilling or other forms of investigation. This may include sites of former operations where resources are still present or former sites that may be converted to underground storage for natural gas or other hydrocarbons. |
| Preliminary Design | That part of the planning and design process, during which various alternative design solutions are examined and evaluated including consideration of environmental effects and mitigation; the recommended design solution is then developed in sufficient detail to ensure that the horizontal and vertical controls are physically compatible with the proposed site, that the requirements for lands and right-of-ways are satisfactorily identified, and that the basic design criteria or features to be contained in the design have been fully recognized and documented is sufficient graphic detail to ensure their feasibility. |
| Provincial Policy Statement | The Provincial Policy Statement (PPS) sets out the Ontario Government's interests in land use planning and development and provides policy direction on matters of provincial interest to those involved in land use planning. The PPS is the complementary document to the <i>Planning Act</i> and is issued under the authority of the <i>Planning Act</i> . |
| Prime Agricultural Area | Areas where prime agricultural lands predominate. This includes: areas of prime agricultural lands and associated Canada Land Inventory Class 4-7 soils; and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. |
| Prime Agricultural Land | Land that includes specialty crop areas and/or Canada Land Inventory Classes 1, 2, and 3 soils, in this order of priority for protection. |
| Proponent | A person or agency that carries or proposes to carry out an undertaking, or is the owner or person having charge, management or control of the undertaking. |
| Provincial Plan | A plan approved by the Lieutenant Governor in Council or the Minister of Municipal Affairs and Housing, but does not include municipal official plans. |
| Site Alteration | Activities such as filling, grading and excavation that would change the landform and natural vegetative characteristics of land. |
| Special Concern Species | A species that is listed as "Special Concern Species" on the Ontario MNR official species at risk list. |
| Specialty Crop Area | Areas where specialty crops such as tender fruits, grapes, other fruit crops, vegetable crops, greenhouse crops, and crops from agriculturally developed organic soil lands are predominantly grown |
| Stakeholders | Stakeholders can be defined as any individual or group who has an interest in the study, who could be affected by the study or who can provide pertinent information regarding the study. Generally stakeholders include public/interest groups, regulatory agencies, First Nations and area municipalities. |
| Threatened Species | Species that is listed or categorized as "Threatened Species" on the Ontario MNR official species at risk list. |
| Transitway | A separate transit facility that may be directly associated with a provincial freeway / highway. The transit right-of-way may be shared with a highway right-of-way. |
| Transportation Demand Management | Transportation demand management is a general term for strategies that result in more efficient use of existing transportation infrastructure. Examples include pricing (road tolls or transit discounts), flexible working hours, car pooling, park and ride etc. |
| Transportation Service Providers | Other organizations which provide transportation services (e.g. GO Transit, CN, CPR, 407 ETR, VIA Rail, local transit operations, coach services, etc.). |
| Transportation Systems | A system consisting of corridors and rights-of-way for the movement of people and goods, and associated transportation facilities including transit stops and stations, cycle lanes, bus lanes, high occupancy lanes, rail facilities, park-and-ride lots, service centres, rest stops, vehicle inspection stations, inter-modal terminals, harbours and |

| Term | Explanation |
|--------------------------|--|
| | associated facilities such as storage and maintenance. (Provincial Policy Statement, 2005) |
| Undertaking | (a) an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity by or on behalf of Her Majesty in right of Ontario, by a public body or public bodies or by a municipality or municipalities, (b) a major commercial or business enterprise or activity or a proposal, plan or program in respect of a major commercial or business enterprise or activity of a person or persons other than a person or persons referred to in clause (a) that is designated by the regulations, or (c) an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity of a person or persons, other than a person or persons referred to in clause (a). |
| Valley Lands | A natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. |
| Watershed | An area that is drained by a river and its tributaries. |
| Watershed Plan | A watershed plan provides a framework for integrated decision-making for the management of human activities, land, water, aquatic life and aquatic resources within a watershed. It includes matters such as water budget and conservations plan; land and water use management strategies; an environmental monitoring plan; requirements for the use of environmental management practices and programs; criteria for evaluating the protection of water quality and quantity, and hydrologic features and function; and targets for the protection and restoration of riparian areas. |
| Wellhead Protection Area | The surface and subsurface area surrounding a water well or well field that supplies a public water system and through which contaminants are likely to move so as eventually to reach the waterwell or well field. |
| Wetlands | Lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to, or at the surface. The four major types of wetlands are swamps, marshes, bogs and fens. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition. |
| Wildlife Habitat | Areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species. |
| Woodland | Treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. |

* Explanations are based on definitions included in the following documents: Class Environmental Assessment for Transportation Facilities (MTO), the *Greenbelt Plan*, 2005 (MMAH) and the *Growth Plan*, 2006 (MPIR)

APPENDIX A
SUMMARY OF EVALUATION FACTORS AND
CRITERIA FOR ALTERNATIVE METHODS

**GTA West Corridor
Environmental Assessment
TERMS OF REFERENCE**

APPENDIX A:

***Summary of Evaluation Factors and Criteria
for Alternative Methods***

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|---|----------------------|---|--|---|
| 1. NATURAL ENVIRONMENT | | | | |
| 1.1 Fisheries and Aquatic Ecosystems | 1.1.1 Fish Habitat | Potential and significance of encroachment, severance, displacement; long-term alteration/disruption as applicable to the following: <ul style="list-style-type: none"> • critical fish habitat features • riparian areas • habitat rehabilitation goals | <ul style="list-style-type: none"> • The crossing of water bodies by transportation facilities has the potential to affect fish and aquatic habitat features through impediments to fish passage, loss of vegetation, changes to channel fluvial geomorphology (channel form and function), substrate and cover, changes to the water quality due to erosion and sedimentation, stormwater discharge and temperature changes. • PPS Policy 1.6.6.4 stipulates that when planning for corridors and rights-of-way for significant transportation facilities, consideration will be given to significant natural heritage, water, agricultural, mineral, cultural heritage and archaeological resources. The context is provided in other PPS policy statements identified below. • PPS Policy 2.1.5 stipulates that development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements. In addition, policy 2.1.6 restricts development and site alteration on adjacent lands to natural heritage features (e.g. significant - wetlands, woodlands, valleylands etc.) unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative effects on the natural features or on their ecological functions. It is an objective of the PPS to protect, improve or restore the quality and quantity of surface water, including headwaters. Surface water features are an important part of the natural, | <ul style="list-style-type: none"> • DFO Species at Risk (SAR) mapping • MNR field studies • MNR fish records • MNR Natural Resource Values Information System (NRVIS) • Conservation Authorities • Fisheries Management Plans for long-term management goals • Field investigations as required • Interest groups • Public consultation • PPS (2005) and associated MNR Natural Heritage Reference Manual • First Nations • Watershed and Subwatershed studies • Conservation Authority Fish Records, • NHIC Data Base • SAR Recovery Plans |
| | 1.1.2 Fish Community | Potential and significance of encroachment, severance, displacement; long-term alteration/ disruption as applicable to the following: <ul style="list-style-type: none"> • fish species at risk (special concern, threatened or endangered fish species) • fish movement/migration • critical fish life stage processes (spawning, rearing, nursery, feeding) • long-term fish community management goals | | |

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| | | | <p>economic and cultural landscape. PPS Policy 2.2.2 restricts development and site alteration in or near sensitive surface water features and groundwater features such that these features and their related hydrologic functions will be protected, improved or restored.</p> <ul style="list-style-type: none"> • The federal <i>Fisheries Act</i> prohibits the harmful alteration, disruption or destruction of fish habitat and the blockage of fish passage unless authorized by the Department of Fisheries and Oceans (DFO). Where effects cannot be mitigated the works may proceed with authorization by DFO, usually supported by a Fisheries Compensation Plan • Subsection 36(3) of the <i>Fisheries Act</i> prohibits the deposit of a deleterious substance, directly or indirectly, into waters frequented by fish. • Certain species of fish, wildlife and plants are also protected by the Endangered Species Act | |
| <p>1.2 Terrestrial Ecosystems</p> | <p>1.2.1 Wildlife Habitat</p> | <p>Potential and significance of encroachment, severance, displacement, long-term alteration/ disruption as applicable to the following:</p> <ul style="list-style-type: none"> • critical wildlife habitat features • ecologically functional areas such as connective corridors or travel ways for movement/migration, including valley corridors • important wildlife areas such as deeryards, heronries, waterfowl areas, important bird areas | <ul style="list-style-type: none"> • The presence of species identified by COSEWIC and COSSARO as special concern, threatened or endangered (VTE) and their habitats require consideration in the generation of route alternatives. Since habitat for these species is often limited, effects to areas where the presence of species at risk is suspected or confirmed should be avoided or minimized. The assessment should have regard for the PPS objective that development and site alteration will not be permitted in significant habitat of Threatened and Endangered Species. | <ul style="list-style-type: none"> • NHIC • MNR • Conservation Authorities • Niagara Escarpment Plan • Species at Risk Recovery Plans and Management Guidelines (where available) • OMNR Significant Wildlife Habitat Technical Guide (SWHTG) • PPS, 2005 and associated MNR Natural Heritage Reference Manual • Field investigations as required • First Nations • Local Naturalist Clubs • Environment Canada's web mapping application and species at risk distribution maps at www.speciesatrisk.gc.ca/map/default_e.cfm or www.on.ec.gc.ca/wildlife/sar/sar_e.html |

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| | | | | <ul style="list-style-type: none"> • Atlas of Breeding Birds of Ontario, 2001-2005 www.birdsontario.org/atlas/atlasmain • Migratory birds environmental assessment guideline (Environment Canada) www.cws-scf.ec.gc.ca/publications/eval/mig/index_e.cfm • Environmental assessment guideline for forest habitat of migratory birds www.cws-scf.ec.gc.ca/publications/eval/forest/index_e.cfm • Wetlands Environmental Assessment Guideline (Environment Canada) www.cws-scf.ec.gc.ca/publications/eval/wetl/index_e.cfm |
| | <p>1.2.2 Wildlife</p> | <p>Potential and significance of encroachment, severance, displacement; long-term alteration/ disruption as applicable to the following:</p> <ul style="list-style-type: none"> • wildlife species at risk (special concern, threatened or endangered wildlife species) • wildlife of local and regional importance • migratory birds • wildlife management, rehabilitation/research program sites • interference with critical wildlife life stage processes (e.g. mating/rearing) etc. | <ul style="list-style-type: none"> • The presence of species identified by COSEWIC and COSSARO as special concern, threatened or endangered (VTE) and their habitats require consideration in the generation of route alternatives. Species or populations may be under pressure or more susceptible to stress. Since habitat for these species is often limited, effects to areas where the presence of species at risk is suspected or confirmed should be avoided or minimized. The assessment should have regard for the PPS objective that development and site alteration will not be permitted in significant portions of the habitat of Threatened and Endangered Species. The reported presence of Species of Conservation Concern (as defined by MNR in the Significant Wildlife Habitat Technical Guides [SWHTG – MNR, 2000]) and TRCA species of concern will also be considered. • The general prohibitions under the <i>Species at Risk Act</i>, which apply to federally protected migratory bird and aquatic species at risk as well as to all endangered and threatened species on federal lands. • Section 6 of the Migratory Bird | <ul style="list-style-type: none"> • NHIC • MNR • Niagara Escarpment Plan • Species at Risk database • <i>Species at Risk Act</i> (SARA) • Species at Risk Recovery Plans and Management Guidelines (where available) • OMNR Significant Wildlife Habitat Technical Guide (SWHTG) • PPS, 2005 and associated MNR Natural Heritage Reference Manual • Field investigations as required • First Nations • Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada (Environment Canada) • Local Naturalist Clubs • Atlas of Breeding Birds of Ontario, 2001-2005 www.birdsontario.org/atlas/atlasmain • Migratory birds environmental assessment guideline (Environment Canada) www.cws-scf.ec.gc.ca/publications/eval/mig/index_e.cfm • Wetlands Environmental Assessment Guideline (Environment Canada) www.cws-scf.ec.gc.ca/publications/eval/wetl/index_e.cfm |

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| | | | <p>Regulations under the <i>Migratory Birds Convention Act</i>, 1994, which prohibits the incidental taking of migratory birds and the disturbance and destruction or taking of the nest of a migratory bird.</p> <ul style="list-style-type: none"> Certain species of fish, wildlife and plants are also protected by the Endangered Species Act | |
| | 1.2.3 Wetlands | <p>Potential and significance of:</p> <ul style="list-style-type: none"> encroachment, severance, displacement; long-term alteration/ disruption <p>as applicable to the following:</p> <ul style="list-style-type: none"> provincially significant wetlands, including adjacent lands required to maintain ecological features and functions evaluated and un-evaluated wetlands, their wetland buffer areas, and their wetland function wetland management, research and/or wetland conservation programs/areas | <ul style="list-style-type: none"> Section 2.1.3, 2.1.4 and 2.1.6 of the PPS, 2005, prohibits development and site alteration in significant wetlands and adjacent lands. The assessment should have regard for this objective. Wetlands serve ecological functions to varying degrees including groundwater recharge/discharge, flood attenuation, wildlife movement corridors, habitat for flora and fauna, and water filtration. The assessment should have regard for PPS Policy 2.1.2 which states that the diversity and connectivity of natural features in an area, and the long term ecological function and biodiversity of natural heritage systems, should be maintained, restored, or where possible improved, recognizing linkages between and among natural heritage features and areas, surface water features and groundwater features. The Canadian Federal Policy on Wetland Conservation promotes the goal of no net loss of wetland function in areas where wetland loss has reached critical levels. | <ul style="list-style-type: none"> MNR Conservation Authorities Niagara Escarpment Plan NHIC MNR wetland mapping Ontario Wetland Evaluation System Conservation Authorities (i.e., regulatory mapping if available) Niagara Escarpment Commission PPS, 2005 and associated MNR Natural Heritage Reference Manual Canadian Federal Policy on Wetland Conservation Field investigations as required First Nations Local Naturalist Clubs |
| | 1.2.4 Woodlands and other Vegetation | <p>Potential and significance of:</p> <ul style="list-style-type: none"> encroachment, severance, displacement; long-term alteration/ disruption as applicable to the following: significant woodlands | <ul style="list-style-type: none"> Section 2.1.4 of the PPS, 2005, only permits development and site alteration in significant woodlands south and east of the Canadian Shield where it can be demonstrated that there will be no negative effects | <ul style="list-style-type: none"> NHIC MNR Land Use Guidelines Niagara Escarpment Plan Conservation Authority Plans SWHTG Provincial Policy Statement and associated OMNR |

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| | | <ul style="list-style-type: none"> • significant valley lands • forest management/research program areas • populations of vegetation species at risk (special concern, threatened or endangered species), species of conservation concern and significant regional/local flora/communities • areas/corridors supporting known populations of vegetation species at risk (special concern, threatened or endangered species), species of conservation concern and significant flora/communities • vegetation management, rehabilitation/research program sites | <p>on the natural features or the ecological functions. The assessment should have regard for the PPS protection objectives.</p> <ul style="list-style-type: none"> • The study area is located within the Carolinian Zone and may have important representations of Carolinian species assemblages. These natural heritage areas require protection. • Small degraded, isolated remnant woodlots and wetlands can have ecological value. Large natural and relatively undisturbed features have high ecological sensitivity and value. • Certain species of fish, wildlife and plants are also protected by the Endangered Species Act | <p>Natural Heritage Reference Manual</p> <ul style="list-style-type: none"> • Significant Wildlife Habitat Technical Guide • RAPS and Management Plans • Field investigations as required • First Nations |
| | <p>1.2.5 Designated/Special Natural Areas</p> | <p>Potential and significance of:</p> <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change in area character/ aesthetics; <p>to designated/special areas, such as such as the Niagara Escarpment – a world biosphere reserve, heritage rivers, ESAs, ESPAs, ANSIs, environmental plan areas, conservation reserves; and the designated special areas of national parks, provincial parks, conservation areas, etc.</p> | <ul style="list-style-type: none"> • Important habitat areas that may not be associated with other features protected by other means (ANSIs, ESAs), require consideration during the generation and evaluation of detailed planning alternatives. These areas may be of local or regional significance to wildlife that is not necessarily at risk. Other areas may be identified as important habitat for wildlife species requiring larger habitat blocks or with specialized habitat requirements. • The assessment should have regard for PPS Policy 2.1.4 which states that development and site alteration shall not be permitted in certain listed woodlands, valleylands, wildlife habitat and areas of natural and scientific interest. Development and site alteration may be permitted in significant wildlife habitat if it can be demonstrated that there will be | <ul style="list-style-type: none"> • Identified by municipality, CA, OMNR, Interest Groups or other background sources • Bird Studies Canada • SWHTG • PPS, 2005 and associated MNR Natural Heritage Reference Manual • <i>Niagara Escarpment Plan</i> • <i>Greenbelt Plan</i> • <i>Oak Ridges Moraine</i> • Field investigations as required • First Nations |

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| | | | no negative effect on the natural features or functions for which the area is identified. <ul style="list-style-type: none"> The Niagara Escarpment Plan provides that new transportation facilities should avoid the Escarpment Natural Area (Part 2.15.2) and subject to Part 2, Development Criteria, essential transportation and utility facilities may be permitted in the Escarpment Natural Area (Part 1.3). "Essential" is defined in the Escarpment Plan as that which is deemed necessary to the public interest after all alternatives have been considered. | |
| 1.3 Groundwater | 1.3.1 Areas of Groundwater Recharge or Discharge | Potential and significance of alteration to areas of groundwater recharge or discharge due to physical intrusion or groundwater interception, draw-down, impoundment, obstruction, or soil compaction affecting groundwater base-flow and quality. | Section 2.2 of the PPS identifies that the quality and quantity of water (including groundwater) should be protected improved or restored. Transportation facilities have the potential to effect groundwater resources through removal of recharge areas, interference with discharge areas/shallow groundwater zones, and introduction of contaminated runoff. Consequently, effects to areas identified as being susceptible to groundwater contamination and/or interference should be avoided/ minimized to the extent possible. Adherence to Clean Water Act is also required. | <ul style="list-style-type: none"> Groundwater Studies funded by MOE Clean Water Act Niagara Escarpment Plan MOE well record data Watershed and subwatershed studies PPS, 2005 and associated OMNR Natural Heritage Reference Manual Field investigations as required First Nations Source Water Protection Teams |
| 1.3.2 Groundwater Source Areas and Wellhead Protection Areas | Potential and significance of alteration to groundwater source areas and wellhead protection areas due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction. | | | |
| 1.3.3 Large Volume Wells | Potential and significance of alteration to large volume wells due to physical intrusion or groundwater interception, draw-down, impoundment, obstruction and by soil compaction. | | | |
| 1.3.4 Private Wells | Potential and significance of alteration to private well use due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction. | | | |

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| | 1.3.5 Groundwater-Dependent Commercial Enterprises | Potential and significance of alteration to groundwater use by groundwater-dependent commercial enterprises due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction. | | |
| | 1.3.6 Groundwater-Sensitive Ecosystems | Potential and significance of alteration to groundwater-sensitive ecosystems due to physical intrusion, or groundwater interception, draw-down, impoundment, obstruction and by soil compaction. | | |
| 1.4 Surface Water | 1.4.1 Watershed / Subwatershed Drainage Features/Patterns | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption. as applicable to the following: <ul style="list-style-type: none"> • watercourse crossings (permanent, intermittent and ephemeral) • floodplain or meander belts • riparian areas • sensitive headwater areas • watershed and subwatershed management plans | <ul style="list-style-type: none"> • It is an objective of Section 2.2 of the PPS, 2005, to protect, improve or restore the quality and quantity of surface water, including headwaters. Surface water features are an important part of the natural, economic and cultural landscape • Section 2.2.2 of the PPS, 2005 restricts development and site alteration in or near sensitive surface water features and sensitive groundwater features such that these features and their related hydrologic functions will be protected, improved or restored. • The crossing of water bodies by transportation facilities has the potential to affect fish and aquatic habitat features through impediments to fish passage, loss of vegetation, changes to channel geomorphology (channel form and function), substrate and cover, changes to the water quality due to erosion and sedimentation, stormwater discharge and temperature changes. MOE's Guidelines for the Evaluation of Construction Activities Impacting on | <ul style="list-style-type: none"> • Topographic maps • Base maps • Watershed Management Plans • Watershed and Subwatershed Studies • Niagara Escarpment Plan • Conservation Authorities (i.e., regulatory mapping if available) • Provincial Water Quality Monitoring Network • MOE data • HYDAT (Environment Canada) data • MNR field studies • papers available at www.sustainabletechnologies.ca/ • Stormwater Management and Watercourse Impacts: The Need for a Water Balance Approach • Water Budget Discussion Paper |
| | 1.4.2 Surface Water Quality and Quantity | Potential and significance of effects on quality through direct and indirect discharges of contaminated and sediment-laden run-off Potential and significance of effects on hydrology due to changes in ground permeability, modifications to surface drainage patterns and alterations of water bodies | | |

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| | | | Water Resources will be referenced. | |
| 1.5 Air Quality and Climate Change | 1.5.1 Local and regional air quality impacts; greenhouse gas emissions | Potential for exposure and of local residents to various levels of air pollution; extent and duration of exposure Incremental annual amounts of air pollutants (criteria air contaminants) emitted into the affected region Incremental annual amounts of greenhouse gases emitted per annum over study period | <ul style="list-style-type: none"> • Air pollution can affect human health, and the natural and man-made environments • Major transportation corridors have the potential to significantly affect local and regional air quality. They can also influence greenhouse gas emissions (global Climate Change impact) • Construction activities can affect local air quality | <ul style="list-style-type: none"> • Meteorological data • Ambient air quality from MOE and Environment Canada • Emission models to predict vehicle emission rates of pollutants and greenhouse gases • Pollutant dispersion models to predict ambient air pollutant concentrations • Air quality guidelines, criteria and standards |
| 2. LAND USE / SOCIO-ECONOMIC ENVIRONMENTAL | | | | |
| 2.1 Land Use Planning Policies, Goals, Objectives | 2.1.1 First Nation Land Claims | Potential and significance of encroachment, severance, displacement to areas for which there are First Nation outstanding land claims | <ul style="list-style-type: none"> • It is important that First Nation land claims within the Preliminary Study Area are documented • The <i>Growth Plan</i> outlines a planning vision for the Greater Golden Horseshoe for building stronger, prosperous communities by managing growth in the region to 2031. • The Ontario Provincial Policy Statement notes that long-term prosperity and social well-being of Ontarians depends on maintaining strong communities, a clean and healthy environment and a strong economy. Transportation facilities play a key role in achieving these objectives. • There is a need to co-ordinate transportation planning with municipal land planning as established through Official Plans, Secondary Plans and Zoning by-laws as these specify land uses supported by residents, municipalities and the province. • The <i>Greenbelt Plan</i> notes that infrastructure is important to economic well-being, human health | <ul style="list-style-type: none"> • Provincial, municipal land use plans • Federal/provincial land use goals, objectives, policies and Policy Statements • <i>Growth Plan for the Greater Golden Horseshoe</i> • <i>Niagara Escarpment Plan</i> • <i>Greenbelt Plan</i> • <i>Oak Ridges Moraine</i> • Current land use proposals • Field investigations as required • Public consultation • Agency consultation (MMAH, Ministry of Tourism, Transport Canada, Public Works and Government Service Canada) • Development Organizations (i.e. Urban Development Institute) • First Nations |

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| | | | <p>and quality of life in southern Ontario and the Greenbelt.</p> <ul style="list-style-type: none"> • Policy 4.2.1 of the <i>Greenbelt Plan</i> states that, for lands within the protected countryside, as defined by the <i>Greenbelt Plan, 2005</i>, infrastructure must meet one of the following policies; it supports agriculture, recreation and tourism, rural settlement areas, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or it serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban growth centers and between these centers and Ontario's borders. • The Niagara Escarpment Plan provides that new transportation facilities should avoid the Escarpment Natural Area (Part 2.15.2). And subject to Part 2, Development Criteria, essential transportation and utility facilities may be permitted in the Escarpment Natural Area (Part 1.3). "Essential" is defined in the Escarpment Plan as that which is deemed necessary to the public interest after all alternatives have been considered. | |

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| | 2.1.2 Provincial / Federal Land Use Planning Policies/Goals/Objectives | Degree of compatibility with federal/provincial land use policies/goals/objectives (e.g. the Niagara Escarpment Plan, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan and the Growth Plan) | | |
| | 2.1.3 Municipal (local and regional) Land Use Planning Policies / Goals / Objectives | Degree of compatibility with municipal Official Plans | | |
| | 2.1.4 Development Objectives of Private Property Owners | Potential to isolate property from current/future urban envelope Effect on future land use | | |
| 2.2 Land Use – Community | 2.2.1 Indian Reserves | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change in area character / aesthetics; • nuisance effects; change to access / travel time to Indian Reserves. | <ul style="list-style-type: none"> • It is important that potential and significance of effects to Indian Reservations and First Nation sacred grounds be recognized and addressed in accordance with Ontario's New Approach to Aboriginal Affairs (Spring 2005) and the Grand River Notification Agreement • Property takings / displacements and changes / effects on local access have a significant effect on owners and tenants as well as the broader community. • Property takings / displacements and changes / effects on local access have a significant effect on owners and tenants as well as the broader community and customer/client base. • Disruption or displacement of institutional features may adversely affect the users of these features / facilities and the broader community. | <ul style="list-style-type: none"> • Provincial, municipal land use plans • Federal/provincial land use goals, objectives, policies and Policy Statements • Current land use proposals • Field investigations as required • Public consultation • Agency consultation (MMAH, OSAA, INAC, Ministry of Tourism, Transport Canada, Public Works and Government Service Canada) • Development Organizations (i.e. Urban Development Institute) • First Nations Consultation |
| 2.2.2 First Nation Sacred Grounds | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change in area character / aesthetics; • nuisance effects; • change to access / travel time to First Nation sacred grounds. | | | |
| 2.2.3 Urban and Rural Residential | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; | | | |

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| | | <ul style="list-style-type: none"> • change to facilities / utilities / services <p>to urban and rural residential areas (residents [owners/tenants] and community groups).</p> | | |
| | 2.2.4 Commercial/ Industrial | <p>Potential and significance of:</p> <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services <p>to commercial and industrial areas and agricultural operations (business owners/tenants and customers).</p> | | |
| | 2.2.5 Tourist Areas and Attractions | <p>Potential and significance of:</p> <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services <p>to tourist areas and attractions.</p> | | |
| | 2.2.6 Community Facilities / Institutions | <p>Potential and significance of:</p> <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; | | |

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| | | <ul style="list-style-type: none"> • change to access / travel time; • change to facilities / utilities / services <p>to community facilities and institutions.</p> | | |
| | 2.2.7 Municipal Infrastructure and Public Service Facilities | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change to access / travel time; • change to facilities / utilities / services <p>to municipal infrastructure and public service facilities.</p> | | |
| 2.3 Noise Sensitive Areas (NSA's) | 2.3.1 Transportation Noise | Potential for significant traffic noise increases in Noise Sensitive Areas | <ul style="list-style-type: none"> • The Ontario Ministry of the Environment (MOE) has published Noise Pollution Control (NPC) and Land Use (LU) planning guidelines. These MOE documents establish ambient noise criteria, based on one-hour average sound pressure levels (Leq), and evaluate ambient vibration levels based on either Peak or RMS velocity, as applicable. Noise levels generally rise with increased traffic volumes. • MOE/MTO Noise Protocol requires that highway noise be considered in all Provincial (MTO) Transportation projects | <ul style="list-style-type: none"> • Topographic maps • Information System (NRVIS) • Municipal land use information • MPAC records • Municipal staff • Public consultation • Traffic volume predictions • Noise effect studies |
| 2.4 Land Use - Resources | 2.4.1 First Nation Treaty Rights and Use of Land and Resources for Traditional Purposes | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • nuisance effects; • change to access / travel time <p>to First Nation treaty rights or use of land and resources for traditional purposes.</p> | <ul style="list-style-type: none"> • It is important that potential and significance of effects to Indian Reservations and First Nation sacred grounds be recognized and addressed in accordance with Ontario's New Approach to Aboriginal Affairs (Spring 2005) and the Grand River Notification Agreement | <ul style="list-style-type: none"> • Agency consultation (OSAA, INAC) • First Nations consultation |
| | 2.4.2 Agriculture | Potential and significance of: | <ul style="list-style-type: none"> • Section 2.3 of the Provincial Policy | <ul style="list-style-type: none"> • Official land use plans |

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| | | <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services <p>as applicable to the following:</p> <ul style="list-style-type: none"> • Canada Land Inventory Classes 1, 2 and 3 soils • Specialty crops/cropland • Dairy/livestock operations • Field crop operations • High investment agricultural operations <p>Established agricultural farm communities</p> | <p>Statement requires prime agricultural areas be protected for long-term use for agriculture. Prime agricultural areas include specialty crop areas and Classes 1, 2 and 3 soils in this order of priority.</p> <ul style="list-style-type: none"> • Section 2.3.5 of the PPS, 2005, requires planning authorities to justify the exclusion of land from prime agricultural areas, and states that impacts from any new or expanding non-agricultural uses on surrounding agricultural operations and lands should be mitigated to the extent feasible. • The Growth Plan Policy #4.2.2 – Prime Agriculture Areas, states that prime agricultural areas, including specialty crop areas in GGH will be identified through subarea assessment, and where appropriate, additional policies for their protection will be developed. | <ul style="list-style-type: none"> • OMAFRA • Regional and local agricultural federations • Field investigations as required • Soil reports and agricultural capabilities/soil mapping |
| | <p>2.4.3 Recreational</p> | <p>Potential and significance of:</p> <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services <p>to parks and recreational areas.</p> | <ul style="list-style-type: none"> • Disruption or displacement of recreational / community features may adversely affect the users of the facility/feature. Parks are generally lands in public ownership aimed at preserving significant and sometimes unique components of the environment, and providing recreational opportunities. These areas should be avoided to the extent possible however, in some cases, transportation facilities can be situated along park boundaries without adversely affecting the park. Frequently, parts are isolated islands surrounded by development and as such they can function as wildlife refuge areas or may facilitate wildlife movement opportunities. PPS, 2005, Policy 1.5.1 states that healthy active communities shall be | <ul style="list-style-type: none"> • Official land use plans • MNR resource maps • MNR • Interest Groups • Municipal plans • Consultation with municipal and regional governments • Consultation with Ministry of Tourism, Niagara Escarpment Commission, Bruce Trail Association, Ontario Parks and Conservation Authorities |

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| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|---|---------------------------------------|---|--|--|
| | 2.4.4 Aggregate and Mineral Resources | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; • change to access / travel time; • change to facilities / utilities / services to past (e.g. mine hazards and former mining operations) current/future extraction of aggregate and mineral resources. | promoted by considering the effects of planning decisions on provincial parks, conservation reserves and conservation areas. <ul style="list-style-type: none"> • Sections 2.4 and 2.5 of the Provincial Policy Statement have the objective of protecting mineral and aggregate resources for the long term. The policy statement makes provisions for the protection of both known deposits and areas of potential. • The Growth Plan Policy #4.2.3 – Mineral Aggregate Resources, states that through sub-area assessment, the Ministries of Public Infrastructure Renewal and Natural Resources will work with municipalities and stakeholders to identify significant mineral aggregate resources for the GGH, and to develop a long-term strategy. • MTO adheres to requirements of the <i>Aggregates Resources Act</i> to protect aggregate resources while minimizing sterilization of mineral aggregate resources as much as possible. | <ul style="list-style-type: none"> • MNR Mapping • GIS Mapping • MNDR – OGS mapping and other databases • local MNDR – OGS technical expertise |
| 2.5 Major Utility Transmission Corridors | | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change to access / travel time; • change to facilities / utilities / services to major utility transmission corridors (e.g. railroads, hydro, gas, oil). | <ul style="list-style-type: none"> • Utility corridors are subject to regulations from owners and governing authorities for operation of utilities including National Energy Board, Ontario Energy Board, Transport Canada, <i>Railway Safety Act</i>, etc. | <ul style="list-style-type: none"> • Consultation with utility providers, operators and regulatory authorities. |
| 2.6 Contaminated Property and Waste Management | | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/disruption; | <ul style="list-style-type: none"> • Localized significant sources of property contamination can be associated with operating and closed waste disposal sites, the | <ul style="list-style-type: none"> • Field Reconnaissance • MOE Waste Generator Database • MOE electronic registry for Records of Site Condition |

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|--|--|---|--|---|
| | | <ul style="list-style-type: none"> • change to access / travel time; • change to facilities / utilities / services <p>to contaminated property and waste management (e.g. Landfills, Hazardous Waste Sites, "Brownfield" Areas, other known contaminated sites, and high-risk contamination areas).</p> | <p>latter being of more significance due to their difficulty in accurately locating them. Consideration should be given to avoiding/ minimizing effects in the "area of influence" of waste disposal sites.</p> <ul style="list-style-type: none"> • There is the potential that some of the lands in the project area may be contaminated due to the nature of existing and historical land use especially in older commercial/industrial areas and in areas with heavy industrial activity. Sources of potential property contamination in rural areas are most commonly associated with service stations; isolated pockets of commercial/industrial areas; unknown fill areas; scrap yards and other high-risk land uses. Potential effects to these areas should be avoided / minimized to the extent possible. • Appropriate assessments will be carried on these sites and the project will comply with the appropriate recommendations. | <ul style="list-style-type: none"> • MOE PCB Storage Site Database • MOE Waste Disposal Site Inventory • Technical Standards & Safety Authority • Aerial Photographs • Municipal Directories and Assessment Maps • OBM and NTS Mapping • Historical Plans, Soils, Hydrogeological and Geological Maps • Libraries, Historical Archives, Land Registry Offices and Municipal Offices |
| 2.7 Landscape Composition | 2.7.1 Scenic Composition | Potential and significance of views/vistas from the transportation facility. | <ul style="list-style-type: none"> • Visual effects on adjacent land use and effects on the visual experiences for users of the facility. • Visual impact on the open landscape or natural continuity of the Niagara Escarpment | <ul style="list-style-type: none"> • Field investigations as required • Interest Groups • Public consultation • Consideration will be given to NEP and NEC viewshed if available |
| | 2.7.2 Sensitive Viewer Groups | Potential and significance of change vistas/outlooks for sensitive viewer groups. | | |
| | 2.7.3 Scenic Value of Views/Vistas From the Transportation Facility | Potential and significance of change to scenic composition (total aesthetic value of landscape components). | | |
| 3. CULTURAL ENVIRONMENT | | | | |
| 3.1 Cultural Heritage – Built Heritage and Cultural | 3.1.1 Built heritage resources - These resources may be identified through | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement, property acquisition; • long-term alteration/ disruption; | <ul style="list-style-type: none"> • A new transportation facility may result in the loss of built heritage resources resulting in a depletion of the cultural heritage resources/ heritage character in the area. | <ul style="list-style-type: none"> • Historical mapping and aerial photographs, cemetery lists, municipal, provincial and federal inventories, listings, plaques, easements and designations of National Historic Sites and under the Ontario <i>Heritage Act</i>. |

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|----------------------------|--|--|---|---|
| Heritage Landscapes | designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions | <ul style="list-style-type: none"> • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services to buildings or "standing" sites of significant local, provincial or national interest or Ontario Heritage Foundation easements properties. | <ul style="list-style-type: none"> • The effectiveness of proposed conservation, mitigation or avoidance measures should be evaluated on the basis of established principles, standards and guidelines for heritage conservation | <ul style="list-style-type: none"> • Input from other factor areas • Ontario Heritage Act – Ministry of Culture • Consultation with municipal and regional heritage planning staff or designates, Municipal Heritage Committees (formerly referred to as Local Architectural Advisory Committees - LACACS), historical societies and other heritage groups as necessary • Consultation with Ministry of Culture and the Niagara Escarpment Commission • Field survey |
| | 3.1.2 Heritage Bridges - These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions | Potential for destruction or significant alteration of heritage bridges | <ul style="list-style-type: none"> • MTO is required to operate in accordance with the Ontario <i>Heritage Act</i>, <i>Bridges Act</i>, Ontario Heritage Bridge List, Ontario Heritage Guidelines (1983, 1991, 2007 in draft) | <ul style="list-style-type: none"> • Provincial Policy Statement • Municipal heritage inventories for designated and listed built heritage structures • Ontario Genealogical Society for Cemeteries. |
| | 3.1.3 Areas of Historic 19 th Century Settlement | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services to areas of historic 19 th century settlement. | | |
| | 3.1.4 Cultural Heritage Landscapes - These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, | Potential and significance of change to composition of cultural landscapes. | | |

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|---|--|--|--|--|
| | or listed by local, provincial or federal jurisdictions | | | |
| | 3.1.5 First Nation Burial Sites | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change in area character / aesthetics; • nuisance effects; • change to access / travel time to First Nation burial sites. | <ul style="list-style-type: none"> • MTO is required to operate in accordance with the <i>Cemeteries Act</i> and have regard for areas protected by municipalities either through Part IV (individual designation) or Part V (heritage conservation districts) under Ontario Heritage Act | |
| | 3.1.6 Cemeteries | Potential and significance of: <ul style="list-style-type: none"> • encroachment, severance, displacement; • long-term alteration/ disruption; • change in area character/ aesthetics; • nuisance effects; • change to access / travel time; • change to facilities / utilities / services. to cemeteries. | | |
| 3.2 Cultural Heritage – Archaeology | 3.2.1 Pre-Historic and Historic First Nation Archaeological Sites | Potential for destruction or disturbance of pre-historic and historic First Nation archaeological sites of extreme local, provincial or national interest. | <ul style="list-style-type: none"> • Disturbance or destruction of certain archaeological sites of extreme local, provincial or national interest represents a significant cultural loss. • Effects to archaeological resources/sites should be avoided or minimized to the extent possible. • Significant archaeological sites shall be preserved and avoided in accordance with the Ontario Ministry of Culture (MCL) and First Nation policies and procedures, and all others shall be excavated to MCL standards. | <ul style="list-style-type: none"> • Data gathering exercise to identify any archaeological sites of extreme significance. Data sources: <ul style="list-style-type: none"> • Ontario Ministry of Culture (Ontario Archaeological Sites Database) • Archaeological/heritage studies and reports • Historic mapping • Other published and unpublished archaeological literature • First Nations |
| 3.2.2 Historic Euro-Canadian Archaeological Sites | Potential for destruction or disturbance of historic Euro-Canadian archaeological sites of extreme local, provincial or national interest. | | | |
| 4. TRANSPORTATION | | | | |
| 4.1 System Capacity & | 4.1.1 Movement of People | Potential to support the efficient movement of people between | <ul style="list-style-type: none"> • The approved Official Plans of municipalities within the Preliminary | <ul style="list-style-type: none"> • Transportation Association of Canada (TAC Manual) |

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|--|--|---|--|--|
| Efficiency | | communities and regions based on Level of Service (LOS) and volume to capacity (v/c) on a network, screenline and critical link basis | Study Area, and the strategic growth policies and targets embodied in the Provincial <i>Growth Plan</i> , suggest that population and employment growth will continue over time and will be important to future economic prosperity. In order for this economic growth to be realized, an efficient transportation system to move both people and goods within and through the Preliminary Study Area is considered fundamental. <ul style="list-style-type: none"> • The Growth Plan policies envision a safe and efficient transportation system that will provide connectivity among transportation modes and offer a balance of transportation choices. • Goods movement between economic centres and growth areas incurs out-of-way travel and delay due to congestion through the Preliminary Study Area. Reducing travel times, out-of-way travel and improving travel time and reliability would lead to lower transportation costs and benefit the local, provincial and national economy. • The effectiveness of each alternative needs to be determined. | <ul style="list-style-type: none"> • Base Mapping and Field Reviews • Traffic operations simulations (e.g. models) • Constriction Standards and Specifications • Field Reviews and Geotechnical Sampling • Stakeholder Consultation |
| | 4.1.2 Movement of Goods | Potential to support efficient movement of goods between urban growth centres and regional intermodal facilities based on road network and highway performance measures (level of service and travel speed) | | |
| | 4.1.3 System performance during peak periods | Potential to reduce growth in peak hour travel demand through TDM and TSM strategies. | | |
| 4.2 System reliability / redundancy | | Potential to support system reliability and redundancy for travel (people and goods) between regions and communities during adverse conditions. | <ul style="list-style-type: none"> • There is a need to determine how transportation solutions address future needs in relation to existing and proposed future transportation infrastructure. | |
| 4.3 Safety | 4.3.1 Traffic Safety | Potential to improve traffic safety based on opportunity to reduce traffic volumes and/or congestion on area road network. | <ul style="list-style-type: none"> • Transportation agencies have developed design standards to ensure that safety objectives are reflected in all new/expanded | <ul style="list-style-type: none"> • Ontario Geometric Design Standards Manual/TAC Manual |

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|---|---|--|---|--|
| | 4.3.2 Emergency Access | Potential to provide and/or improve emergency access on exiting and/or new provincial facilities. | <p>infrastructure. These standards are not subject to modification or compromise to avoid/reduce effects, costs, etc.</p> <ul style="list-style-type: none"> There is a need to determine emergency access and safety issues related to transportation solutions. | <ul style="list-style-type: none"> Consultation with Emergency Services Providers |
| 4.4 Mobility & Accessibility | 4.4.1 Modal integration, balance | Potential to improve modal choice and increase mode split between communities, regions and intermodal facilities based on travel performance indicators (level of service, vehicle to capacity ratio, travel speed) at critical screenlines and for highway corridor. | <ul style="list-style-type: none"> There is the need to determine how transportation solutions address future needs in relation to existing and proposed future transportation infrastructure (like transit, ride-sharing and other transportation modes). | <ul style="list-style-type: none"> Traffic operations simulations (e.g. models) |
| | 4.4.2 Linkages to Population and Employment Centres | Potential to improve accessibility to urban growth centres for people and goods movement based on higher order network continuity and connectivity | <ul style="list-style-type: none"> Goods movement between economic centres and growth areas incurs out-of-way travel and delay due to congestion through the Preliminary Study Area. Reducing travel times, out-of-way travel and improving travel time and reliability would lead to lower transportation costs and benefit the local, provincial and national economy. | <ul style="list-style-type: none"> Base Mapping and Field Reviews Traffic operations simulations (e.g. models) |
| | 4.4.3 Recreation and Tourism Travel | Potential to support recreation and tourism travel within and to/from the Preliminary Study Area by provision of higher order network (roads and transit) continuity and connectivity and through network performance indicators (level of service, vehicle to capacity ratio, travel speed) | <ul style="list-style-type: none"> Policy 4.2.1 of the <i>Greenbelt Plan</i> states that, for lands within the protected countryside, as defined by the <i>Greenbelt Plan</i>, 2005, infrastructure must meet one of the following policies; <ol style="list-style-type: none"> i) it supports agriculture, recreation and tourism, rural settlement areas, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or ii) it serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections | <ul style="list-style-type: none"> Consultation with Ministry of Tourism, Niagara Escarpment Commission, Bruce Trail Association, Ontario Parks and Conservation Authorities Stakeholder input Consultation with Community Groups |

Appendix A - Summary of Evaluation Factors and Criteria For Alternative Methods

| FACTORS | SUB-FACTORS | CRITERIA | RATIONALE | DATA SOURCE |
|----------------------------------|---|---|---|--|
| | | | among urban growth centers and between these centers and Ontario's borders. | |
| | 4.4.4 Accommodation for pedestrians, cyclists and snowmobiles | Potential to accommodate pedestrians, cyclists within critical travel corridors in urbanized areas and snowmobiles in recognized rural trails | <ul style="list-style-type: none"> Disruption to community activities may affect quality of life for residents, businesses and community groups including local pedestrian and cycling facilities. | <ul style="list-style-type: none"> Stakeholder input Consultation with Community Groups |
| 4.5 Network Compatibility | 4.5.1 Network connectivity | Potential to improve provincial network connectivity within and to/from the Preliminary Study Area. | <ul style="list-style-type: none"> There is the need to determine how transportation solutions address future needs in relation to existing and proposed future transportation infrastructure (like and other transportation modes). | <ul style="list-style-type: none"> Traffic operations simulations (e.g. models) Consultation with Local Municipalities and Transportation Service Providers |
| | 4.5.2 Flexibility for future expansion | Potential to address future transportation needs beyond the forecasted planning horizons. | <ul style="list-style-type: none"> There is a need to determine the flexibility of transportation solutions to address future needs beyond the forecasted planning horizon. | <ul style="list-style-type: none"> Traffic operations simulations (e.g. models) Consultation with Local Municipalities and Transportation Service Providers |
| 4.6 Engineering | 4.6.1 Constructability | Potential ease of implementation considering feasibility/difficulty of physical, property or environmental constraints | <ul style="list-style-type: none"> Physical conditions and staging issues can affect the feasibility of implementing transportation solutions. | <ul style="list-style-type: none"> Ontario Geometric Design Standards Manual/TAC Manual |
| | 4.6.2 Compliance with design criteria | Conformity to applicable provincial safety and design standards. | <ul style="list-style-type: none"> Transportation agencies have developed design standards to ensure that safety objectives are reflected in all new / expanded infrastructure. | <ul style="list-style-type: none"> Ontario Geometric Design Standards Manual/TAC Manual |
| 4.7 Construction Cost | | Relative road construction cost, excluding property and engineering costs | <ul style="list-style-type: none"> There is a need to identify the costs associated with possible transportation solutions. Construction costs can influence the feasibility of a given alternative. | <ul style="list-style-type: none"> Cost data Base Mapping and Field Reviews |
| 4.8 Traffic Operations | | Potential effects on traffic operations due to factors such as design features, private access, and transportation network connections | <ul style="list-style-type: none"> The effectiveness (i.e. level of service) of each alternative needs to be determined. Transportation agencies have developed design standards to ensure that safety objectives are reflected in all new / expanded infrastructure. | <ul style="list-style-type: none"> Ontario Geometric Design Standards Manual Transportation Association of Canada (TAC Manual) Base Mapping and Field Reviews |

**SUPPORTING DOCUMENT A
FEDERAL/PROVINCIAL CO-ORDINATION
PROCESS**

**GTA West Corridor
Environmental Assessment
TERMS OF REFERENCE**

Supporting Document A:

Federal / Provincial EA Coordination

**INFORMATION TO BE PROVIDED
FOR AN ENVIRONMENTAL ASSESSMENT
UNDER THE CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)**

Under *CEAA*, the following information needs to be provided in an environmental assessment conducted as a screening (paraphrasing):

- a description of the existing environment;
- any change the project may cause in the environment including: land, water, air, organic and inorganic matter, living organisms, and the interaction of natural systems;
- any effects that the project may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*
- the effects of a project-related environmental change on: health and socio-economic conditions; physical and cultural heritage; the current use of lands and resources for traditional purposes by First Nation persons; and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance;
- any such project change or effect occurring both within or outside Canada;
- all environmental effects that may result from the various phases of the project (construction, operation, modification, abandonment and decommissioning);
- the environmental effects of accidents and malfunctions;
- the effects of the environment on the project (including effects due to climate change);
- the cumulative environmental effects of this project that are likely to result from the project in combination with other projects or activities that have been or will be carried out ;
- the likelihood of significant adverse environmental effects;
- the need for and requirements of a follow-up program;
- comments from the public obtained in accordance with *CEAA*;
- any measures to be taken that would mitigate identified environmental effects; and
- any other matter that the responsible authority deems to be necessary including those required for a comprehensive study, mediation or panel.

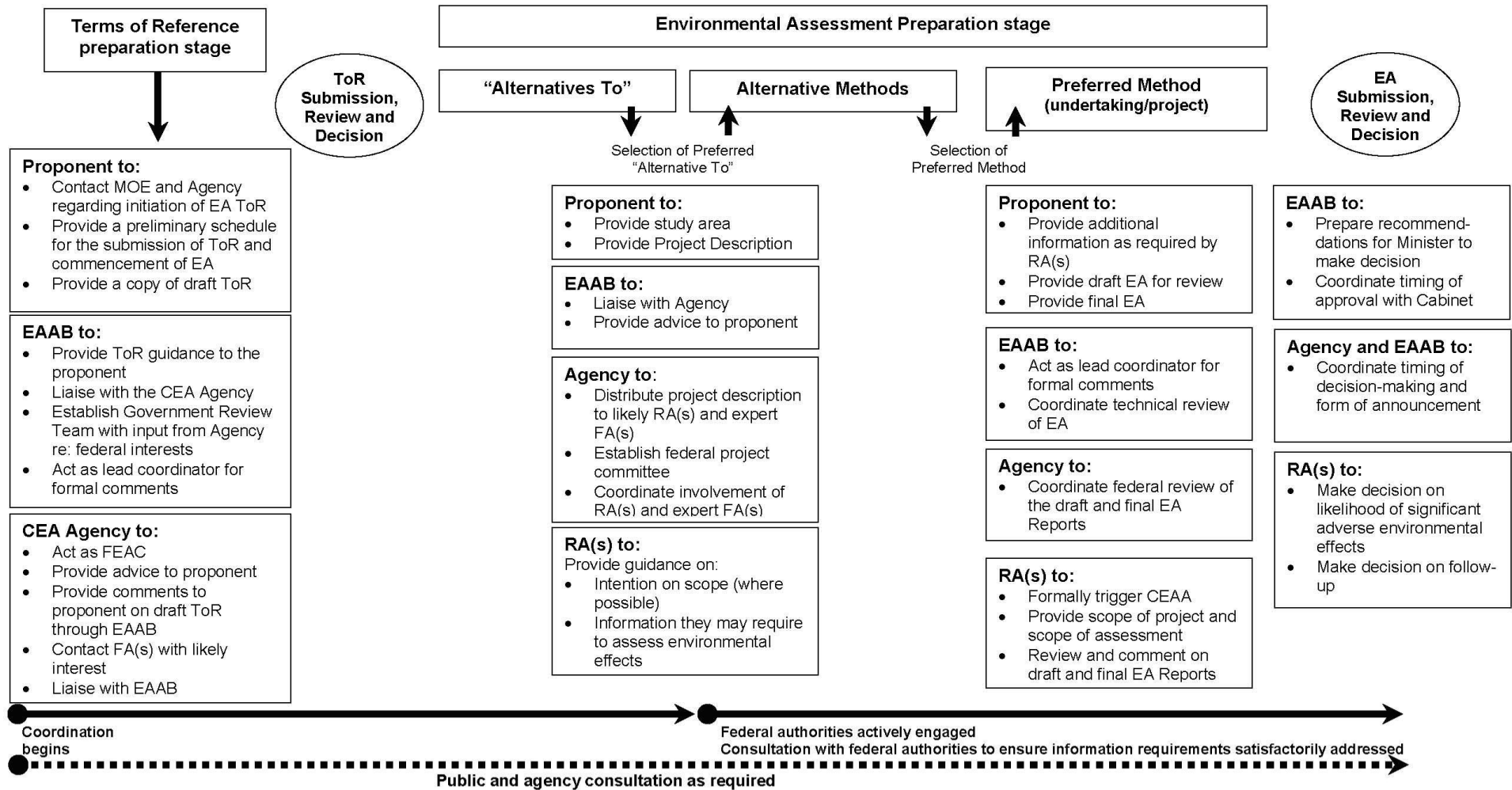
Additional factors to be considered for a comprehensive study, mediation or panel include:

- the purpose of the project;
- alternatives means of carrying out the project;
- design of a follow up program; and
- the capacity of renewable resources affected by the project to meet the needs of the present and those of the future.

If the decommissioning and abandonment phases are not currently part of the proposed project, the proponent may explain this in its EA document, and the Responsible Authority under *CEAA* may decide not to require further analysis on these phases of the project as part of the current assignment.

Nothing in this document will limit the prerogative of Federal Authorities to seek additional information as more is learned about the specifics of the projects and its potential effects. Responsible Authorities will be making a judgment about the likelihood of significant adverse environmental effects after mitigation, and they have the discretion to determine what information they require before making such a judgment.

Figure 1: Key Steps for Coordinating Provincial “Unfocused”^{*} Individual Environmental Assessments (EAs) with Federal Screenings



^{*} For “Focused” EAs, the steps in the first two columns above should be done simultaneously during the ToR stage; the ToR may serve as the project description.

^{**} Proponent to provide project description when the preferred “alternative to” has been selected and a general study area is identified.

Last updated June 10, 2005

**SUPPORTING DOCUMENT B
ACTIVITIES FOLLOWING APPROVAL OF
THE EA REPORT AND OTHER APPROVALS
REQUIRED**

**GTA West Corridor
Environmental Assessment
TERMS OF REFERENCE**

Supporting Document B:

***Activities Following Approval of the EA
Report and Other Approvals Required***

Activities Following Approval of the EA Report

If the EA Report is approved, preliminary design and subsequently detail design studies will be undertaken for the preferred alternative. These studies will be subject to the requirements of any conditions included in the approval of the EA.

Specific environmental protection measures for construction, operations, and maintenance will be further developed in consultation with potentially affected stakeholders. Environmental documentation will be prepared at future design stages to document the preliminary, potential environmental effects and measures for reducing project effects.

During detail design, the preliminary design is further refined to develop detailed construction drawings and specifications. At this stage, the proponent generates, assesses, and evaluates detail design alternatives and determines specifically how the proposed transportation solution will look. This is where the details of specific environmental protection measures are put onto design drawings and into construction contract documents. The design and specifications / provisions included therein will reflect the environmental commitments and mitigation carried forward during preliminary design and finalized in the detail design stage. Additional environmental investigations and consultation will occur during this detail design stage.

Other Approvals Required

It is recognized that a number of approvals may be required for this project. Consultation with approval agencies will continue during the EA to coordinate timing of approvals, approval requirements and to ensure that approvals are ultimately obtainable. Potential permits/approvals/authorizations and agreements required include, but are not limited to the following:

- *Navigable Waters Protection Act* Approval (Federal Government);
- *Fisheries Act* Approval (Federal Government);
- Determination of significance of potential adverse environmental effects under Section 20 of the *Canadian Environmental Assessment Act*;
- Agreements with local utilities;
- Railway Crossing Agreement;
- Ontario Heritage Act – Ministry of Culture
- Hydro Construction Agreements (Hydro One Networks);
- TransCanada Pipeline Crossing Permit; and
- Inter-Provincial Pipeline Crossing Permit.

SUPPORTING DOCUMENT C
CONTEXT OF PRELIMINARY STUDY AREA

**GTA West Corridor
Environmental Assessment
TERMS OF REFERENCE**

Supporting Document C:

Context of Preliminary Study Area

