The Regional Municipality of York
Long Term Water Project

Lake Ontario Water Supply via Durham West

TERMS OF REFERENCE
For an
INDIVIDUAL ENVIRONMENTAL ASSESSMENT

- OCTOBER 1998 -

Consumers Utilities

York Region

INTER-REGIONAL CONSULTANTS GROUP

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1.0 Introduction

1.1 Preface

In July of 1997, the Regional Municipality of York completed a Master Plan to identify a strategy to meet future projected regional water demands to year 2031. The Master Plan was undertaken in accordance with the Class Environmental Assessment (Class EA) for Municipal Water and Wastewater Projects.

One component of the Master Plan's recommended strategy is the requirement for a Great Lakes Supply. A supply from Lake Ontario via the western part of Durham Region (hereafter referred to as the Durham West solution) was identified as the preferred option of meeting this requirement during the master planning process.

Considering the potential magnitude of the Durham West solution and the inter-regional water supply issues involved, York Region determined subsequent planning for the Durham West solution would be undertaken as an Individual Environmental Assessment (EA) to ensure comprehensive government and public review.

1.2 EA Act Requirements

For an individual EA, the Environmental Assessment Act requires that a proponent prepare Terms of Reference to define the scope of a proposed Environmental Assessment Study. The Terms of Reference require approval by the Minister of the Environment and the subsequent EA is then prepared in accordance with the approved Terms of Reference.

The Terms of Reference is intended to provide certainty to the proponent and all stakeholders that the Environmental Assessment will be prepared to an acceptable level of detail. These Terms of Reference and associated appendices specifically address:

- the purpose of the undertaking (Section 3 of this Document);
- a description of the alternatives that will be considered (Section 4);
- a description of the study area and potential effects (Section 5);
- Environmental Assessment Work Plans that identify the scope of work to be carried out to identify and assess impacts of the various alternatives (Section 6);
- a description of the Consultation Plan (Section 7);
- identification of other approvals required (Section 8); and,
- a proposed schedule for the completion of the Environmental Assessment (Section 9).

2.0 Background Information Leading to the Undertaking

2.1 York Region Official Plan

Since 1986, York Region has experienced the highest growth in the Greater Toronto Area and continues to be one of the fastest growing Regions in Canada. With a current population of approximately 600,000, York Region is expected to reach 1.1 million by 2021, and 1.2 million by 2031. Policies to direct growth to 2021 are outlined in the York Region Official Plan, which was approved in 1994.

The Official Plan was undertaken with extensive consultation within York Region and with neighbouring regions and local municipalities. The Plan provides a set of policies that will help guide economic, environmental and community-building decisions affecting use of land within York Region.

Section 6.7 of the Official Plan includes policies to ensure the provision of adequate water services prior to development, requirements for long-term water planning and investment strategies, promotion of reduced water use and provisions for appropriate monitoring. The Plan recognizes that the Region will continue to rely upon arrangements with other partners to provide water service to major growth areas. Further, the Official Plan identifies that "it is generally the Region's intent to supply major urbanized areas with water from the Great Lakes".

2.2 York Region Long Term Water Supply Master Plan

To accommodate growth in the Region and to meet water supply projections, York Region undertook a Long Term Water Supply Master Plan to comprehensively examine water supply needs and solutions. The Master Plan was completed in July, 1997. It was undertaken using the principles of environmental assessment planning and the Master Plan provisions of the Class Environmental Assessment for Municipal Water and Wastewater Projects and included public consultation under that process.

The Master Plan identified that 953 megalitres per day (ML/d) (210 million imperial gallons per day (MIGD)) would be needed to meet the long term maximum day water needs of the Region to 2031. The study concluded that, ultimately, the following sources would be provided to supply up to 590 ML/d (130 MIGD - maximum day) (a) City of Toronto – up to 440 ML/d (97 MIGD), (b) Lake Simcoe – up to 91 ML/d (20 MIGD), (c) groundwater – up to 59 ML/d (13 MIGD). The balance (363 ML/d or 80 MIGD) would be supplied by a Great Lakes source. While the timing of the Durham West solution is dependent on growth and the extent to which other sources of supply can be used (i.e. obtaining additional water from City of Toronto), it is expected that the Great Lakes component could be required as early as 2004.

Additional details of the Master Plan are included in Section 4.1.

2.3 Potential Benefits of Durham Region Co-operation

During the York Region Master Plan process, the Regional Municipality of Durham confirmed its interest in continued co-operation in assessing servicing options that could address the long term requirements for both York and Durham Regions. In particular, advantages became apparent with potential supply locations to the west of the existing Ajax Water Supply Plant.

During the preparation of the Terms of Reference, studies were undertaken to investigate potential benefits to Durham Region that could be achieved through co-operation in the Durham West solution. Some of the potential benefits to Durham Region resulting from a supply of treated water being made available in west Pickering include: increased system security of lakeshore community water supply through the provision of an alternative supply of water; potential for the delay of future expansions proposed for water supply plant facilities in the interconnected water systems servicing Pickering, Ajax, Whitby, Oshawa and Courtice, thereby resulting in cost savings; potential for reduction in the size of required feedermains to support future development in north Pickering and Ajax, thereby resulting in cost savings; and operational benefits.

Benefits to York Region of Durham co-operation include: operational benefits, cost efficiencies associated with optimizing infrastructure components through the use of Durham facilities and additional flexibility in construction staging.

The advantages and disadvantages of Durham co-operation (including implications for local municipalities e.g. Town of Pickering) are proposed to be investigated further during the preparation of the Environmental Assessment for consideration by the Regions of York and Durham. It will be necessary to undertake additional investigations related to: the timing and location of development forecast within Durham's lakeshore communities; hydraulic modelling of potential water supply scenarios; and financial analysis related to the cost/benefit of the potential water supply scenarios.

3.0 Purpose of the Undertaking

3.1 General Description of the Undertaking

The undertaking is defined as a Lake Ontario Water Supply via the Durham West Corridor. The infrastructure components will consist of the following (further details are provided in Section 4.2):

- Raw Water Intake: The intake pipe will extend into Lake Ontario.
- Raw Water Pumping Station(s): One or more raw water pumping stations will pump the raw water from Lake Ontario to a water treatment plant.
- Water Treatment Plant: At the treatment plant, the raw water will be processed to produce potable water.
- Treated Water Pumping Station(s): One or more treated water pumping station(s) will convey the treated water from the water treatment plant to the reservoir or directly to points of use.
- Water Storage Reservoir: Treated water will be stored in a reservoir for distribution into the water system.
- Transmission Water Main(s): Water mains will be required to connect the site-specific facilities. These mains will carry raw water from the lake to the treatment plant, and treated water from the treatment plant to the reservoir or directly to points of use.

It is recognized that, due to the varied nature of the Infrastructure Corridor Study Area, alternatives will inevitably create environmental impacts. The impacts associated with all components of the undertaking will be considered in the environmental assessment.

3.2 Purpose and Rationale for the Undertaking

The purpose of the undertaking is to provide up to approximately 363 ML/d (80 MIGD) (excluding in-plant processes) via the Durham West Corridor to meet York Region's long term water needs. These needs are identified in the York Region Official Plan and Long Term Water Supply Master Plan.

Further, the undertaking provides an opportunity to assist in serving the long term requirements of Durham Region. The Durham West solution could be advantageous to the servicing requirements of portions of Durham Region. In addition to meeting York Region's water needs, the Durham West solution may provide as much as 136 ML/d (30 MIGD - maximum day) to meet potential long term needs in Durham Region, as well as up to 27 ML/d (6 MIGD - maximum day) to serve the proposed Pickering Airport lands.

As noted in Section 2.2, while the timing of the Durham West solution is dependent on growth and the extent to which other sources of supply can be used (i.e. obtaining additional water from City of Toronto), it is expected that the Great Lakes component could be required as early as 2004. The scale and timing of water needs will be considered during the EA process.

4.0 Alternatives

4.1 Rationale for the Range and Types of Alternatives That Will Be Considered

As noted previously, the York Region Water Supply Master Plan identified the need for additional water supplies to serve the population and employment growth for York Region and identified a strategy to fulfill this need. The objective of this strategy is to provide the 210 MIGD (maximum day) required by 2031 to meet the needs of the Region. The recommended strategy includes the following principal components (and anticipated maximum day supply volumes):

- Expansion of Water Supply from City of Toronto – 440 ML/d (97 MIGD)
- Implementation of Water-Use Efficiency Programs
- Construction of Lake Simcoe Water Treatment Facility – 91 ML/d (20 MIGD)
- Construction of a New Great Lakes Supply – 363 ML/d (80 MIGD)

In addition, the following two aspects are associated with the strategy which will complement the expansion of supplies:

- A strategy for the continued use of groundwater – 59 ML/d (13 MIGD)
- Changes to and expansion of the systems for distribution of water within the Region's boundaries.

In the Master Plan, it was concluded that obtaining the maximum quantity of water from the City of Toronto, implementing water-use efficiency programs and obtaining additional water from Lake Simcoe could only provide an interim solution to York Region's water

needs. Ultimately, a Great Lakes source would be required. While the timing of the Durham West solution is dependent on growth and the extent to which other sources of supply can be used (i.e. obtaining additional water from City of Toronto), it is expected that the Great Lakes component could be required as early as 2004

During the course of the Master Plan study, fourteen new supply options were examined for the Great Lakes component of the long term strategy along with "doing nothing". These options included sources from Georgian Bay, Lake Simcoe, Lake Ontario via Peel Region, Lake Ontario via City of Toronto, and Lake Ontario via Durham Region.

A Lake Ontario source via Durham Region, with an intake in Pickering, was selected as the preferred option. Details on the rationale for the selection of the Durham West solution were provided in the Master Plan. A brief summary of the rationale is included in Appendix 1.

During the study of the need for future water supplies and the development of the recommended strategy, it was apparent that the existing infrastructure and delivery programs were not adequate to meet this future demand. Therefore, the option of "doing nothing" was eliminated from further consideration. During the completion of the EA, the status quo will be used as a reference when analysing advantages and disadvantages of alternatives.

4.2 Alternatives To Be Considered in the Environmental Assessment

The components of the Durham West solution for which alternatives are to be considered in the Environmental Assessment include:

- Raw Water Intake: An intake pipe will extend into Lake Ontario to approximately 20 metres (66 ft.) of water depth, within the boundaries of the Infrastructure Corridor Study Area (ICSA) (see Exhibit 5.1). Construction techniques will be addressed in the EA, including comparing the impacts of trenching with tunnelling over specific lengths.
- Raw Water Pumping Station(s): One or more raw water pumping stations will pump the raw water from Lake Ontario through the transmission mains to a water treatment plant. An area of approximately 1 to 2 ha (2.5 to 5 acres) is required for each pumping station.
- Water Treatment Plant: At the treatment plant, the raw water will be processed to produce potable water. An area of approximately 10 to 15 ha (25 to 40 acres) is required for the treatment plant. The appropriate treatment technology to be implemented will be determined during the EA.
- Treated Water Pumping Station(s): One or more treated water pumping stations will pump the treated water from the water treatment plant to the water storage reservoir or directly to points of use. An area of approximately 1 to 2 ha (2.5 to 5 acres) is required for each pumping station.
- Water Storage Reservoir: Treated water will be stored in a reservoir for distribution into the water system. The reservoir will require a site of approximately 4 ha (10 acres) in area at an elevation of approximately 265 metres (870 ft.) above mean sea level. This is a suitable elevation to allow integration with York Region's existing pressure zone boundaries.

- Transmission Water Mains: Raw water and treated water transmission mains will be required to connect the site-specific facilities. The prime consideration being proposed for generating alternate routings is to use existing infrastructure rights-of-way as much as possible. Construction techniques will be addressed in the EA. This will include comparing the impacts of open-cut construction and tunnelling over specific lengths.

A sample schematic layout of the components is shown in Exhibit 4.1. The alternatives to be considered in the EA include alternative sites for each of the facility components, and alternative alignments for the transmission water mains and intake. A range of alternatives will be considered for each component, subject to the following operational requirements:

- The raw water intake connects to the raw water pumping station;
- The raw water pumping station will pump the water to the treatment plant; and,
- Only treated water will be stored in the water storage reservoir.

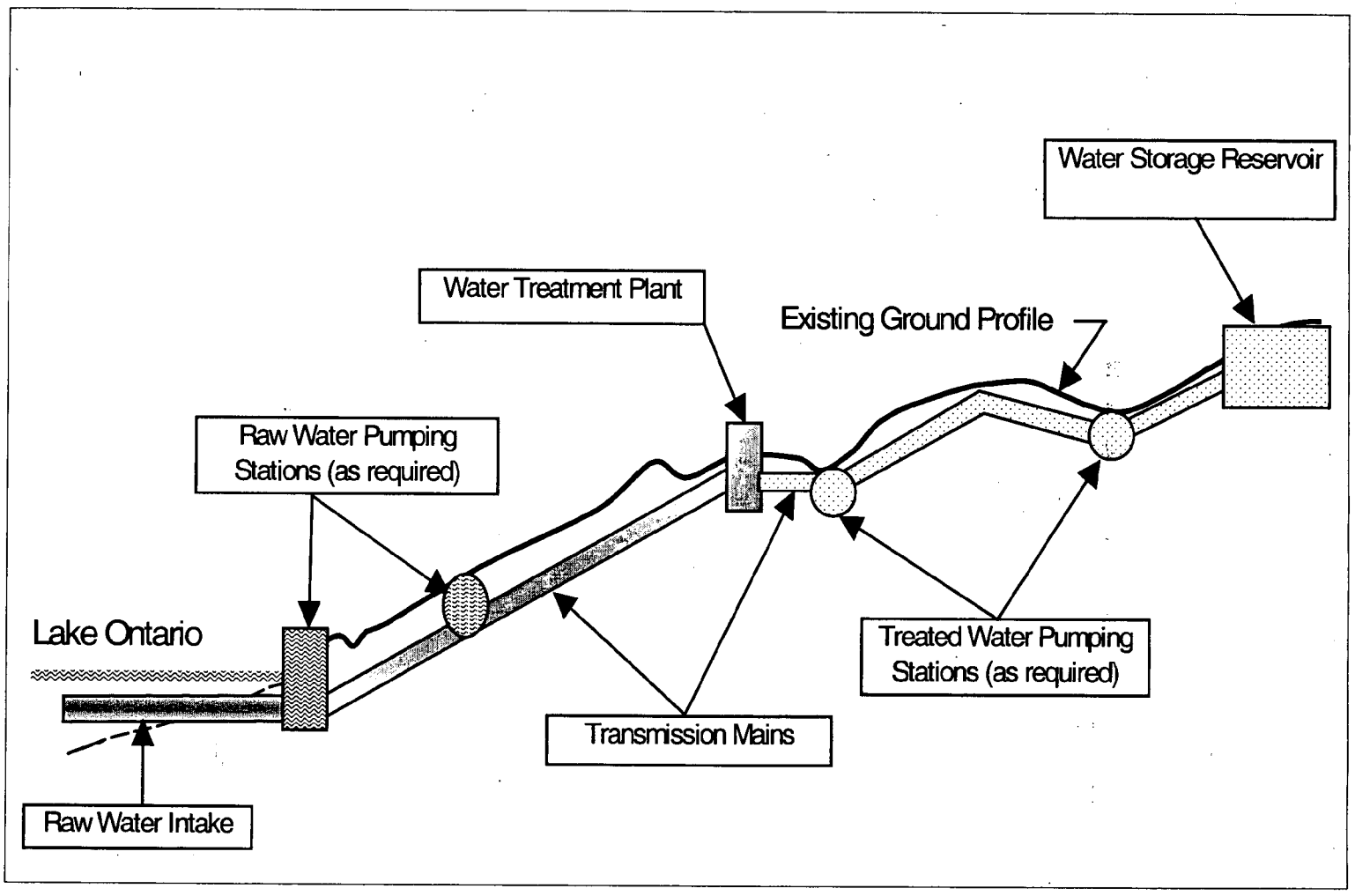
A set of guiding principles, referred to as the Criteria for the Generation of Alternatives, will be used to identify alternative sites and alignments for the components of the undertaking. Two types of criteria for the generation of alternatives have been developed:

Primary Criteria – these are criteria that must be observed because non-adherence could preclude project development;

Secondary Criteria – these are criteria that should be observed, to the extent practicable.

The Primary and Secondary Generation Criteria for the components of the undertaking are listed on the following pages in Exhibit 4.2A through F.

SAMPLE SCHEMATIC LAYOUT OF WATER SUPPLY COMPONENTS



THE REGIONAL MUNICIPALITY OF YORK - LONG TERM WATER SUPPLY PROJECT

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PROPOSED PRIMARY AND SECONDARY GENERATION CRITERIA – RAW WATER INTAKE

ENVIRONMENTAL COMPONENT	PRIMARY GENERATION CRITERIA
Natural Environment	• Avoid habitat for plant or animal species which are considered vulnerable, threatened or endangered
Socio-economic Environment	• Avoid displacement of residential buildings • Avoid displacement of institutional, recreational and community buildings • Avoid cemeteries and known burial grounds • Avoid displacement of retail, commercial and industrial buildings and high value farm buildings/structures
Cultural Heritage Environment	• Avoid built heritage features • Avoid significant cultural landscape features • Avoid known archaeological sites
Technical Considerations	• Availability of sufficient raw water of acceptable quality • Geotechnically suitable areas for construction of the intake • Connectivity to pumping station

ENVIRONMENTAL COMPONENT	SECONDARY GENERATION CRITERIA
Natural Environment	• Minimize disturbance to habitat for fish species utilizing the nearshore of Lake Ontario for feeding, spawning, or rearing • Minimize disturbance to plant or animal species considered to be regionally or locally significant
Technical Considerations	• Minimize impacts to recharge and discharge area • Suitability for application for alternative construction methods

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PROPOSED PRIMARY AND SECONDARY GENERATION CRITERIA – RAW WATER PUMPING STATION(S)

ENVIRONMENTAL COMPONENT	PRIMARY GENERATION CRITERIA
Natural Environment	• Avoid all permanent watercourses • Avoid environmentally significant areas, provincially significant ANSI's, wetlands and large wooded areas
Socio-economic Environment	• Avoid displacement of residential buildings • Avoid displacement of institutional, recreational and community buildings • Avoid cemeteries and known burial grounds • Avoid displacement of retail, commercial and industrial buildings and high value farm buildings/structures • Avoid hazard lands • Avoidance of unstable areas (e.g. those subject to erosion such as steep bluff areas, or shorelines subject to sediment removal by lake currents) • Avoid alteration of approved plans of subdivision
Cultural Heritage Environment	• Avoid built heritage features • Avoid significant cultural landscape features • Avoid known archaeological sites
Technical Considerations	• Site areas of suitable sizes • Access to the site for connections to the intake and transmission mains • Access to the site for construction and maintenance/delivery vehicles
ENVIRONMENTAL COMPONENT	**SECONDARY GENERATION CRITERIA**
Natural Environment	• Minimize encroachment on temporary watercourses • Minimize impacts to significant or sensitive vegetation • Minimize encroachments on habitats for species of plants and animals at risk • Minimize encroachment on wooded areas • Minimize the effects to ecological corridors and linkages
Socio-economic Environment	• Maximize the use of existing linear land uses and vacant lands zoned for industrial purposes • Minimize displacement of institutional, recreational and community features • Minimize displacement of areas used for business operations • Minimize number of adjacent residences • Minimize number of adjacent business operations • Minimize number of adjacent institutional, recreational and community features incompatible with project development • Minimize areas of mineral aggregate resources • Minimize displacement of other existing farm buildings and structures within ROW • Minimize areas with tile drainage • Minimize area of Class 1 – 3 land capability soils • Minimize number of municipal drains/dikes potentially affected • Minimize areas with specialty crop or specialty agricultural use areas (e.g. orchards) • Minimize number of existing farm buildings and feedlots on adjacent property within x meters • Minimize fragmentation of farm properties • Avoid defined hamlet areas • Minimize access to the site through residential streets and local roads (as defined in the municipal plans) • Minimize requirements for privately owned lands in agricultural production
Technical Considerations	• Avoidance of known areas of contaminated soil • Minimization of distance to available power source

PROPOSED PRIMARY AND SECONDARY GENERATION CRITERIA – WATER TREATMENT PLANT

ENVIRONMENTAL COMPONENT	PRIMARY GENERATION CRITERIA
Natural Environment	• Avoid all permanent watercourses • Avoid environmentally significant areas, provincially significant ANSI's, wetlands and large wooded areas
Socio-economic Environment	• Avoid displacement of residential buildings • Avoid displacement of institutional, recreational and community buildings • Avoid cemeteries and known burial grounds • Avoid displacement of retail, commercial and industrial buildings and high value farm buildings/structures • Avoid hazard lands • Avoid alteration of approved plans of subdivision
Cultural Heritage Environment	• Avoid built heritage features • Avoid significant cultural landscape features • Avoid known archaeological sites
Technical Considerations	• Site areas of suitable sizes • Access to the site for connections to the intake and transmission mains • Access to the site for construction and maintenance/delivery vehicles
ENVIRONMENTAL COMPONENT	**SECONDARY GENERATION CRITERIA**
Natural Environment	• Minimize encroachment on temporary watercourses • Minimize impacts to significant or sensitive vegetation • Minimize encroachments on habitats for species of plants and animals at risk • Minimize encroachment on wooded areas • Minimize the effects to ecological corridors and linkages
Socio-economic Environment	• Maximize the use of existing linear land uses and vacant lands zoned for industrial purposes • Minimize displacement of institutional, recreational and community features • Minimize displacement of areas used for business operations • Minimize number of adjacent residences • Minimize number of adjacent business operations • Minimize number of adjacent institutional, recreational and community features incompatible with project development • Minimize areas of mineral aggregate resources • Minimize displacement of other existing farm buildings and structures within ROW • Minimize areas with tile drainage • Minimize area of Class 1 – 3 land capability soils • Minimize number of municipal drains/dikes potentially affected • Minimize areas with specialty crop or specialty agricultural use areas (e.g. orchards) • Minimize number of existing farm buildings and feedlots on adjacent property • Minimize fragmentation of farm properties • Avoid defined hamlet areas • Minimize access to the site through residential streets and local roads (as defined in the municipal plans) • Minimize requirements for privately owned lands in agricultural production
Technical Considerations	• Avoidance of known areas of contaminated soil • Minimization of distance to available power source • Minimization of distance to end users • Minimization of distance to existing or proposed sewer facilities for waste discharges • Site elevation

PROPOSED PRIMARY AND SECONDARY GENERATION CRITERIA – WATER STORAGE RESERVOIR

ENVIRONMENTAL COMPONENT	PRIMARY GENERATION CRITERIA
Natural Environment	• Avoid all permanent watercourses • Avoid environmentally significant areas, provincially significant ANSI's, wetlands and large wooded areas
Socio-economic Environment	• Avoid displacement of residential buildings • Avoid displacement of institutional, recreational and community buildings • Avoid cemeteries and known burial grounds • Avoid displacement of retail, commercial and industrial buildings and high value farm buildings/structures • Avoid hazard lands • Avoid alteration of approved plans of subdivision
Cultural Heritage Environment	• Avoid built heritage features • Avoid significant cultural landscape features • Avoid known archaeological sites
Technical Considerations	• Site areas of suitable sizes • Access to the site for connections to the transmission mains • Access to the site for construction and maintenance/delivery vehicles

ENVIRONMENTAL COMPONENT	SECONDARY GENERATION CRITERIA
Natural Environment	• Minimize encroachment on temporary watercourses • Minimize impacts to significant or sensitive vegetation • Minimize encroachments on habitats for species of plants and animals at risk • Minimize encroachment on wooded areas • Minimize the effects to ecological corridors and linkages
Socio-economic Environment	• Maximize the use of existing linear land uses and vacant lands zoned for industrial purposes • Minimize displacement of institutional, recreational and community features • Minimize displacement of areas used for business operations • Minimize number of adjacent residences • Minimize number of adjacent business operations • Minimize number of adjacent institutional, recreational and community features incompatible with project development • Minimize areas of mineral aggregate resources • Minimize displacement of other existing farm buildings and structures within ROW • Minimize areas with tile drainage • Minimize area of Class 1 – 3 land capability soils • Minimize number of municipal drains/dikes potentially affected • Minimize areas with specialty crop or specialty agricultural use areas (e.g. orchards) • Minimize number of existing farm buildings and feedlots on adjacent property • Minimize fragmentation of farm properties • Avoid defined hamlet areas • Minimize access to the site through residential streets and local roads (as defined in the municipal plans) • Minimize requirements for privately owned lands in agricultural production
Technical Considerations	• Avoidance of known areas of contaminated soil • Site elevation

PROPOSED PRIMARY AND SECONDARY GENERATION CRITERIA – TRANSMISSION WATER MAIN(S)

ENVIRONMENTAL COMPONENT	PRIMARY GENERATION CRITERIA
Natural Environment	• Avoid environmentally significant areas, provincially significant wetlands and ANSI's
Socio-economic Environment	• Avoid displacement of residential buildings • Avoid displacement of institutional, recreational and community buildings • Avoid cemeteries and known burial grounds • Avoid displacement of retail, commercial and industrial buildings and high value farm buildings/structures
Cultural Heritage Environment	• Avoid built heritage features • Avoid significant cultural landscape features • Avoid known archaeological sites
Technical Considerations	• Use of rights-of-way or easements where possible • Compliance with connection requirements such as take off and delivery points

ENVIRONMENTAL COMPONENT	SECONDARY GENERATION CRITERIA
Natural Environment	• Minimize crossings of valley corridors • Minimize crossings of watercourses with significant or sensitive fish species • Minimize impacts to significant or sensitive vegetation • Minimize crossings or encroachments on habitats for species of plants and animals at risk • Minimize encroachment or crossings of wooded areas • Minimize the effects to ecological corridors and linkages
Socio-economic Environment	• Maximize the use of existing linear land uses and vacant lands zoned for industrial purposes • Minimize displacement of institutional, recreational and community features • Minimize displacement of areas used for business operations • Minimize number of adjacent residences • Minimize number of adjacent business operations • Minimize number of adjacent institutional, recreational and community features incompatible with project development • Minimize areas of mineral aggregate resources • Minimize displacement of other existing farm buildings and structures within ROW • Minimize areas with tile drainage • Minimize area of Class 1 – 3 land capability soils • Minimize number of municipal drains/dikes potentially affected • Minimize areas with specialty crop or specialty agricultural use areas (e.g. orchards) • Minimize number of existing farm buildings and feedlots on adjacent property • Minimize fragmentation of farm properties
Technical Considerations	• Compatibility with existing and future services and utilities • Simplicity of design • Suitability for application of alternative construction methods

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PROPOSED PRIMARY AND SECONDARY GENERATION CRITERIA – TREATED WATER PUMPING STATION(S)

ENVIRONMENTAL COMPONENT	PRIMARY GENERATION CRITERIA
Natural Environment	• Avoid all permanent watercourses • Avoid environmentally significant areas, provincially significant ANSI's, wetlands and large wooded areas
Socio-economic Environment	• Avoid displacement of residential buildings • Avoid displacement of institutional, recreational and community buildings • Avoid cemeteries and known burial grounds • Avoid displacement of retail, commercial and industrial buildings and high value farm buildings/structures • Avoid hazard lands • Avoid alteration of approved plans of subdivision
Cultural Heritage Environment	• Avoid built heritage features • Avoid significant cultural landscape features • Avoid known archaeological sites
Technical Considerations	• Site areas of suitable sizes • Access to the site for connections to the intake and transmission mains • Access to the site for construction and maintenance/delivery vehicles

ENVIRONMENTAL COMPONENT	SECONDARY GENERATION CRITERIA
Natural Environment	• Minimize encroachment on temporary watercourses • Minimize impacts to significant or sensitive vegetation • Minimize encroachments on habitats for species of plants and animals at risk • Minimize encroachment on wooded areas • Minimize the effects to ecological corridors and linkages
Socio-economic Environment	• Maximize the use of existing linear land uses and vacant lands zoned for industrial purposes • Minimize displacement of institutional, recreational and community features • Minimize displacement of areas used for business operations • Minimize number of adjacent residences • Minimize number of adjacent business operations • Minimize number of adjacent institutional, recreational and community features incompatible with project development • Minimize areas of mineral aggregate resources • Minimize displacement of other existing farm buildings and structures within ROW • Minimize areas with tile drainage • Minimize area of Class 1 – 3 land capability soils • Minimize number of municipal drains/dikes potentially affected • Minimize areas with specialty crop or specialty agricultural use areas (e.g. orchards) • Minimize number of existing farm buildings and feedlots on adjacent property • Minimize fragmentation of farm properties • Avoid defined hamlet areas • Minimize access to the site through residential streets and local roads (as defined in the municipal plans) • Minimize requirements for privately owned lands in agricultural production
Technical Considerations	• Avoidance of known areas of contaminated soil • Minimization of distance to available power source

5.0 Description of the Study Area, Environment and Potential Effects

5.1 Infrastructure Corridor Study Area

In generating options for a Great Lakes Water Supply, the York Region Master Plan considered several general 'corridors' throughout a large section of southern Ontario. For each option, the Master Plan identified a linear corridor generally one kilometre in width, for the purposes of comparing impacts of, and generating cost estimates for, each option.

Once the Durham West solution was identified as the preferred option for a Great Lakes Supply, an Infrastructure Corridor Study Area (ICSA) was developed in the vicinity of the general corridor identified in the Master Plan. The ICSA was developed to provide sufficient area to enable a reasonable range of potential siting/routing opportunities for a raw water intake, water treatment plant, storage reservoir, pumping stations and transmission water mains. The ICSA for the Durham West solution is shown in Exhibit 5.1.

The proposed ICSA was presented at the first series of Public Information Centres. The ICSA was modified in response to information received through the public consultation activities and technical studies carried out in the preparation of these Terms of Reference. The two modifications included expansion of the ICSA to include the 9th Line right-of-way (York Road 69), and expansion of the ICSA to include a greater area north of Stouffville Road (York Road 14). These modifications were made because:

- Transport Canada owns a large area of land that incorporates portions of north Pickering and Markham. Recently, Transport Canada announced plans to designate the lands for a future airport. The ICSA was therefore expanded westward to include a greater area outside the federal lands to ensure that a reasonable number of alternative sitings/routing of water supply components could be generated during the EA.
- The boundaries of the ICSA were modified to include more lands north of Stouffville Road at the required elevation for a water storage reservoir. Technical studies undertaken during the Terms of Reference process and field investigations of current land uses in the area indicate that including a greater area of land at an elevation of 263 metres or higher would enable a larger number of alternative reservoir sites to be included for study and would provide greater opportunities to reduce impacts

5.2 The Environment and Potential Effects that will be Assessed

The environment to be assessed for potential impacts associated with the Durham West solution will include aspects of the natural environment, socio-economic environment, cultural heritage environment and technical considerations that will be affected, or might reasonably be expected to be affected, directly or indirectly, by the project.

INFRASTRUCTURE CORRIDOR STUDY AREA

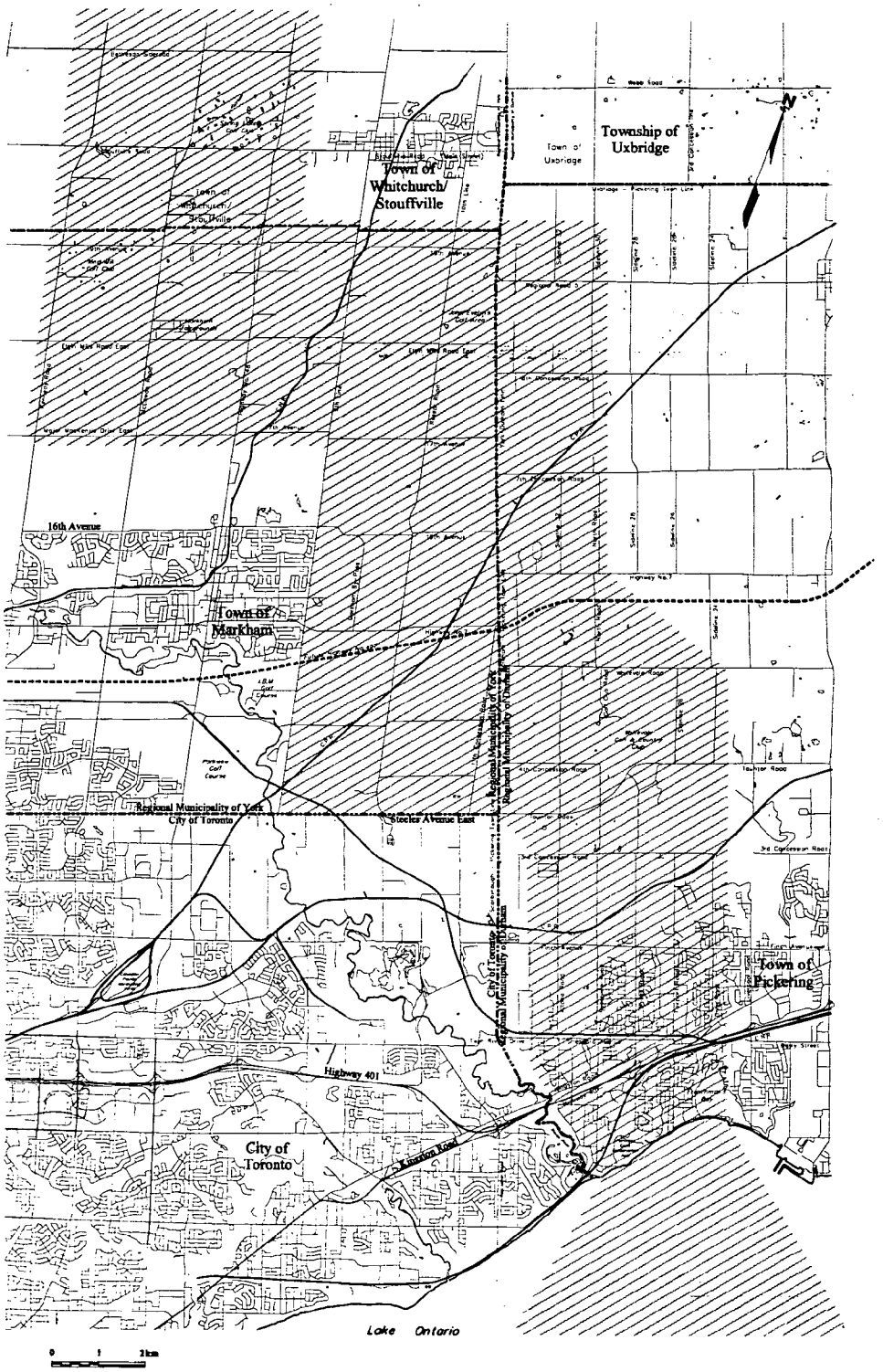

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EXHIBIT 5.1

During the preparation of these Terms of Reference, twenty technical reports/memoranda were completed. Each report/memorandum provides a description of particular characteristics and features of the ICSA, discusses the significance of the study area features on the generation of alternative sites/routing, and identifies future work to be undertaken during the EA to identify, assess and mitigate impacts to these features, as appropriate. A complete list of these documents and their purpose is shown in Exhibit 5.2. A summary of each report/memorandum is included in Appendix 2.

6.0 Environmental Assessment Work Plan

The Environmental Assessment (EA) Work Plan is intended to identify the scope of work that will be undertaken during the preparation of the EA Study. Three major activities remain to be undertaken following the approval of the Terms of Reference. These activities are:

- Generation and Refinement of Alternative Alignments and Sites within the Infrastructure Corridor Study Area (ICSA) (refer to Section 4.2 of this document)
- Analysis and Evaluation of Alternatives to Identify and Recommend a Preferred Alternative (refer to Section 6.1); and,
- Preliminary Design and the Development of Detailed Mitigation Measures for the Preferred Alternative (refer to Section 6.2)

The Work Plan groups environmental factors into the following components:

- Natural Environment
- Socio-economic Environment
- Cultural Heritage Environment
- Technical Considerations

The components of the Work Plan were circulated in draft form for comment to agencies and the public. The comments made on the components of the draft EA Work Plan and corresponding actions taken are listed in Section 7.

The components of the EA Work Plan for the Durham West solution, modified to encompass the comments received, are included in Appendices 3 to 6.

6.1 Analysis and Evaluation of Alternatives

Evaluation of the individual components of the undertaking will generally not be carried out in isolation; rather, the evaluation will be carried out in consideration of other project components. For example, evaluation of raw water pumping station site locations would include consideration of alternative alignments of raw water transmission mains that would connect the pumping station site to common points in the system. This will ensure that the full set of impacts generated by the water supply system are considered in each evaluation.

TECHNICAL STUDIES AND MEMORANDA COMPLETED DURING THE TERMS OF REFERENCE PHASE

REPORT	PURPOSE
Natural, Socio-economic, Cultural Heritage Environment Studies	
Natural Environment Technical Memorandum	• Summarizes existing natural environment data • Key issues identified in the preparation of the ToR and how they are to be addressed in the EA
Socio-economic Technical Memorandum	• Summarizes the socio-economic data available • Key issues identified in the preparation of the ToR and how they are to be addressed in the EA
Cultural Heritage Technical Memorandum	• Identifies and describes the cultural heritage environment within the study area • Key issues identified in the preparation of the ToR and how they are to be addressed in the EA
Property Value Assessment	• Provides a range of property value estimates for various land uses throughout the study area for budgeting purposes
Financial Analysis Report	• Reviews the cost assumptions used in the Master Plan and verifies their acceptability for the Durham West Water Supply
Pre-Engineering Reports Lakeshore Constraints and Conditions Brief	• Documents the information gathered with respect to existing and proposed water pollution control plant outfalls in the vicinity of the area being considered for a raw water intake. • Summarizes results of previous raw water sampling programmes conducted in this area of Lake Ontario.
Radiation Safety Report	• Provides results of the consultation process with respect to concerns raised about possible radiation safety implications of the water supply proposed by this project.
Preliminary Modeling (2-D)Technical Memo	• Presents the results of a two-dimensional mathematical simulation of raw water quality in Lake Ontario in the area where a raw water intake is proposed to be considered.
Detailed Modeling (3-D)Technical Report	• Evaluates the extent of impact of existing outfalls and discharges on raw water quality in the area of Lake Ontario being considered for the raw water intake.
Raw Water Intake Functional Design Brief	• Documents the information gathered with respect to the feasibility of constructing a raw water intake extending into Lake Ontario and terminating at a Raw Water Pumping Station within the ICSA area. • Documents alternative construction techniques.
Raw Water Pumping Station Functional Design Brief	• Documents the information gathered with respect to the feasibility of constructing a raw water pumping station within the ICSA.
Site Requirements Technical Memorandum	• Documents the information gathered with respect to the site requirements for the proposed infrastructure works.
York Region Demand Analysis Functional Design Brief	• Reviews and updates, where appropriate, the water demand forecasts for each York Region municipality to the year 2031, and reviews criteria which will potentially affect the scale and timing of the water supply project.
Potential Durham Demands Brief	• Documents the information gathered with respect to the most recent Durham Infrastructure Management Studies for Water Supply and develops potential demands for future development areas. • Documents the results of analyses undertaken to determine various components of the Durham trunk distribution network.
Raw Water Treatability & Treatment Technology Functional Design Brief	• Summarizes and reviews the issues with respect to achieving the desired treated water quality and establishing appropriate technologies in the EA
Water Chemistry & Quality Objectives Functional Design Brief	• Summarizes and evaluates the water chemistry and quality issues identified in the Master Plan • Identifies the Treated Water Quality Evaluation Criteria which will be established in the EA
Transmission Mains Functional Design Brief	• Reviews the factors that will affect the siting of the transmission mains and ensures the ICSA provides a range of potential alternative alignments. • Documents the potential range of pipe sizes anticipated, the potential for phasing the potential range of operating pressures and potential construction techniques.
Reservoir Storage Functional Design Brief	• Documents the information gathered with respect to the feasibility of constructing a Durham West terminal reservoir at the northern portion of the ICSA.
Geology and Soils Review Geology and Soils Report	• Provides a general insight into the geology and hydrogeology of the ICSA, and its potential impact on the project.
Seismic Brief	• Provides a preliminary evaluation of the seismic conditions of the ICSA

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6.1.1 Evaluation Criteria

The data collected on the study area will assist in identifying the types of impacts each alternative facility site or alignment will create on the environment. Each component of the Work Plan identifies criteria which group the environmental aspects considered in the analysis of impacts for this project. Impacts will be quantified according to the indicators that are listed for each criterion shown in Exhibit 6.1.

Details on the rationale and measures for these indicators are included in the appropriate component Work Plan (Appendices 3 to 6).

6.1.2 Process To Be Applied For The Evaluation Of Alternative Methods Of Carrying Out The Undertaking

Guidelines

The Ministry of Environment Interim Guidelines on Environmental Assessment Planning and Approvals (July, 1989) recommend that proponents establish one or more methods for predicting and evaluating net environmental effects. The Guidelines suggest that the methods should be clearly described and government ministries, agencies and the public should be asked for their comments early in the planning process. The methods used to predict net environmental effects and evaluate advantages and disadvantages must, according to the Guidelines, clearly identify the relative differences and key impact trade-offs. The following paragraphs describe the evaluation methodology for the Durham West solution environmental assessment.

The evaluation methodology to be used to assist in the selection of a preferred alternative for the Durham West solution will include a Net Impact Assessment Evaluation (or Trade-off) component and an Arithmetic Evaluation component.

Net Impact Assessment Evaluation (or Trade-off) Component

Net impacts are the impacts to the environment that remain after mitigation measures have been applied to reduce the extent of the impact.

With the Net Impact Assessment Evaluation, mitigation measures are incorporated in the analysis of impacts associated with each alternative, to provide a listing of net impacts. This method highlights the differences in net impacts associated with the various alternatives. Based on these differences, the advantages and disadvantages of each alternative are identified, and these are "traded-off" against each other in selecting a preferred alternative. The trade-offs that favour the selection of one alternative over all others will be derived from the following sources:

- Government legislation, policies and guidelines;
- Municipal policy (i.e., Official Plans);
- Issues and concerns identified during consultation with ministries and agencies, municipalities, ratepayer and interest groups and the general public;
- Project Team expertise; and
- Opinion of the Proponent

EVALUATION CRITERIA AND INDICATORS

ENVIRONMENTAL COMPONENT	CRITERIA	INDICATORS
Natural Environment	Effects on fish and aquatic habitat	• Effects on fish species • Effects on fish habitat
	Effects on wildlife species and habitat	• Effects on wildlife habitat • Effects on wildlife species
	Effects on wetland species and habitat	• Effects on wetland habitat • Effects on wetland wildlife species
	Effects on vegetation	• Effects on vegetation communities • Effects on vegetation species • Effects on significant areas
Socio-economic Environment	Effects on residents	• Displacement of residents • Disruption of residents
	Effects on institutional, recreational and community features	• Displacement of institutional, recreational and community features • Disruption of institutional, recreational and community features
	Effects on businesses	• Displacement of commercial and industrial business operations • Disruption of commercial and industrial business operations • Displacement of farming operations • Disruption of farming operations
	Compatibility with land use and management plans	• Compatibility with approved municipal land uses / plans of subdivision • Compatibility with Rouge Park Management Plan • Compatibility with First Nation land uses or management plans • Compatibility with other land use or management plans
	Mineral Aggregate Resources	• Amount of mineral aggregate resource removed from future use
	Effects on traffic patterns	• Disruption to traffic patterns
	Changes to community character	• Land use compatibility • Special or unique community features • Special or unique activities or attributes of residents
Cultural Heritage Environment	Effects on built heritage and cultural landscape features	• Displacement of built heritage features • Displacement of cultural landscape features • Disruption to built heritage features • Disruption to cultural landscape features
	Effects on archaeological sites	• Displacement of archaeological sites • Disruption of archaeological sites
Technical Considerations	Technical Considerations	• Geology/Topography • Connectivity of water supply components • Compatibility with existing and future services and utilities • Accessibility of water supply components • Operations and Maintenance • System Reliability
	Costs	• Construction costs • Operating costs • Maintenance costs

Details on the rationale for the criterion and indicators are provided in Appendices 3-6.

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Input from these sources will be collected to identify the preferred alternative. The trade-offs that guided the decision to favour one set of advantages and disadvantages over another will be clearly described and traceable in the EA Report and presented at Public Information Centres for comment.

Arithmetic Evaluation Component

The Arithmetic Evaluation component will incorporate both the level of importance of each evaluation criterion (referred to as the *weight*) and the magnitude of the impact (or benefit) associated with an alternative (referred to as the *score*). Numerical values are derived for both the level of importance of each criterion, and the magnitude of the impact associated with each alternative. (The magnitude of a benefit can also be expressed numerically, and for the purposes of the following discussion, it is assumed that the method of addressing impacts can also be applied to any benefits provided by an alternative.)

The weight is multiplied by the score to obtain a total. The alternative with the highest total is considered the Preferred Alternative.

Scoring

The score assigned to each criterion is relative to the impact generated. Relative impacts can range from those that are positive (benefit the environment) to negative (detrimental to the environment). Scores will be assigned based on a scale, with the highest impacts receiving the lowest score, and the greatest benefit receiving the highest score.

The assessment of impacts will be derived from field measurements, results of prediction models, secondary data sources (as appropriate) and other means as described under Data Source/Method of Assessment in the EA Work Plan.

The Project Team will assign each criterion a score. The assumptions and judgements used to assign a specific score to each criterion will be documented in detail and included in the appendix of the Environmental Assessment Report.

Weighting

Generally, more weight is assigned to those criteria which are felt to be more important in assessing impacts generated by alternatives, and less weight is given to those criteria which are considered to be less important.

Weighting scenarios will be used for this evaluation component. One weighting scenario will be developed by the Project Team. Other weighting scenarios will be developed by the general public, interest groups and municipalities, including the Town of Pickering. Questionnaires distributed at public consultation activities and a random sample survey of study area residents will be used to establish the relative weights that participants feel should be given to each criterion. This approach provides the Project Team with an understanding of the relative importance of each evaluation criterion.

If the weighting scenarios identify the same preferred alternative, this preferred alternative would be compared to the results of the Net Impact Assessment component. If the weighting scenarios generate different preferred alternatives, these alternatives will be compared to the results of the Net Impact Assessment component.

Implementation
The two components of the evaluation process will be implemented simultaneously. For example, the Project Team's assumptions and rationale behind its assessment of the level of importance of a criterion will be documented along with the corresponding arithmetic value assigned to each criterion. In addition, input from stakeholders and the public will be coordinated through public information centres and other public consultation activities (e.g. meetings, workshops) to ensure issues, concerns and the magnitude of potential impacts are properly identified and understood by the Project Team.

The results of the Trade-Off Evaluation component will be compared to the results from the Arithmetic Evaluation component. If the two components result in the identification of different preferred alternatives, the differences between the two alternatives will be identified. The results of the Arithmetic Method will be 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 decision was appropriate. If the rationale supporting the Trade-off decisions is valid and appropriate, the preferred alternative identified by the Trade-off method will stand. However, if the results of the Arithmetic Evaluation lead to modifications to the Trade-off decision rationale, the Trade-off method preferred alternative may be revised. This process of reconciling the Project Team's decisions will be clearly documented and presented for comment.

6.2 Preliminary Design and Mitigation Measures

The preferred alternative will be carried forward to the preliminary design phase for detailed development, resolution of impact mitigation issues, and documentation. Comments received from review agencies and municipal, technical, and public participants in the process will be considered in the refinement to the preferred alternative as well as in the detailed plans and mitigation strategies. Details of preliminary design and mitigation activities to be undertaken during the EA are provided in the components of the EA Work Plan in Appendices 3 to 6.

The preliminary design of the preferred alternative, when complete, will be reviewed by all interested parties and any input on the preliminary design will be considered and documented in the preparation of the EA Report.

7.0 Consultation

7.1 Consultation Undertaken in Preparation of the Terms of Reference

The primary goal of public consultation during the formulation of the Terms of Reference was to receive comments and obtain input to help develop the proposed scope of the subsequent EA and the proposed consultation plan for the EA.

The following outlines the methods used to consult with the public during the preparation of the Terms of Reference.

7.1.1 Public Consultation Discussion Paper

A discussion paper was prepared at the outset of this study, which outlined the proposed consultation to be carried out to develop the Terms of Reference and the proposed consultation plan to be implemented during the EA. The discussion paper was made available to interested individuals at the First Set of Public Information Centres. In

addition, the discussion paper was distributed to agencies, ministries, municipalities and interested groups and individuals.

The Public Consultation Discussion Paper is included as Appendix 7.

7.1.2 First Set of Public Information Centres

The first set of Public Information Centres was held in February 1998. Information Centres were held in six locations (three in York Region and three in Durham Region). The purpose of this set of Information Centres was to:

- Introduce the Study;
- Identify the additional work that was proposed to complete the Terms of Reference;
- Present the Study Process and Schedule; and,
- Obtain comments on this information and identify issues and concerns relevant to the preparation of the Terms of Reference.

Details of the First Set of Information Centres are included in Appendix 8.

7.1.3 Follow-up Activities

The Public Consultation Discussion Paper identified that other consultation activities would be held as required depending on the issues/concerns raised. These activities were held in the summer of 1998 (between the first and second sets of Public Information Centres). In addition, interested persons were asked to identify any issues which they feel warrant follow-up activities at the first set of Public Information Centres.

Three workshops were held to identify issues and review draft Terms of Reference materials with the aid of a facilitator. The proceedings of the Workshops are detailed in Appendix 9.

7.1.4 Ministry/Agency/Municipal Contact

Meetings were held with ministries, agencies and municipalities to discuss the project and review the draft components of the work plan. In addition, the proposed consultation plan and proposed evaluation methodology were provided for review. Contact with ministries, agencies and municipalities are listed in Exhibit 7.1.

7.1.5 Summary of Issues and Concerns Raised During Consultation Undertaken in Preparation of the Terms of Reference

Exhibit 7.2A through F summarizes the issues and concerns raised during the consultation activities noted above. In addition, actions taken during the preparation of the draft Terms of Reference and commitments to work to be undertaken during the EA are identified.

MINISTRY / AGENCY / MUNICIPAL CONTACT

DATE	CONTACT	PURPOSE
November 18, 1997	Ministry of the Environment (MOE) EA Branch	Project Start-up
November 28, 1997	MOE EA Branch	Project Start-up
December 16, 1997	MOE Central Region	Review Terms of Reference study process
January 12, 1998	Town of Pickering	Initial Notification
January 16, 1998	MOE EA Branch	Discuss Project Issues
January 19, 1998	Letter sent to various ministries/agencies	Initial notification
February 24, 1998	OGTA, MMAH, ORC, MOE, OMAFRA, MNR, Ontario Hydro, Environment Canada, Transport Canada, LSRCA, TRCA, Trent-Severn Waterway, GTCG	Identify ministry/agency issues with ToR, identify agency lead contact, review ToR study process
March 17, 1998	Town of Pickering	Discuss Project Issues
March 20, 1998	Region of Durham	Discuss Project Issues
March 20, 1998	Region of Durham Works	Discuss Project Issues
April 15, 1998	MOE EA Branch	Update on Project Status
April 28, 1998	Ministry of Transportation (MTO) Corridor Management Office	Verify lead contact
April 28, 1998	Transport Canada	Discuss Project Issues
May 13, 1998	MOE, Design Approvals	Discuss Project Issues
May 25, 1998	Transport Canada	Discuss Project Issues
May 27, 1998	MTO Corridor Management Office & Environmental Unit	Discuss project issues and Draft ToR materials for review (including EA Work Plan)
May 28, 1998	Coast Guard	Discuss project issues and Draft ToR materials for review (including EA Work Plan)
June 5, 1998	Transport Canada	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
June 15, 1998	Town of Pickering, Department of Fisheries and Oceans-Fish Habitat Management	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
June 16, 1998	Ministry of Municipal Affairs & Housing	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
June 21, 1998	Ontario Ministry of Agriculture, Food and Rural Affairs	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
June 24, 1998	Toronto and Region Conservation Authority	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
June 25, 1998	Ministry of Natural Resources	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
June 26, 1998	Waterfront Regeneration Trust	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 8, 1998	Town of Newmarket, City of Vaughan	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 9, 1998	Town of Whitchurch-Stouffville, Town of East Gwillimbury	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 13, 1998	Town of Aurora	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 15, 1998	MOE EA Branch	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 21, 1998	MOE Design Approvals	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 22, 1998	Town of Markham	Discuss project issues and Draft ToR Materials for Review (including EA Work Plan)
July 28, 1998	Town of Pickering, Peer Reviewer	Provide project update to Peer Reviewer.
August 14, 1998	Town of Pickering, Peer Reviewer	Provide project update to Peer Reviewer and receive Peer Review Comments on Working Draft of the ToR.
September 8, 1998	Town of Pickering, Peer Reviewer	Review Town of Pickering comments on the Draft ToR.
September 22, 1998	Town of Pickering, Peer Reviewer	Review Region of York response to Town of Pickering comments on Draft ToR.
September 28, 1998	MOE EA Branch	Discuss project status and submission of Final ToR.

SUMMARY OF ISSUES AND CONCERNS IDENTIFIED THROUGH CONSULTATION

CONCERN	STAKEHOLDERS	COMMENT	ACTION/RESPONSE
Study Process	Various	General comments requesting additional consultation on this project.	Additional consultation activities undertaken in June, July and September, 1998 to discuss/receive comments on project.
		Terms of Reference should address federal and provincial EA processes	Reference Section 8 – Approvals Required
		Improve presentation and access to of information through reader friendly text colour graphics and simplified reports.	Text modified in ToR to reflect a commitment to address this comment during the EA process.
		Examine York and Durham as co-proponents	This study is being undertaken by York Region, to identify a water supply to meet York Region's projected long-term needs. Durham Region has expressed interest in continued co-operation in the study, however, at this time, Durham Region has not been identified as a co-proponent.
		City of Toronto and Greater Toronto Airport Authority should be added to agency contact list	Comment noted, agencies added.
	Town of Pickering	Role of Pickering as a major participant in this project has not been described.	Text revised to better describe Pickering's participation in this project.
	Region of Durham	Role of Durham in project as a major reviewer and possibly as a co-operator to receive water has not been described in the work plans.	Potential benefits to Durham discussed in Section 2.3 of ToR. Consultation with Durham Region identified under Agency Consultation in work plan components..
	Department of Fisheries and Oceans	This project will likely trigger a review under the Canadian Environmental Assessment Act.	Section 8.0 revised to reflect that approval under CEAA may be required.
Need and Justification	Various	General concerns that York population and growth projections are unrealistic/unsustainable	Population and employment projections are provided by York Region Official Plan
		Alternative water supply sources/ conservation should be investigated	York Region water supply strategy is comprised of four components, including other supply sources and conservation. Reference Chapter 2 of the Terms of Reference.
		Timing and scale of the project should be updated or confirmed	Text revised in Section 3.2 to reflect this comment.

SUMMARY OF ISSUES AND CONCERNS IDENTIFIED THROUGH CONSULTATION

CONCERN	STAKEHOLDERS	COMMENT	ACTION/RESPONSE
Infrastructure Corridor Study Area	Various	Study area should include lands west of the Rouge River (i.e. Scarborough).	Such an alternative was considered in the Master Plan; the Durham West corridor was identified as the preferred corridor (Reference Appendix 1),
		Study area should include more shoreline	Reference Section 5 for discussion of Infrastructure Corridor Study Area Limits
Generation of Alternatives	Interest Groups, Ratepayer Groups	Utilize rights-of-way and green belts as much as possible.	Use of rights-of-way, road allowances and easements noted as primary generation criteria for transmission water mains.
	MTO	MTO's current policies restrict the proximity and orientation of pipeline crossings at controlled access highways.	Restrictions on pipelines noted in Technical Considerations Work Plans
	Transport Canada Ratepayer Groups,	Durham West should be considered a potential water supply for federal airport lands.	Opportunities for supplying the Pickering Airport will be considered in the EA.
	Interest Groups, MNR, TRCA	Minimize or avoid impacts to Duffin's Creek, Rouge River, Little Rouge River	Watercourses noted in Natural Environment Technical Memorandum. Minimizing impacts to all watercourses noted as a generation criteria for water supply components.
	Various	Lake Ontario Shoreline area should not be compromised with respect to current and future recreational uses	Comment noted and incorporated in Socio-economic Environment component of EA Work Plan.
		Rationale of using "Minimization of Distance to End Users" as a Generation Criterion was questioned. It was suggested that criteria such as system hydraulics, disinfection contact time, disinfection residual management and overall minimization of energy use are more appropriate.	It is acknowledged that these are more Analysis and Evaluation factors than Generation Criteria; will include distance to end users in the Rationale for Operations and Maintenance of the Cost criterion of the Technical Considerations component of the final EA Work Plan.
		Emergency/contingency planning is not included as an Alternative Generation Criterion. The ease of contingency planning may differ with the location of facilities.	Include emergency/contingency planning in the rationale for the Operations and Maintenance Indicator in the Evaluation of Alternatives in the Technical Considerations EA Work Plan. This is more of an evaluation factor than a factor to be used in the Generation of Alternatives.
		Avoidance of regionally significant ANSI's should be included as a secondary generation criterion for water supply components.	ANSI's considered in both primary and secondary generation criteria.

SUMMARY OF ISSUES AND CONCERNS IDENTIFIED THROUGH CONSULTATION

CONCERN	STAKEHOLDERS	COMMENT	ACTION/RESPONSE
Evaluation Methodology	Various	General comments relating to the need for public consultation for the ranking of the various criteria	At the Terms of Reference stage, input is being sought on the proposed criteria and proposed evaluation methodology. The public will be consulted on the ranking of the criteria during the EA.
Municipal Water Supplies	Local municipalities	General concerns included connections to existing municipal systems	The existing Leslie Street infrastructure will accommodate the new supply. Details as to the connections to local municipalities have been worked out through York's Optimization Study.
Natural Features	Various	General concerns that significant natural features be noted in the Terms of Reference and properly assessed during the EA.	Secondary data collected from York Region, MNR and TRCA was field verified, as required. Further investigations will be undertaken during the EA, as appropriate to understand the potential impacts.
		Migratory bird staging areas are located in ICSA. These areas are subject to federal legislation.	Comment noted – Effects on wildlife species and habitat included as a criterion in Natural Environment component of EA Work Plan.
		New information is being developed on ESA's, wetlands and ANSI's in the study area. How will this be incorporated?	Data collection will be undertaken at the initial stages of the EA to update secondary information and carry out field visits as necessary. Further field work will be undertaken on the preferred alternative, once identified.
		Tunnelling under watercourses will reduce impacts.	Construction methodology for pipelines will be assessed during the EA.
		Wildlife measures would be better aligned more with size, configuration, structure and connectivity.	Criteria reviewed to address concern. The need to avoid double counting of impacts was also considered in development of measures.
		Concerns about potential for intra basin transfer.	Water taken from Lake Ontario is to be returned to Lake Ontario after treatment.
		Consult with sportsmen and naturalist clubs throughout the project.	Text modified in EA Work Plan to reflect this commitment.
		Maximize the potential to enhance existing corridors and linkages	Generation of alternatives will focus on minimizing impacts to existing corridors and linkages; opportunities for enhancement will be considered during the analysis and evaluation phase, as well as, during preliminary design of the preferred alternative. Criteria added with wording modified to reflect these objectives
	MNR	Early in the EA, MNR would like to identify areas where infrastructure development would be acceptable with appropriate mitigation, and areas where infrastructure development should be avoided.	This approach is consistent with proposed consultation process, which is designed to ensure timely participation of review agencies, municipalities, interest groups and interested individuals.

SUMMARY OF ISSUES AND CONCERNS IDENTIFIED THROUGH CONSULTATION

CONCERN	STAKEHOLDERS	COMMENT	ACTION/RESPONSE
Groundwater	Local municipalities, Residents, Businesses	How will impacts to groundwater be addressed in the EA?	The Technical Considerations component of the Work Plan notes that groundwater impacts will be addressed for the various water supply components under the criterion Geology/Topography.
Municipal Compensation	Local municipalities	Benefits and financial implications to local municipalities (particularly Pickering) should be addressed	The Socio-economic component of the Work Plan notes that municipal compensation and effects on municipal finances will be addressed in the EA, once the impacts associated with the undertaking are better defined. Section 7.2 was also revised to reflect that York Region has agreed in principle to negotiate a municipal compensation agreement with the Town of Pickering.
Land Use	Various	General comments that impacts to various land uses be addressed in the EA. Federal airport lands should be noted as a study area feature, once designated. MMAH currently controls a zoning order around the Pickering Airport lands. Recreational facilities (trails,pool) involve significant capitol investment. Potential for this project to increase pressures of urbanization should be assessed.	Scope of work for assessing impacts to various land uses identified in Socio-economic component of the Work Plan. Federal airport lands designated in announcement by Federal Minister of Transport in July 1998. Airport lands noted in Socio-economic component of Work Plan. Zoning control noted in Socio-economic Technical Memorandum Analysis of impacts to recreational facilities will include cost estimates, which will be added to construction cost of the alternative, as appropriate. The Socio economic Work Plan was revised to reflect that this issue will be addressed in the EA process.
Water Quality	Various	Concerns expressed regarding the proximity of the sewage treatment plant and nuclear power plant to the area proposed for intake alternatives.	Feasibility studies pertaining to the impact of sewage treatment plant outfalls in the vicinity of proposed intake have been carried out during the Terms of Reference. These studies have concluded that the outfalls will have little impact on the raw water quality at the intakes. Accidental releases of tritiated water were also addressed in feasibility studies. Tritium concentrations associated with such spills are at levels well below that which is considered to be of concern. Further studies will be undertaken during the EA.

SUMMARY OF ISSUES AND CONCERNS IDENTIFIED THROUGH CONSULTATION

CONCERN	STAKEHOLDERS	COMMENT	ACTION/RESPONSE
Water Quality	Various	Concerns about impacts to water quality of existing groundwater sources.	The construction activity should not result in any significant impact to groundwater quality, since generally only shallow groundwater sources in the immediate vicinity of the construction will be temporarily affected. Municipal wells are located north of the study area beyond the influence of the construction activity, and most other groundwater wells in this area are at depths which should be unaffected by construction. Nevertheless, groundwater impacts and impacts to wells will be considered during the generation and analysis of alternatives. In addition, guidelines for handling and storage of chemicals used for water treatment will be developed during the EA.
Additional Studies	Various	General comments identifying additional studies to be undertaken during the EA.	Additional studies to be undertaken during the EA are discussed in the EA Work Plan.
Construction Impacts	Various	General comments relating to direct and indirect impacts of construction of the water supply components. Permanent and temporary disruptions to businesses should be considered. For example, winter construction would be less disruptive to Petticoat Creek Park and result in a lower loss of revenues.	Construction techniques and potential impacts to be addressed in the EA. Comment noted. During EA, opportunities for reducing such impacts will be addressed.
Analysis and Evaluation of Alternatives	Various	Important that individual components of undertaking are not assessed individually, but in conjunction with other components. No discussion of potential for staging as an issue. Operations and Maintenance Costs for the Intake will be significant and should be included in the Analysis and Evaluation of Alternatives.	Wording of analysis and evaluation improved to reflect this comment. Include possible staging of construction as an indicator under the Cost Criterion for Analysis and Evaluation of Alternatives in the Technical Considerations EA Work Plan. The wording of the 'Costs' section of item 4.0 of the Technical Considerations component of the EA Work Plan revised to clarify that it is acknowledged that Operations and Maintenance costs for the intake will be considered in the evaluation of alternatives.

SUMMARY OF ISSUES AND CONCERNS IDENTIFIED THROUGH CONSULTATION

CONCERN	STAKEHOLDERS	COMMENT	ACTION/RESPONSE
Analysis and Evaluation of Alternatives	Various	Materials of intakes and transmission mains will affect operations and maintenance costs.	Rationale for Operations and Maintenance Costs of the Technical Considerations EA Work Plan revised to include pipe materials as a consideration.
		Site size, size of existing sewers and distance from water treatment plant to sewer are not Operations and Maintenance related.	Rationale provided why these measures are considered related to Operations and Maintenance; no changes made to this criterion..
		Technical Considerations and Natural Environment components of the EA Work Plan should be better integrated	Final EA Work Plan will include cross-referencing, as appropriate.
		Natural hazards are addressed in part in Technical Considerations component and in part in Natural Environment component of EA Work Plan; concerned that hazards may not be adequately considered in this manner	Wording was revised to clarify how hazard lands will be addressed in the EA process. Co-ordination between technical and natural environment specialists during analysis and evaluation will ensure such issues are addressed appropriately.
		Orientation of pipeline crossing of watercourses needs to be considered.	Orientation of crossing will be incorporated in analysis.
Other Approvals	Various	The Region of Durham expects that Official Plan Amendments may be needed by Durham and possibly by York Region, Pickering, Markham, etc to allow for certain water supply components.	Add Official Plan Amendments to 'Other Approvals' listing in Section 8.
Other Issues	Various	Explain York's property acquisition options	York's property acquisition powers to be explained in the public information material.
		Impacts of increased water supply to York Region on 'downstream' facilities (i.e. sewage facilities) need to be examined.	The sewage system will be sized to meet York Region's long-term needs. A separate Master Plan has been prepared to address future sewage capacity requirements. Impacts to the sewage system in Infrastructure Corridor Study Area can vary, depending on treatment technology selected. Impacts on sewage systems to be assessed during the EA stage.
		Identify service area for new water supply.	The service area was addressed in the Demand Analysis Functional Design Brief. The service area encompasses Vaughan Markham, Richmond Hill, Aurora and Newmarket.
		Identify members and roles of Core Government Review Team	Refer to Section 7 – Consultation during the Terms of Reference.

7.1.6 Second Set of Public Information Centres

A second set of Public Information Centres was held in September 1998. Information Centres were held in five locations (three in York Region and two in Durham Region). The purpose of this set of Information Centres was to:

- Present the Results from the First Public Information Centres;
- Present the Draft Terms of Reference; and,
- Obtain comments on this information and identify issues and concerns relevant to the completion of the Terms of Reference.

7.1.7 Presubmission Review of the Draft Terms of Reference

A draft of the Terms of Reference was made available at the second set of Public Information Centres. At the same time, a draft was circulated to ministries, agencies, municipalities, and interested groups and individuals. A draft of the Terms of Reference was also placed on the York Region website (www.yorkwater.on.ca).

Comments received were considered and documented in the Public Information Centre #2 Summary Report (Appendix 10) and in Appendix 11. A summary of concerns and corresponding actions is incorporated in Exhibit 7.2.

7.1.8 Submission to the Ministry of the Environment

The final Terms of Reference was submitted to the Ministry of the Environment (MOE) on October 27, 1998, for a decision by the Minister of the Environment on approval of the project. MOE is co-ordinating a review by the Core Government Review Team. This review is intended to ensure that the mandates of review team members are given appropriate consideration.

Copies of the final Terms of Reference were also distributed by the proponent to municipalities, representatives of interest and ratepayer groups, as well as interested individuals on the project mailing list. Further comments on the Terms of Reference as submitted to the Minister can be made to MOE during a public comment period that will be established by MOE through the Environmental Bill of Rights Registry. A Notification of Submission was also published by the proponent providing information as to how comments can be submitted to MOE.

7.2 Consultation Plan for the Environmental Assessment Study

The following outlines a proposed plan for consultation during the preparation of the Environmental Assessment.

7.2.1 Consultation with the General Public and Ratepayer and Interest Groups

It is proposed that three series of Information Centres will be held as part of the environmental assessment study. The Information Centres will coincide with:

1. The alternative route and facility siting stage;
2. The analysis and evaluation stage and;

3. The preliminary design of the preferred alternative.

Each Information Centre will be widely advertised to potentially affected stakeholders in the same manner as the Terms of Reference stage.

The Information Centres will allow the public to hear about the status of the project and exchange information. In addition, the Information Centres will allow the members of the Project Team to obtain community environmental knowledge which will be used for project planning. The public will also have an opportunity to have any questions answered.

The Public Information Centres will be augmented by follow-up activities, such as workshops, field trips and informal/kitchen table meetings, depending on the level of interest in participating in these activities.

Within the environmental assessment study, public consultation will involve reviewing, commenting and providing input to the environmental assessment studies, the technical analysis and the ongoing comment/input to the public consultation process. The consultation plan encourages up front, proactive consultation, which will allow the comments and views of the public to help influence the study and its recommendations. To facilitate this, technical reports will be summarized in a newsletter or short form that graphically and succinctly presents results, conclusions and recommendations. In addition, a Project Office will be established in the Town of Pickering to facilitate the exchange of project information.

The Public Consultation Methods proposed to be implemented during the EA are identified in Appendix 7.

7.2.2 Consultation with Municipalities

During the environmental assessment, consultation with municipalities will involve reviewing, commenting and providing input to the environmental assessment studies, the technical analysis and the ongoing comment/input to the consultation process. Generally, consultation with municipal staff and councils will be sought throughout the EA. Liaison with municipal staff will be arranged to obtain information on study area features, as noted in the components in the draft EA Work Plan, exchange pertinent study information and obtain input on project issues pertaining to each municipality. In addition, input from municipal staff will be sought as to the appropriate methods for consultation with their respective councils.

It is noted that the Town of Pickering is in a unique position in that it is the only local municipality outside of York Region that is being considered for the location of infrastructure. In addition to the consultation discussed above, and at the Town's request, York Region has agreed in principle to the negotiation of a Community Benefits Agreement during the preparation of the EA, with the objective of having an agreement in place prior to the submission of the EA for a decision by the Minister of the Environment.

7.2.3 Consultation with Ministries and Agencies

Consultation with 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. Liaison with representatives of the

Core Government Review Team will be arranged to obtain information on study area features, as noted in the components in the draft EA Work Plan, exchange pertinent study information and obtain input on project issues pertaining to each agency's mandate.

8.0 Other Approvals Required

The following approvals may be required, and as the study progresses, other approvals may be identified. Consultation with approval agencies will be held during the EA study to ensure no complications arise at the time of approval, and there can be reasonable assurance that approvals are obtainable.

A number of approvals may be necessary before construction of the identified works can proceed. The approvals identified to date include the following:

- Official Plan Amendments (Municipalities)
- Minister's Zoning Order Amendments (MMAH)
- Building permits (Municipality)
- Site Plan Approvals (Municipality)
- MOE Certificate of Approval (Water)
- MOE Certificate of Approval (Sewage)
- MOE Certificate of Approval (Air)
- MOE Permit to Take Water
- Road Crossing and Encroachment Permits (MTO, Municipality)
- Approvals from local utilities
- Coast Guard Approval (Federal Government)
- Fisheries Act Approval (Federal Government)
- Canadian Environmental Assessment Act Approval (Federal Government)
- By-Law Amendments (Municipality)
- Creek Crossing Permits (TRCA)
- Railway Crossing Agreement
- Ontario Hydro Construction Agreement
- TransCanada Pipeline Crossing Permit
- Inter-Provincial Pipeline Crossing Permit

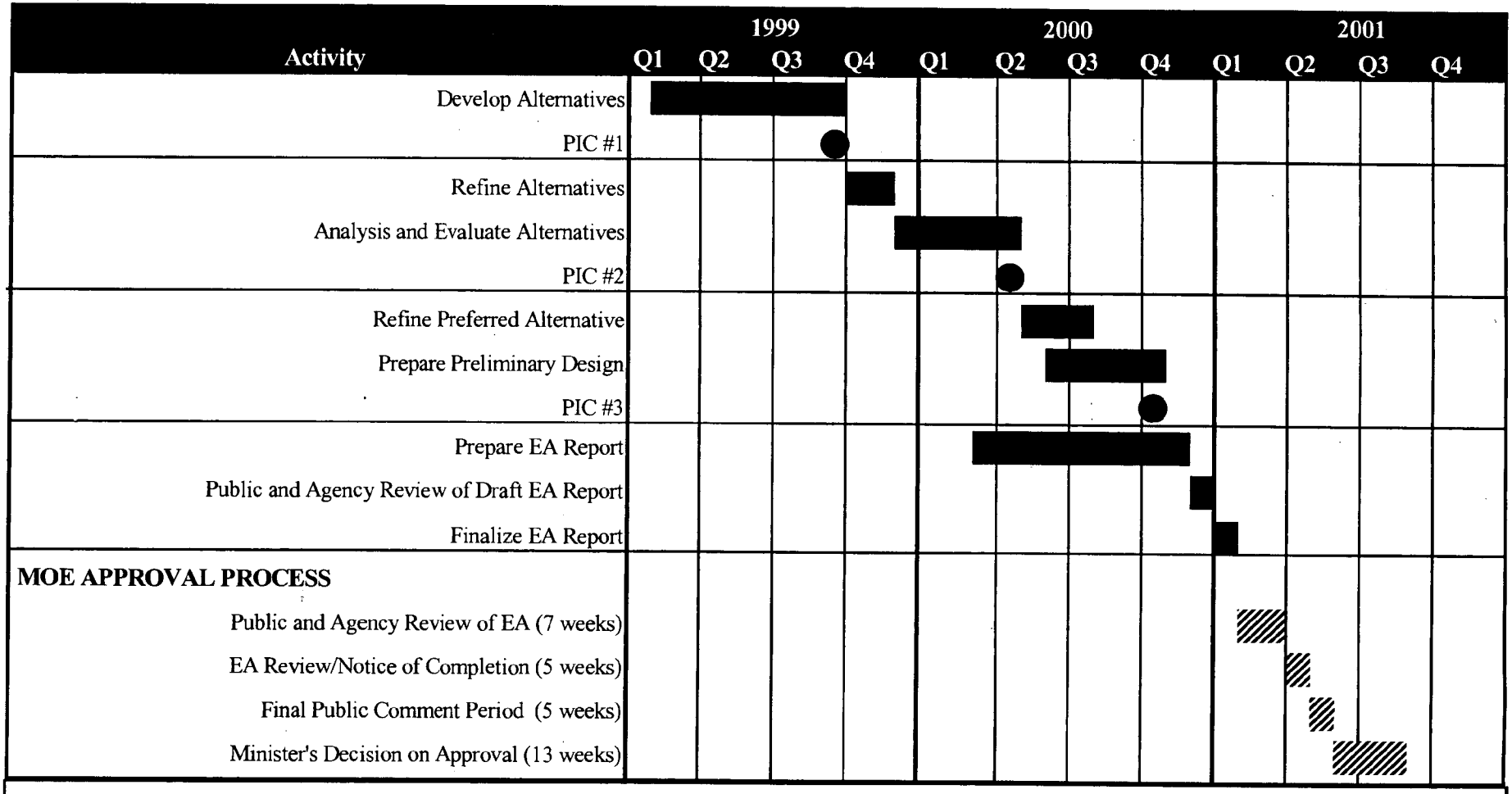
It is recognized that this project has potential to trigger a review under the Canadian Environmental Assessment Act (CEAA). The scope of this review will be limited to the impact of the project on areas of federal responsibility. Discussions will continue with the federal government through the MOE on how to best co-ordinate the provincial and federal EA requirements.

In addition to the technical approvals listed here, a number of other approvals may be identified as part of the range of mitigation measures developed during preliminary design. It is not possible to address all approval requirements for the Durham West solution at the time of seeking EA Act approval. Many subsequent approvals will require detailed design and process information that is not available at the time of EA Act approval. The Region of York is committed to obtaining the necessary approvals at the appropriate time of the implementation phase.

9.0 Proposed Schedule for the Completion of the Environmental Assessment

The proposed schedule for the completion of the Individual Environmental Assessment for the Durham West solution is shown in Exhibit 9.1.

PROPOSED SCHEDULE FOR COMPLETION OF THE INDIVIDUAL ENVIRONMENTAL ASSESSMENT



THE REGIONAL MUNICIPALITY OF YORK - LONG TERM WATER SUPPLY PROJECT

Consumers Utilities

York Region

INTER-REGIONAL CONSULTANTS GROUP

EXHIBIT 9.1