CITY OF TEMISKAMING SHORES
NEW WASTE MANAGEMENT CAPACITY
ENVIRONMENTAL ASSESSMENT

TERMS OF REFERENCE

Submitted to:

City of Temiskaming Shores
325 Farr Drive
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Haileybury, Ontario
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Submitted by:

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TABLE OF CONTENTS

PAGE

LIST OF APPENDICES

LIST OF SUPPORTING DOCUMENTS

TABLE OF CONTENTS (cont.)

PAGE

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AMEC	AMEC Environment & Infrastructure, a Division of AMEC Americas Limited
ATV	All Terrain Vehicle
CAZ	Contaminant Attenuation Zone
City	City of Temiskaming Shores
CEAA	Canadian Environmental Assessment Agency
DFO	Federal Department of Fisheries and Ocean
ECA	Environmental Compliance Approval
EAA	(Ontario) Environmental Assessment Act
EA	Environmental Assessment
EAB	Environmental Approvals Branch
EBR	Environmental Bill of Rights
EEM	Environmental Effects Monitoring
EFW	Energy from waste
ENGO	Environmental Non-Government Organization
EPA	(Ontario) Environmental Protection Act
FN	First Nations
MNDM	(Ontario) Ministry of Northern Development and Mines
MNR	(Ontario) Ministry of Natural Resources
MOE	(Ontario) Ministry of the Environment
MRF	Materials Recovery Facility
NGO	Non-Government Organization
NRC	Natural Resources Canada
ONTC	Ontario Northland Transportation Commission
O.Reg.	Ontario Regulation
OWRA	Ontario Water Resources Act
PWQO	Provincial Water Quality Objectives
RSA	Regional Study Area
Study	EA Study
SWTF	Storm Water Treatment Facility
TC	Transport Canada
ToR	Terms of Reference
WMMP	Solid Waste Management Master Plan
3 R’s	Reduce, Re-use, Re-cycle

1.0 INTRODUCTION

1.1 The Proponent

The City of Temiskaming Shores (the City) is the proponent for the development of new municipal waste management capacity for the City. The City is located in north-eastern Ontario, near the Quebec border, at the head of Lake Temiskaming (Figure 1-1) and has a current population of approximately 10,600 residents. The City was formed in January 2004 through the amalgamation of the former Town of Haileybury, former Town of New Liskeard and the former Township of Dymond into a single tier municipality (Earth Tech, August 2009). The City Contact information is as follows:

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Manager, Engineering & Environmental Services
CITY OF TEMISKAMING SHORES
325 Farr Drive
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Haileybury, Ontario P0J 1K0

1.2 Project History

The City has two existing landfill sites: the New Liskeard Landfill (formally the Town of New Liskeard Landfill) and the Haileybury Landfill (formally the Town of Haileybury Landfill).

The New Liskeard Landfill, located approximately 3 kilometres (km) west of the former Town of New Liskeard off of Rockley Road, has been used for landfilling since 1916 (Earth Tech, August 2009). The Haileybury Landfill, located approximately 9 km southwest of the former Town of Haileybury off of Highway 11 along Dump Road, has been in operation since 1975 (Earth Tech, August 2009).

Prior to amalgamation, the New Liskeard Landfill received waste only from the former Town of New Liskeard, while the Haileybury Landfill received waste from the former Town of Haileybury, the former Town of Dymond, the Town of Cobalt, and from residents of Firstbrooke and Lorrain Townships (Earth Tech, August 2009). The New Liskeard Landfill reached its approved landfill capacity in June 2009, and is currently no longer accepting waste. Today, the Haileybury Landfill accepts landfill waste from the City of Temiskaming Shores and the Town of Cobalt.

Based on waste generation projections, the Haileybury Landfill is expected to reach its approved landfill capacity by mid-2016 (see Section 2). As such, the City's draft Solid Waste Management Master Plan (WMMP) identified the provision of additional landfill capacity to facilitate long-term waste disposal as the second key objective in establishing a sustainable solid waste management program for the City of Temiskaming Shores (Earth Tech, August 2009).

The City also administers a recycling program through the operation of a Materials Recovery Facility (MRF) through the Cochrane Temiskaming Waste Management Board (CTWMB) (Earth Tech, August 2009). The recycling program includes the collection of paper fibres, aluminum and steel cans, container glass, and No. 1 polyethylene terephthalate (PET) plastic which are deposited at eight drop-off depots located throughout the City (Earth Tech, August 2009).

The draft WMMP for the City was completed in August 2008. It recommends the promotion of waste diversion and the provision of new long-term waste disposal capacity.

In response to the recommendations of the WMMP, the City retained AMEC to undertake two Landfill Feasibility Study reports. The reports estimated the City's need for long-term landfill capacity as more than 100,000 m^3. The first report (Existing Sites Report; March 8, 2010) reviewed options for expanding the existing New Liskeard Landfill and Haileybury Landfill sites, which are both owned and operated by the City. The second report (New Sites Report; March 15, 2010) reviewed options for developing a new landfill site at two properties located within the municipal boundary. One property is located outside the municipal boundary but within a 10 km study zone. The second property is the Harley Township Landfill site also located outside the municipal boundary and within a 10 km study zone (given the small size of the Harley site, the development in this location was also considered to represent the development of a new site).

The Feasibility Study was developed under the guidance of the City's Technical Advisory Committee (TAC) and the final report (AMEC 2010) was approved by Council on December 14, 2010. The Feasibility Study examined all alternatives on the basis of a comprehensive set of criteria addressing the natural environment, public health, socio-economic/cultural factors, technical issues and cost. The overall most preferred option for the provision of new landfill capacity was determined to be the expansion of the existing New Liskeard landfill site.

1.3 Initial and Refined Project Proposal

The City issued a public notice to communicate the commencement of the Terms of Reference (ToR) process for an Environmental Assessment of the expansion of the New Liskeard Landfill Site. This also included an invitation to a Public Open House event. Publication dates for the notice on the ToR and invitation to Public Open House are presented in Table 1-1.

Table 1-1: Public Notices and Publication Dates

Purpose for Public Notice	Newspaper/Radio	Publication Date
Notice of Commencement of ToR and Invitation to Public Open House	CJTT-FM (104.5 FM)	April 28, 2011
Notice of Commencement of ToR and Invitation to Public Open House	The Temiskaming Speaker	May 4, 2011
Notice of Commencement of ToR and Invitation to Public Open House	The Temiskaming Weekender	May 6, 2011

As part of the EA, the City held an Open House on May 9, 2011 with the purpose to introduce the project and to discuss draft ToR for the environmental assessment. The draft ToR was submitted to the Ministry of the Environment (MOE) on August 17, 2011. The draft ToR recommended the acceptance of the recommendations of the City's Feasibility Studies and proposed to limit the assessment to a proposed expansion of the existing New Liskeard landfill site.

The City revised the initial draft ToR and project proposal based on responses obtained from stakeholders, in particular the MOE. Key changes relate to the scope of the EA process. The revised draft ToR proposes to review and assess a wider range of options for new waste management capacity without preference for any particular approach. To reflect this new approach the title of the project has been changed to *City of Temiskaming Shores New Waste Management Capacity Environmental Assessment.*

1.4 Provincial Environmental Assessment Process

An environmental assessment is a decision-making process used to promote good environmental planning. In Ontario, this process is defined and finds its authority in the *Environmental Assessment Act* (EAA). Proceeding with an undertaking under the EAA is a two step process involving:

- Preparation of Terms of Reference; and
- Preparation of the Environmental Assessment.

Figure 1-2 provides a schematic flow chart of the EA process. Public consultation and involvement of Aboriginal communities is an integral part of both steps and extending over the duration of the entire EA planning process (see Section 8).

The City of Temiskaming Shores New Waste Management Capacity EA will involve the evaluation of alternatives that consist of either the establishment of a new facility or the change to an existing landfill that would add more than 100,000 m^3 to the total waste disposal existing volume. As a result, Ontario Regulation (O.Reg.) 101/07 (Waste Management Projects Regulation) under the EAA, indicates that the project will be subject to Part II of the EAA.

Terms of Reference

The preparation of the ToR provides the framework and requirements for preparation and review of the EA. Upon completion, the ToR was submitted to the MOE for review and a decision regarding approval. This ToR proposes that the EA will be prepared in accordance with subsection 6(2)(a) and 6.1(2) of the EAA, and the MOE's *Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario* (MOE 2009). This ToR includes:

- Identification of the Proponent (Section 1 of this document);
- The purpose of the study (Section 2);
- The Description and Rationale for the Undertaking (Section 3);
- Description of the existing environment and potential effects (Section 4);
- The process for evaluating and selecting a preferred Alternative(s) to the Undertaking (Section 5);
- The process for evaluating and selecting a preferred Alternative Method(s) (Section 6);
- A commitment to carry out compliance monitoring (Section 7);
- A description of the Consultation Plan proposed for the Environmental Assessment (Section 8);
- A discussion of flexibility to accommodate new circumstances during the planning process (Section 9); and
- Activities following approval of the EA Report and other approvals required (Section 10).

The activities undertaken as part of the consultation on the ToR as well as the results of these activities are presented in a stand-alone compendium document *Record of Consultation: City of Temiskaming Shores New Waste Management Capacity Environmental Assessment* (AMEC 2012).

Environmental Assessment

The second step in the planning process, the EA itself, is prepared in accordance with the requirements set out in the ToR as approved by the Minister. In accordance with subsection 6.1(2) of the EAA, the EA for identifying additional waste management capacity to manage solid waste from the City of Temiskaming is proposed to consist of:

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

- the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking and identified alternatives.

- An evaluation of the advantages and disadvantages to the environment of the undertaking and identified alternatives;
- A description of any consultation about the undertaking by the proponent and the results of the consultation; and
- Any maps or documents as required under the EAA or based on the provisions of O.Reg. 334 under the EAA.

1.5 Federal Environmental Assessment Process

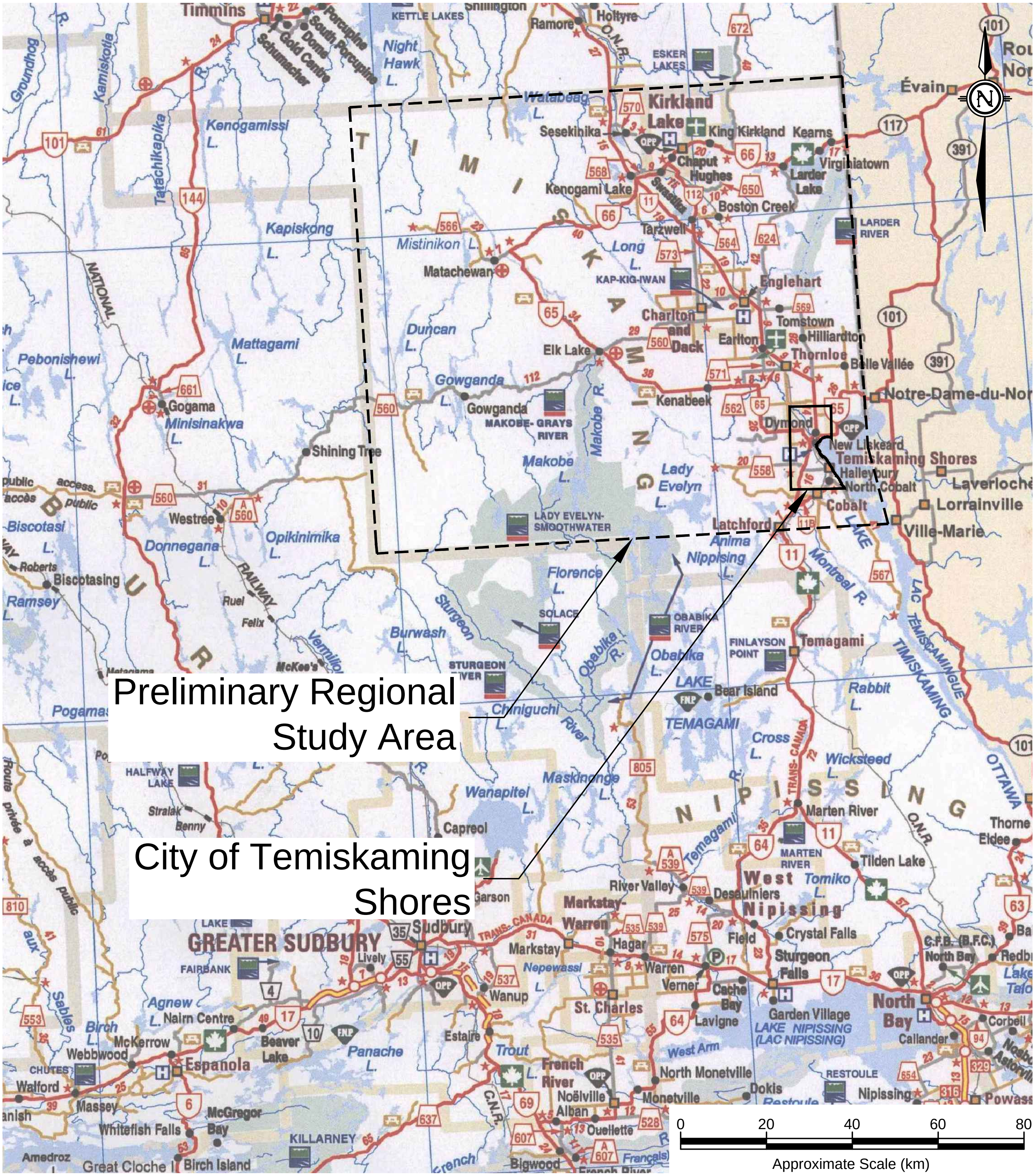
The *Canadian Environmental Assessment Act* (CEAA) details the federal EA process. Federal departments and agencies have to be consulted, if federal funding, land transfer and permitting are requested or applicable to the proposed undertaking.

At this point in time, the development of new waste management capacity is not expected to invoke any federal triggers listed under CEAA. At this stage in the planning process, no federal funding or federal land is sought and no permit is anticipated pursuant to federal legislation. As well, the requirement for a federal permit under Section 35 of the Fisheries Act is not anticipated.

As more details on the proposed project are developed, the City intends to work in a coordinated way with the provincial and federal governments, both governments having formally agreed to coordinate their respective EA processes pursuant to the Canada-Ontario Agreement on EA Cooperation (November 2004).

It is recognized by both the Canadian Environmental Assessment Agency (on behalf of the federal authorities – see CEAA 2005), and the City, that ongoing dialogue on the information requirements is required throughout the EA process as more is learned about the specifics of the undertaking. General information requirements under CEAA can be found in the Supporting Document #1 (based on CEAA 2005).

The City's efforts to coordinate with the provincial and federal governments will further be based on the guidance document issued by MOE titled *Federal/Provincial Environmental Assessment Coordination in Ontario - A Guide for Proponents and the Public*. *Facilitating Implementation of the Canada - Ontario Agreement on Environmental Assessment Cooperation* (MOE 2007c).



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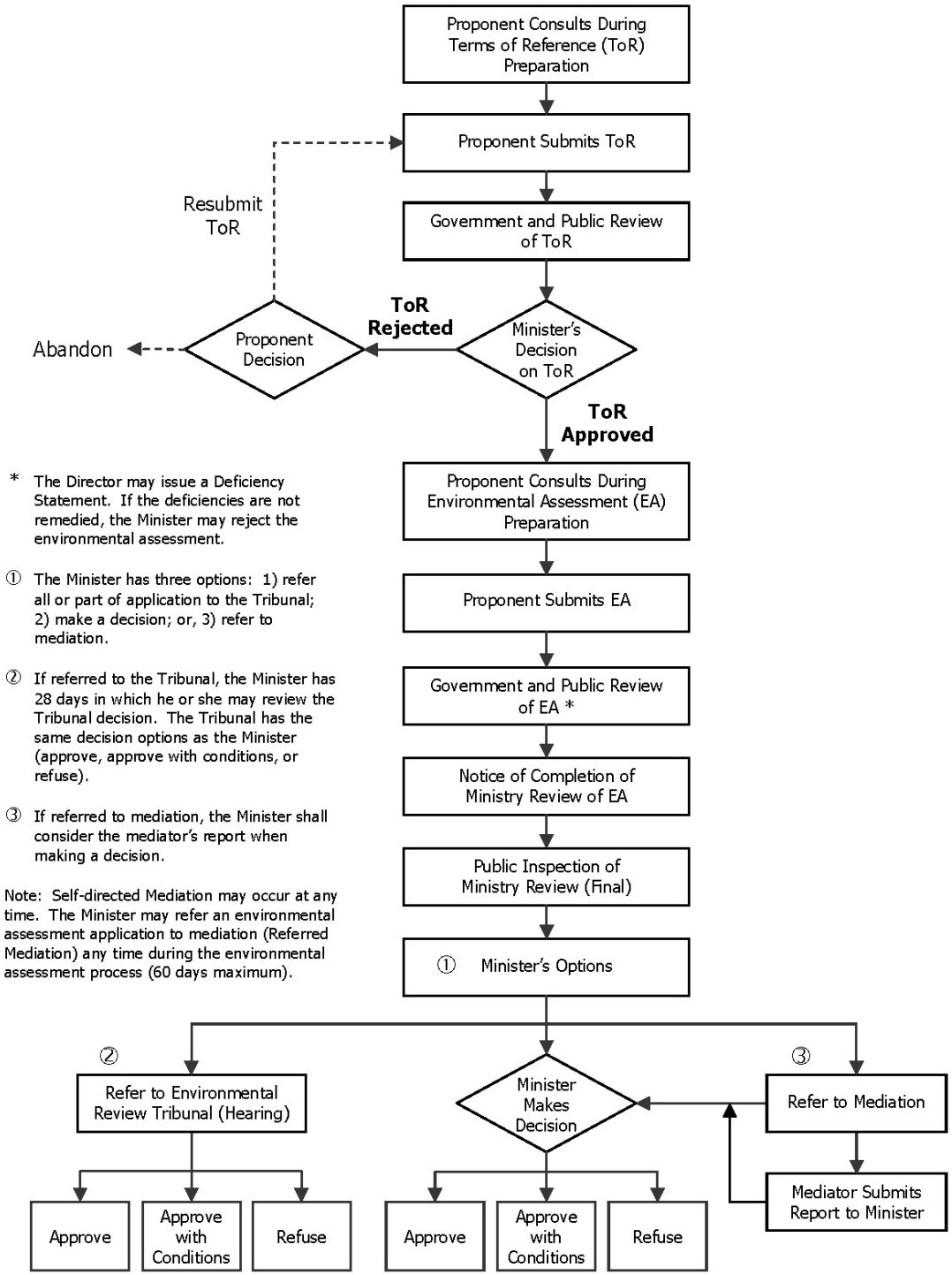
PROJECT Environmental Assessment, New Waste Management Capacity - Terms of Reference	DWN BY: KKJ	CHK'D BY: TIM	DATE: May 2012 PROJECT NO: TY910491
TITLE Location Map	REV. NO.: 1	SCALE: as shown	FIGURE NO: 1-1

Figure 1-2: Environmental Assessment Process (Source: MOE, 2009) (Simplified)



2.0 PURPOSE OF THE EA STUDY

2.1 Current Landfill Capacity, Landfill Practice, Waste Characteristics

Currently, the City has two existing landfill sites: the New Liskeard Landfill (formerly the Town of New Liskeard Landfill) and the Haileybury Landfill (formerly the Town of Haileybury Landfill). The Haileybury Landfill is the only existing landfill site within the City boundaries with remaining landfill capacity. The remaining capacity of the site is estimated to be approximately 188,691 m^3 (as of end of 2008) including waste and daily cover soil volumes (AMEC 2010).

The City's current waste management practices focus on the provision of three main services: 1) solid waste collection; 2) solid waste disposal; and 3) recycling/waste diversion (Earth Tech 2009):

Solid Waste Collection

The collection of solid waste within the City is governed by the various policies, by-laws and programs established by the former Towns of Haileybury, New Liskeard and Dymond prior to the January 2004 amalgamation. These policies focus on the collection of waste materials from residential, industrial, commercial and institutional sources. In general, residential waste is collected on a weekly basis in the summer months and bi-weekly in the winter months within the City. Industrial, commercial and institutional solid waste is collected on a weekly basis in the summer months and on a bi-weekly basis in the winter months within the City with the exception of the former Town of New Liskeard (waste collection there occurs twice weekly) (Earth Tech August 2009).

The City operates various special waste collection programs, such as the annual Christmas tree, Spring Clean-Up and Bulky waste programs where residents can deposit "non-collective waste" such as furniture, large diameter branches, white goods (i.e., stoves and furnaces), fencing, mattresses, bed springs and other general household items at the curb side for collection. (Note: In 2011, council replaced the Spring Clean-Up and Bulky waste program in favour of three Amnesty weeks annually). The City also operates a limited Hazardous Waste Program for the collection of old/used paint, oils, propane tanks and batteries. Additionally, residents and contractors are able to bring solid waste to the City's landfill sites for disposal (Earth Tech August 2009).

Solid Waste Disposal

Subsequent to amalgamation, the New Liskeard Landfill reached its approved landfill capacity in June 2009, and is currently no longer accepting waste. Today, the Haileybury Landfill accepts landfill waste from the entire City, as well as the Town of Cobalt. The Haileybury Landfill is expected to reach its approved landfill capacity by mid-2016 (Section 2.2).

Recycling/Waste Diversion

The City also has a Material Recovery Facility (MRF) operated by the Cochrane Temiskaming Waste Management Board (CTWMB) for the collection of recyclable materials. Earth Tech reports that the current MRF does not have the capacity to accommodate the additional volume of recyclable materials resulting from amalgamation and the location of the MRF limits the possibility of expansion (Earth Tech, 2009). As such, the City's ability to divert recyclable materials from the waste stream is restricted. While waste diversion can increase the existing and proposed site life, the technology does not currently exist to achieve 100% diversion. The Municipality continues to investigate waste diversion/reduction opportunities.

Additionally, the City currently is in contract with Phippen Waste Management (Phippen) to manage and operate the Haileybury Landfill (Earth Tech, August 2009). It should be noted that Phippen was also in contract to manage and operate the now suspended New Liskeard Landfill. Phippen continues to separate bulk items such as white goods (i.e., disposed appliances), waste tires, glass, inert construction fill and reclaimed asphalt, from the landfilled solid waste at the open Haileybury Landfill. These bulk items are generally stockpiled on-Site for removal on an as needed basis.

2.2 Identified Need

Based on the estimated remaining capacity of the Haileybury Landfill (approximately 188,691 m^3 at the end of 2008) and the estimated average annual waste generation rate of approximately 19,500 m^3, the City has identified a need for additional waste management capacity of 685,000 m^3. This represents a conservative estimate for a 30-year planning period (January 2009 to December 2039) (AMEC 2010). Details of the calculations including underlying assumptions are presented in Appendix A (Sections 2.3 and 2.4 of the Feasibility Study for Development of a Long-term Landfill Disposal Strategy - AMEC, 2010).

The quantification and characterization of future waste volumes will be reviewed and refined during the initial stages of the EA process and documented in the EA report. This will take into consideration the City's current and future waste diversion (recycling) efforts.

This ToR proposes that the EA process looks beyond earlier studies. The EA will consider and evaluate a wide range of alternatives to address the identified need for more waste management capacity for a 30-year planning period.

2.3 Summary of Purpose of EA Study

In summary, the purpose of the EA Study is to provide additional waste management capacity for the City of Temiskaming for a 30-year planning period. Based on waste generation projections, the Haileybury Landfill Site is expected to reach its approved landfill capacity by

mid-2016. The EA process has been initiated to find a solution to this impending waste management capacity limitation.

In particular, the EA Study will:

- Identify alternatives to and alternative methods of providing additional waste management capacity for up to 685,000 m^3 of non-hazardous solid municipal waste;
- Assess the environmental effects associated with the alternatives;
- Determine the overall preferred alternative and its environmental effects;
- Develop measures to avoid, minimize and/or mitigate adverse effect of the proposed undertaking; and
- Provide a detailed rationale for and description of the proposed undertaking resulting from the planning process.

Another goal of the EA Study is to provide transparency in the decision-making process and opportunities for public consultation and involvement of Aboriginal communities in the planning process.

3.0 RATIONALE FOR AND DESCRIPTION OF THE UNDERTAKING

No specific undertaking has been defined at this point in the planning process. The potential options for managing the City's waste beyond the closure of the Haileybury Landfill Site are discussed in Sections 5 and 6 of this ToR. The planning process proposed in this ToR provides for the identification and evaluation of a wide variety of alternatives and the selection of the overall preferred alternative (the undertaking). Upon completion of the assessment of alternatives, the EA document will provide the rationale for the proposed undertaking together with a detailed description of its physical and operational components, associated schedules and an outline of other necessary approvals.

4.0 DESCRIPTION OF THE ENVIRONMENT AND POTENTIAL EFFECTS

For the purposes of this Study, the term "environment" reflects the definition in the EAA, which includes natural, social, cultural and economic environments and features. The existing environmental conditions will be described in detail in the EA Report to the extent that they are relevant to the discussion and evaluation of the alternatives and the proposed undertaking.

The following description of the existing environmental conditions is considered preliminary. It addresses key components of the environment in the Preliminary Study Area (see below) with a focus on the City of Temiskaming Shores. A final detailed description of the existing environment will be provided in the EA.

4.1 Preliminary Study Area

The preliminary Regional Study Area (RSA) has been defined as outlined in Figure 4-1. The preliminary RSA illustrates an initial indication of the area in which alternatives will be considered as related to the identified need and the objectives of the EA Study (Section 2.0). The preliminary RSA is subject to review and discussion during the ToR development process and the initial stages of the EA. It is anticipated that the preliminary RSA will be refined as the process evolves. Further, as specific options for waste management are identified (e.g., waste export; development of a new landfill site; expansion of an existing site), the process is likely to develop one or more site-specific local study areas.

The rationale for any study area adjustments or delineation of local or site specific study areas will be provided in the EA document and will be subject to consultation as part of the EA process.

4.2 Data Collection

Initially, existing studies and reports as well as readily available information such as Official Plans, Ministry of Natural Resources (MNR) and Environment Canada, and Statistics Canada databases will be used to provide a description of the environment in the EA Report.

Once local or site specific locations are identified in the Study, the City's existing reports and field data (e.g., hydro-geological drilling and monitoring programs) will be used if relevant for the subject locations. They will be examined to prepare the detailed description of the existing environment for the EA Report. If required for the evaluation of specific site locations, site-specific studies will be undertaken to supplement the description of the existing environment and to facilitate the effects assessment, the concept designs, and to provide baseline data for comparison against future monitoring results. This could include, but not limited to studies such as surface and groundwater investigations, vegetation and wildlife surveys, or air quality investigations. A list and explanation of the tools (i.e. studies, tests, surveys, mapping, etc.) that were used to provide a more detailed description of the environment will be finalized in the EA.

4.3 Natural Environment

Geological Setting

The Temiskaming Shores area is known as the Little Clay Belt, a large glaciolacustrine clay plain deposited by Lake Barlow during the Late Pleistocene within the Temiskaming Rift Valley created by a series of faults. Surrounded and bounded at depth by igneous and metamorphic rocks of the Precambrian Shield, the deposits of the rift valley include dolostones, limestones, shales and sandstones up to 310 m thick overlying the Precambrian rocks. Quaternary overburden overlies the sedimentary rocks. The Quaternary units include a basal diamicton overlain by glaciofluvial sand and gravel, and glaciolacustrine varved clay. The sand and gravel deposits form important regional aquifers with thicknesses of up to 30 m or more (KPC, June 2003).

Surface Water

Numerous surface water bodies are located within the Temiskaming Shores Study Area which range from large rivers and lakes to smaller brooks and ponds. Major water bodies located within the Study Area include Lake Temiskaming, Ottawa River, Sharpe Lake, Wilgar Lake, Graham Lake, Sasiginaga Lake, Wabi River, and South Wabi Creek.

Aquatic Environment (Fish and Fish Habitat)

The Temiskaming Shores area provides a range of warm and cold water fish habitat. Common fish species identified within the various rivers and lake include: Brook Trout, Northern Pike, Lake Sturgeon, Lake Trout, Smallmouth Bass, and Walleye (TCL 2010). The Wabi River and South Wabi Creek have both been identified as important fish spawning habitat, in particular for Brook Trout (TCL 2010). The Temiskaming Shores area contains two lakes (Lake Temiskaming and Sasiginaga Lake) that provide fish habitat and are specifically managed for Lake Trout under the MNR Lake Trout Management Designation Program (MNR 2006).

Terrestrial Environment (Flora and Fauna)

<u>Vegetation</u>

Mixed wood forest communities represent the most dominant forest type in this Temiskaming Shores area and tend to have a more or less equal representation of coniferous and deciduous trees. Deciduous forest communities occurring in the area are typically comprised of pure stands of deciduous tree species such as Trembling Aspen and Balsam Poplar. Pure coniferous tree stands can also be observed in the area, which are typically dominated by species such as Black Spruce, Tamarack, and Balsam Fir.

As a result of the various historic and present day land use practices (e.g., mining, forestry, urban development), these forests are present in a wide range of successional stages including

early pioneer/regenerating communities as well as mature communities and all stages in between.

Provincially listed rare species identified within the Temiskaming Shores area include: Cloud Sedge (*Carex haydenii*), Limestone Oak Fern (*Gymnocarpium robertianum*), Black tern (*Chlidonias niger*) and Ruddy Duck (*Oxyura jamaicensis*).

Wildlife

This diverse landscape offers a number of different habitats available for a wide range of flora and fauna species including large game species such as Moose and Black Bear.
Species at Risk

Studies to be undertaken as part of the EA process will include a review of federal and provincial records on sensitive features, species and associated habitats which may overlap with the Study Area (e.g., a raptors nest, deer wintering areas, Species at Risk, etc.). Field work will be undertaken to document existing conditions. This will be based on such approaches as the Ecological Land Classification system or the Forest Ecosystem Classification System.

Desktop and field studies will provide for a description of vegetation communities, wildlife, Significant Wildlife Habitat (including Species of Special Concern), wetland areas, and Species at Risk (Endangered and Threatened). Special attention will be placed on 'Species at Risk' (SAR), potential SAR habitat in the subject lands, and SAR occurrences.

Other

Other natural environmental components such as climate characteristics and air quality will be presented in the context of the EA (see Sections 5 and 6).

4.4 Social, Economic and Cultural Environment

Communities and Demographics

The City of Temiskaming Shores is comprised of the former municipalities of New Liskeard, Haileybury and Dymond, and has a total population of approximately 10,600 residents. The City is situated near the Quebec border, at the head of Lake Temiskaming, which stretches more than 100 km south, eventually becoming the Ottawa River.

Neighbouring communities include Englehart, Earlton, Cobalt, Coleman, Latchford, Elk Lake, Hudson, Harley, Casey, Armstrong, Kerns, Harris, Hilliard, Thornloe and Brethour. The nearest northern Ontario urban centres outside of the City of Temiskaming Shores are Kirkland Lake (with a population of approximately 9,000), situated 90 km to the north; Timmins (with a population of approximately 45,000), situated 200 km to the northwest; North Bay (with a

population of approximately 54,000), situated 160 km to the south; and Sudbury (with a population of approximately 185,000), situated 225 km to the southwest.

Land Use

Temiskaming Shores consists of an urban-centered municipality that is surrounded by a large rural area where the majority of development and settlement has occurred within the townships of Haileybury, New Liskeard and Dymond. Land use within the rural section of the district consists primarily of resource use focused on farming and mining while residential, commercial, institutional and industrial development is primarily focused within the urban centers.

A large network of snowmobile and ATV trails exists within the municipal boundaries of the City. The trail system is important to the local economy as it generates revenues to support local restaurants, gas stations, hotels, retailers, etc.

Once specific candidate sites are being considered in the assessment of alternatives, planned and existing land uses, and policies will be described on the basis of municipal strategic plans and by-laws, as well as provincial policies and guidelines related to waste management. To further facilitate the assessment of alternatives, the location of sensitive land uses, in particular, potential receptors to noise emissions will be determined on a site–by site basis and in accordance with MOE's Noise Guidelines for Landfill Sites (MOE, October 1998)

Transportation

The major transportation corridor for the area is Highway 11 which connects the communities to North Bay to the south and Cochrane to the north. Highway 65 is the main corridor that connects Temiskaming Shores to Elk Lake to the west and Quebec to the east. The Ontario Northland Transportation Commission (ONTC) operates freight and passenger rail services as well as a coach bus services that run directly through the urban portion of Temiskaming Shores. This service acts as a transportation corridor connecting northern communities such as Timmins and Cochrane to southern communities south as North Bay connecting to Canadian Pacific Rail lines for Canada wide connections (TCL 2010).

Aboriginal Communities

Aboriginal communities located in the general region include (Chiefs of Ontario 2009; AANDC 2012):

- Algonquin Anishinabeg Tribal Council;
- Algonquin Nation Secretariat;
- Barrière Lake First Nation;
- Beaverhouse First Nation

- Communauté anicinape de Kitcisakik;
- Conseil de la Première nation Abitibiwinni;
- Eagle Village First Nation – Kipawa;
- Kitigan Zibi Anishinabeg;
- Long Point First Nation;
- Matachewan First Nation;
- Mattagami First Nation;
- Nation Anishnabe du Lac Simon;
- Temagami First Nation;
- Timiskaming First Nation;
- Wahgoshig First Nation;
- Métis Nation Ontario;
- Temiskaming Metis Council; and
- Wolf Lake First Nation.

Economy

The City of Temiskaming Shores serves as the service and commercial centre for a large agricultural, forestry and mining region, and is also the gateway to the largest travel region in Ontario. The City acts as the regional centre, providing education, health and public administration services, to the 25,000 residents living in the remainder of the Temiskaming District. While mining and forestry are still important to the local economy, other industry sectors have emerged as major employers, including (TCL 2010):

- Sales and Service;
- Trade transport and equipment operators;
- Business Services;
- Health and social services; and
- Business, finance and admin.

Other

Other social, cultural, and economic environmental features such as archaeologically significant areas, heritage features, specific recreation infrastructure. Potentially sensitive noise receptors

(residences; hospitals etc.), and traffic noise levels will be presented in the context of the EA (Sections 5 and 6).

4.5 Potential Environmental Effects and Mitigation

The development of new waste management capacity for the City has the potential to adversely affect the natural environment (e.g., groundwater resources; air quality, habitat), as well as the socio-economic environment (e.g., heritage resources, employment, property values). The type and extent of potential effects would depend on a number of factors, in particular, the type of management approach and technology to be applied and the location at which this is to be implemented. The options for additional waste management capacity may include such approaches as a waste export to an existing site, development of a new landfill site, a thermal waste treatment facility, and an energy-from-waste (EFW) facility (see discussion in Section 5). No matter which option will be selected as the preferred, its potential adverse effects will be determined as part of the EA process and measures developed to avoid and minimize adverse impacts to the extent possible and to ensure compliance with all applicable regulatory requirements.

Typical concerns associated with a landfill operation, for example, relate to possible adverse effects on groundwater resources and effects such as odours, noise, dust and/or vermin. A landfill operation could represent an issue near residential areas and homes that depend on their own well for water supply. Primary environmental concerns related to thermal treatment of waste either through a thermal waste treatment facility or employing certain EFW technologies that rely on incineration, typically focus on the effects on air quality and human health. This is particularly the case if such a facility is proposed for a location close to built up areas, hospitals or in the vicinity of outdoor recreation areas.

From a socio-economic perspective, the effects of developing new waste management capacity can be both adverse as well as beneficial. Adverse socio-economic effects could be caused by increased road traffic due to waste haulage. This could affect road safety and noise levels and therefore could, indirectly and adversely affect property values along the haul route. Beneficial effects would be expected if the new capacity contributes to the long-term economic viability of the City.

For each of the above discussed approaches, a range of measures is available that is suitable to avoid or minimize the adverse effects. For example, to minimize odours from a landfill operation, daily (non-odorous) cover material can be applied on newly landfilled material. To minimize a landfill's adverse effects on groundwater, leachate management systems can be installed and operated. Air pollutant control systems can be utilized in thermal or EFW facilities to reduce the environmental effects from air emissions. To minimize the effects of any truck-based waste haulage (or recycled materials) scheduling of the truck traffic outside of peak traffic periods (rush hour) and routing the traffic away from sensitive receptors (e.g., schools, hospitals) are potential measures. An example for enhancing the beneficial economic effects of

the provision of new landfill capacity could be the proponent's commitment to the use of local and regional services during construction and procurement. This would maximize benefits for local labor and service markets. Table 4-1 provides a few examples of the typical concerns and associated management/mitigation measures for the four options outlined above.

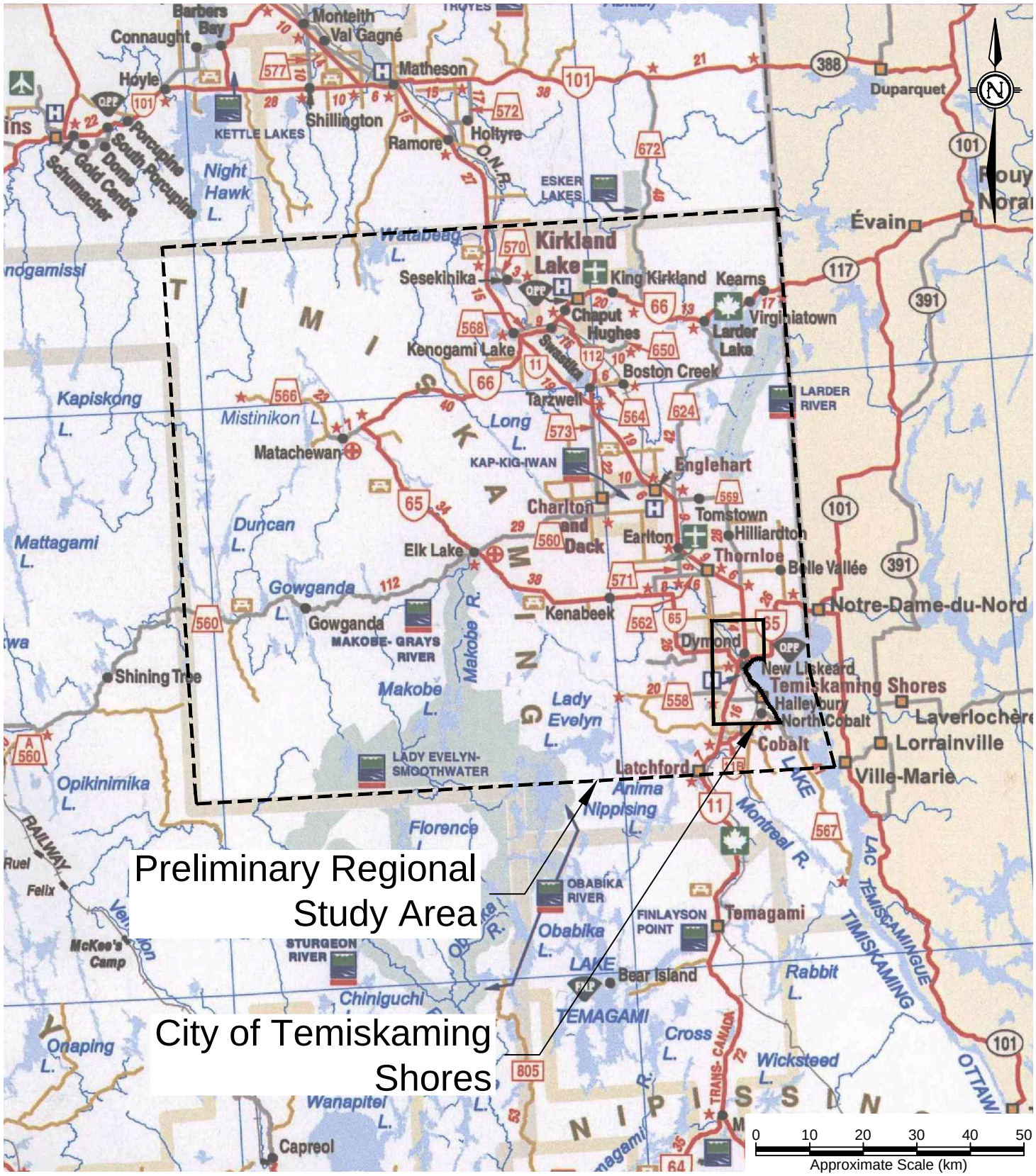
Table 4-1: Typical Concerns and Impact Management Measures

Waste Management Alternative	Typical Concerns	Examples for Impact Management/Mitigation Measures
Waste disposal in landfill	• Loss of habitat; • Effects on Species at Risk	• Siting of landfill away from significant habitat • Minimize facility size/footprint • Compensation plantings
	• Odours and vermin	• Siting of landfill away from built up areas • Daily application of (non-odorous) cover material • Good housekeeping • Separate collection and composting of organic wastes
	• Adverse effects on surface water	• Siting of landfill away from open water (e.g., lakes, creeks) • Implement/maintain surface water and stormwater management systems to divert surface water around landfill or collect and treat surface water contacting the site
	• Adverse effects on groundwater	• Siting of landfill away from groundwater wells • Install and operate leachate management systems
	• Noise levels at nearby receptor locations	• Siting of landfill away from noise sensitive land uses • Establishment of noise abatement measures (noise barriers, perimeter plantings) • Limitations on operating hours
	• Waste haul and effects on dust, noise, and traffic safety	• Selection of haul route away from sensitive land uses • Prescribed haul routes • Scheduling of haul operations
	• Land fill gas generation	• Design and operation of a landfill gas management system
	• Dust	• Implement dust abatement measures such as wetting unpaved roads
Thermal waste treatment facility	• Adverse effects from air emissions	• Siting of facility away from sensitive land uses • Install and operate air pollutant control systems
	• By-products need to be landfilled at an off-site facility – increase local truck traffic, potential groundwater impacts from leachate	• Schedule truck traffic outside of peak traffic periods (rush hour) • Route traffic away from sensitive receptors (e.g., schools, hospitals) • Dispose of by-products in an engineered landfill site

Waste Management Alternative	Typical Concerns	Examples for Impact Management/Mitigation Measures
	• Noise levels at nearby receptor locations	• Siting of treatment facility away from noise sensitive land uses • Implementation of noise abatement measures (equipment mufflers, noise barriers, perimeter plantings) • Limitations on operating hours
Energy from waste (EFW) facility	• Adverse effects from air emissions	• Siting of facility away from sensitive land uses • Install and operate air pollutant control systems.
	• By-products need to be landfilled at an off-site facility – increase local truck traffic, potential groundwater impacts from leachate	• Schedule truck traffic outside of peak traffic periods (rush hour); and • Route traffic away from sensitive receptors (e.g., schools, hospitals).
	• Noise levels at nearby receptor locations	• Siting of EFW facility away from noise sensitive land uses • Implementation of noise abatement measures (equipment mufflers, noise barriers, perimeter plantings) • Limitations on operating hours
Waste export	• Truck traffic for hauling waste materials to receiver location outside of COTS	• Development of a prescribed haul route (away from sensitive receptors such as schools, hospitals etc.) • Scheduling of truck traffic outside of peak traffic periods (rush hour) • Development of one or more transfer stations to maximize efficiency of waste haulage
Waste import	• Truck traffic for hauling waste materials to receiver location within COTS	• Concerns are dependent on what type of facility will be used to process the imported materials (see text above). • For haul related management/mitigation measures see above notes on waste export

The EA process evaluates the potential environmental effects of a proposed undertaking. This includes the identification and evaluation of alternatives. The EA process ensures that the identified need is addressed in such a way that it causes, from an overall perspective, minimal environmental effects. The proposed approach to the consideration and evaluation of such alternatives is discussed in the subsequent Sections 5 and 6.

Once the evaluation of alternatives is complete, the preferred approach (i.e., the proposed undertaking) will be defined in detail. This includes the establishment of mitigation measures that aim at further avoiding and/or minimizing adverse effects, maximizing beneficial effects, and ensuring regulatory compliance. The proposed approach to the development of mitigation measures is discussed in Sections 6.3 and 6.4.



AMEC Environment & Infrastructure
131 Fielding Road
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City of Temiskaming Shores

PROJECT: Environmental Assessment, New Waste Management Capacity - Terms of Reference	DWN BY: KKJ	CHK'D BY: TIM	DATE: May 2012
			PROJECT NO: TY910491
TITLE: Preliminary Regional Study Area	REV. NO.: 1	SCALE: as shown	FIGURE NO: 4-1

5.0 ALTERNATIVES TO THE UNDERTAKING

The EA process will identify and evaluate “Alternatives To” that could address the identified need as well as “Alternative Methods” for the implementation of the preferred Alternative To (the undertaking).

Alternatives To are defined as functionally different ways of addressing the identified problems and opportunities. For this EA, this includes such waste management approaches as waste recycling programs, waste export, thermal treatment of waste, and landfilling. The proposed approach to the identification of these Alternatives To and a preliminary list are presented below.

Once the preferred Alternative To is determined, Alternative Methods will be identified and evaluated and the preferred method determined. For example, should landfilling be identified as the preferred Alternative To, the options for locating and designing the landfill represent Alternative Methods. The proposed approach to the identification of Alternative Methods and a preliminary list is presented in the subsequent Section 6.0

5.1 Identification of Alternatives To

A reasonable range of Alternatives To, i.e., potentially suitable approaches to the identified problem will be established based on the study team’s experience with waste management and based on input obtained through stakeholder consultation and involvement of Aboriginal communities.

At this point in time, the study team has established a preliminary list of Alternatives To for consideration in the EA that includes, but is not limited to:

- “Do nothing”;
- Thermal technology (waste incineration);
- Energy from waste approach;
- Waste export;
- Waste import; and
- Landfilling.

It is of note that waste diversion has not been listed as an Alternative To. Waste diversion is already in place and will continue to be pursued by the City regardless of which option for management of residual waste will be chosen. The City’s waste diversion efforts however will be taken into account in the EA process in the quantification and characterization of future waste volumes.

The general characteristics of the preliminary Alternatives To and the rationale for their selection are presented in the following.

"Do nothing": The "Do Nothing" scenario is considered the status quo, where waste from the City is continued to be landfilled at the Haileybury Landfill Site. This scenario is proposed to be considered for the purpose of providing a comparison to any other Alternative To.

Thermal technology (waste incineration): This Alternative To involves the development and operation of a waste incinerator, where waste would be incinerated at a high temperature in a controlled facility using fossil fuel (e.g., natural gas). Any such facility would be equipped with air emission controls. The operation would be closely monitored with respect to its compliance with applicable air quality standards. Typically this alternative involves a small landfilling component as residues from the incineration process are typically disposed of at a landfill. This Alternative To has been included as it offers a potential approach to future waste management that minimizes the need for additional landfill capacity.

Energy from waste approach (EFW): There are numerous approaches to dispose of waste and, at the same time, obtain energy from the waste management process. This is typically associated with waste streams high in organic content. It is included as an Alternative To as it potentially offers an economically attractive approach for managing the waste in combination with the utilization of its value as an energy source.

Waste Export: This involves the export of waste into another jurisdiction outside of the City. In this scenario, the waste would be disposed of or otherwise processed in a facility, licensed to manage the various types of waste generated by the City. The City would ensure long-term acceptance of its waste in a contractual agreement with the facility's owner. This Alternative To has been included as it has the potential to address the need for additional waste management capacity without the City becoming owner/operator of an existing or new management facility.

Waste Import: This involves the import of waste by the City and its management together with the City's own residual waste. For a small community to develop and operate certain waste management facilities is often economically not feasible. This is typically due to low waste generation rates and rather small overall waste volumes. When evaluating alternatives to managing its own needs for waste management the City therefore may want to consider waste imports in order to take advantage of additional revenue streams from processing fees (e.g., tipping fees) and economy of scale considerations. The additional funds that such a program could provide may cover the cost for the development and operation of a new management facility for the City's own residual waste, at least to a degree, that such a facility would be economically viable..

Landfilling: This involves the orderly disposal of waste in an engineered landfill facility, designed and operated to handle the various types of waste generated by the City in accordance with Ontario's Landfill Regulation 232/98. This could involve the development of a

new landfill site or the expansion of an existing site. Typical landfill design features include measures to collect and manage gas and leachate generated in the landfill. Operational features would involve daily cover, groundwater monitoring, and the implementation of a capping and closure scenario when the approved capacity is reached. This Alternative To has been included as it would represent a continuation of the management of the City's waste as is currently successfully practiced (i.e., including comprehensive waste diversion).

5.2 Evaluation of Alternatives To

The preferred Alternative To will be determined based on a comparative evaluation. Given the expected fundamentally different nature of the Alternatives To, each Alternative To is proposed to be examined on a broad set of criteria. Table 5-1 provides preliminary evaluation criteria which will be finalized in the EA. This will include the provision of the rationale for each criterion, the indicators to be applied, and the data sources to be used.

Table 5-1: Evaluation of Alternatives to - Preliminary List of Criteria

Category	Example of Criteria
Environmental considerations	• Natural environment (e.g., air, water, land, species…) • Social environment (e.g., transportation, other infrastructure, noise) • Cultural environment (e.g., heritage and archaeological resources), • Economic environments (e.g., land use, land values)
Economic considerations	• Relative approval cost (cost implications of required planning and approval processes and associated time implications) • Relative cost (construction and operating cost)
Technical considerations	• How well does the alternative address the stated problem or need?
Considerations related to Municipal Policies	• How well does the alternative meet relevant municipal policies (e.g., with respect to the environment, sustainable development policies, long-term operating principles and objectives)?

The approach and the evaluation criteria to be used for identifying the preferred Alternative To will be developed in consultation with the public, government agencies, Aboriginal communities, and other interested stakeholders (see also Section 6.3). Two principally different approaches can be distinguished, the qualitative evaluation (reasoned argument method) and the numeric evaluation (arithmetic evaluation method). The qualitative approach involves the assessment of alternatives through a mainly qualitative evaluation (e.g., high medium, low) of each alternative with respect to each evaluation criterion. In the numeric evaluation system, each Alternative Method is assigned a numeric score under each of the evaluation criteria. Subsequently, the individual scores are summed up to an overall numeric score. The arithmetic process may also involve a weighting scheme that expresses the relative significance of the criteria by assigning criteria a numeric weight prior to the totaling of the individual scores.

There are advantages and disadvantages to each one of the two evaluation approaches. Typically the reasoned argument method works well when there are clear and distinct differences between the alternatives that are being evaluated and the number of evaluation

criteria is small. The arithmetic evaluation method is often better suited where the alternatives are numerous, the differences between the options not immediately apparent, and the number of evaluation criteria high.

When selecting the preferred Alternative To, each alternative will be evaluated for their net environmental effects and their advantages and disadvantages based on the evaluation criteria. The assessment and evaluation process will be documented in the EA and will provide for each Alternative To:

- A clear rationale for the selection;
- Potential effects on the environment;
- Impact management measures;
- Net effects; and
- Advantages and disadvantages.

In selecting the preferred Alternative To, each alternative will be evaluated on the respective net environmental effects, advantages, and disadvantages based on the criteria established for the evaluation.

6.0 ALTERNATIVE METHODS

Following the identification of the preferred Alternative To, a reasonable range of Alternative Methods will be established.

Alternative Methods represent different ways of implementing the preferred Alternative To. For example, should waste export be identified as the preferred Alternative To, the Alternatives Methods could entail different receiver sites or different haul routes. Should landfilling be identified as the preferred Alternative To, Alternative Methods could include such aspects as various landfill site locations and different landfill site designs.

Since the preferred Alternative To has not been determined at this point in the planning process, the ToR outlines the general approach to the identification of a reasonable range of Alternative Methods and the subsequent approach to their evaluation and the determination of the overall preferred Alternative Method. The process involves the following steps:

- Refining the study area;
- Identification of Alternative Methods;
- Assessing Alternative Methods and Selecting the Preferred Alternative Method; and
- Concept Design for the Preferred Alternative (the Undertaking) including potential effects and mitigation measures.

6.1 Refining the Study Area

Prior to the identification of Alternative Methods, the preliminary study area will be reviewed. The preliminary study area was established to facilitate the identification of the preferred Alternative To. The area may need to be refined to better accommodate the identification and evaluation of Alternative Methods. For example, the study area may be reduced to a smaller area that focuses on the location of the preferred Alternative To and its potential zone of influence. This will allow focussing the study and to apply a greater level of detail in the analysis. It is of note that the refined study area will not limit the possibility of examining environmental effects outside of its boundaries should the need for such investigations be identified during the assessment process.

The study area will be refined on the basis of the location and characteristics of the preferred Alternative To, stakeholder input, and the study team's experience with the study area and the implementation of similar projects. Should new information become available during the EA study that suggests further refinement of the study area to accommodate the development of reasonable alternatives or the assessment of effects, these adjustments will be made.

The rationale for any study area refinements will be provided in the EA Report.

6.2 Identification of Alternative Methods

Alternative Methods will be developed specifically for the identified preferred Alternative To. In general terms, these Alternative Methods are typically developed with respect to such aspects as:

- Alternative facility locations;
- Alternative facility designs;
- Alternative processing technologies;
- Alternative operational approaches; and
- Alternative methods for material transport (including haul routes).

The identification of specific Alternative Methods will be based on the existing environment, input from interested stakeholders including Aboriginal communities and government agencies, previous experience with waste management projects and the anticipated environmental effects and mitigation measures. The EA will document the process followed to establish the Alternative Methods and the rationale for their selection.

6.3 Evaluation of Alternative Methods

It is envisaged that the evaluation of Alternative Methods will likely involve a site selection process, and the evaluation of alternative facility designs, technologies, and operational approaches. These are further discussed below (Sections 6.3.1 and 6.3.2).

Similarly to the evaluation of Alternatives To (Section 5), the evaluation of Alternative Methods will involve the assessment of:

- Potential effects on the environment;
- Impact management measures;
- Net effects; and
- Advantages and disadvantages.

The specifics of the evaluation process for Alternative Methods, in particular the evaluation method, evaluation criteria and indicators, impact scoring, criteria ranks and weights (if applicable) will be developed in consultation with the public, Aboriginal communities, government agencies and other interested stakeholders (see also Section 8).

Emphasis will be placed on applying a process that is clear, logical, traceable and participatory. It is proposed that a Public Meeting will be held to discuss with all interested parties the approach to and specifics of the evaluation process for the Alternative Methods (Section 8.3).

The evaluation method applied for the selection of the Alternative Methods will be documented in the EA, together with the information on how it was developed and the rationale for its application.

Table 6-1 presents a set of preliminary evaluation criteria which will be finalized in the EA. This will specifically include the provision of the rationale for each criterion, the indicators to be applied, and the data sources to be used.

Table 6-1: Preliminary Criteria for Evaluation of Environmental Effects

#	Environmental Components	Criteria (Preliminary)
1	**Natural Environment**	
1.1	Aquatic environment	Fish habitat
		Fish community/species
		Aquatic Species at Risk
1.2	Terrestrial environment	Habitat, vegetation communities, plant life
		Protected areas
		Wetlands
		Birds
		Other wildlife
		Rare species/Species at Risk
1.3	Groundwater	Quality
		Quantity and flow
1.4	Surface water	Quality
		Quantity and flow
1.5	Atmospheric environment	Air quality (e.g., landfill gas emissions)
		Greenhouse gas emissions
1.6	Geology, soils	Surficial geology
		Soil contamination
2	**Social Environment**	
2.1	Land use & resources	Existing land uses (residences, businesses)
		Planned land uses and land use policies
		Land resources (e.g., aggregate resources, agriculture, forestry)
2.2	Noise	Noise levels
		Sensitive receptor locations
2.3	Public health and safety	Water wells/ drinking water supplies (incl. consideration of effects on well head protection areas, private and municipal groundwater supply wells; future supply potentials)
		Effects related to litter, odours, and dust
		Road safety
2.4	Aboriginal communities	Traditional uses of land and resources
		Built heritage
		Archaeological sites
		Cemeteries, burial grounds
2.5	Recreation	Trails
		Parks and other designated recreation areas
2.6	Transportation	Road infrastructure

#	Environmental Components	Criteria (Preliminary)
		Air traffic
2.7	Visual aesthetics	Visual landscape quality
2.8	Municipal and community services	Municipal infrastructure & services (except roads included in transportation)
3	**Cultural Environment**	
3.1	Heritage	Built heritage
		Other cultural features
3.2	Archaeology	Archaeological sites
		Cemeteries, burial grounds, other
4	**Economic Environment**	
4.1	Local economy	Labour market, local employment
		Local businesses
4.2	Municipal finances	Revenues and expenses

The evaluation method that is to be applied for the evaluation of Alternative Methods will be determined during the EA and in consultation with stakeholders including Aboriginal communities. Input will be solicited in particular during the above mentioned Public Meeting.

Two principally different approaches can be distinguished, the qualitatively evaluation (reasoned argument method) and the numeric evaluation (arithmetic evaluation method). The qualitative approach involves the assessment of alternatives through a mainly qualitative evaluation (e.g., high medium, low) of each alternative with respect to each evaluation criterion. In the numeric evaluation system, each Alternative Method is assigned a numeric score under each of the evaluation criteria. Subsequently, the individual scores are summed up to an overall numeric score. The arithmetic process may also involve a weighting scheme that expresses the relative significance of the criteria by assigning criteria a numeric weight prior to the totaling of the individual scores.

There are advantages and disadvantages to each one of the two evaluation approaches. Typically the reasoned argument method works well when there are clear and distinct differences between the alternatives that are being evaluated and the number of evaluation criteria is small. The arithmetic evaluation method is often better suited where the alternatives are numerous, the differences between the options not immediately apparent, and the number of evaluation criteria high.

6.3.1 Site Selection Process

A site selection process will be required if the preferred Alternative To involves the development of a facility (e.g., thermal treatment facility; landfill site) in a specific location. Details of the approach will be developed in consultation with stakeholders including Aboriginal communities (Section 6.3 and Section 8). The site selection is envisaged to be conducted in a step-wise fashion involving a screening exercise for the delineation of potentially suitable areas and the establishment of a long-list of candidate sites. This will be accomplished based on the application of minimum site requirements (e.g., minimum site size) as well as the consideration

of constraints and opportunities to any facility siting (e.g., constraints could include designated natural areas, nature reserves, flood plains; opportunities could encompass existing facility sites with expansion capacity). The Provincial Planning Policy (MMAH 2005) and, if the site search relates to the development of a landfill site, the MOE Guideline D-4 (Land Use On or Near Landfills and Dumps, 1994) will be of particular importance and the selection process will need to ensure that these guidelines and policies are met.

With the help of a comprehensive list of criteria (Table 6-1 provides an example list), all candidate sites will be evaluated to identify a short list of sites and, subsequently, to determine the preferred site. This list is preliminary and will be finalized in the EA, i.e., in consultation with interested stakeholders. The final list and the underlying rationale will be presented in the EA together with the description of and rationale for the applied site selection evaluation method.

It is envisaged that the evaluation of the long-list and the short-list of sites will be based primarily on existing information (air photos, planning documents, technical reports, government data bases, stakeholder input, etc). As the number of candidate sites is reduced from the long list to the short list and ultimately to the preferred site, the study team may need to apply a larger set of criteria to enable a more differentiated analysis and evaluation. In general, the proposed site selection process will employ a greater level of detail in the evaluation as the number of sites decreases. Upon identification of the preferred site, detailed site investigations will be conducted to facilitate the development of a concept design (Section 6.4) and the detailed description of potential environmental effects of the undertaking.

As discussed at the beginning of Section 6.3 the specifics of the evaluations involved in the site selection process (i.e., evaluation method, criteria, indicators, impact scoring, criteria ranks and weights) will be developed in consultation with the public, Aboriginal communities, government agencies and other interested stakeholders. The details of the evaluations involved in the site selection process and consultation results will be documented in the EA report.

6.3.2 Evaluation of Alternative Designs, Operational Approaches

With the determination of the preferred site for the development of a waste management facility, Alternative Methods with respect to facility design and operations will be identified (Section 6.2) and evaluated. This could involve for example the evaluation of principally different site lay outs and/or engineering or operational approaches. This evaluation will be developed as part of the EA and will follow the same principles as outlined at the beginning of Section 6.3. The process will include the involvement of stakeholders and a clear documentation in the EA report of the approaches followed and the underlying rationale and evaluation results.

6.4 Concept Design, Environmental Effects of the Undertaking

Upon determination of the preferred Alternative Method(s), the undertaking will be advanced to a concept design level of detail. If applicable, the concept design will describe the physical

layout and arrangement of the proposed undertaking as well as its conceptual operational characteristics. In addition, works and activities associated with the implementation (e.g., construction phase) will be presented together with schedule information. Where appropriate, the concept design will be supported by conceptual design drawings. Should the proposed undertaking be a landfill (new or expansion of an existing), the conceptual design will be based on *Landfill Standards: A Guide to the Regulatory and Approval Requirements for New and Expanding Landfills* (MOE 2010) and the various standards referred to in the document.

The potential environmental effects of the concept design will be detailed based on a comprehensive set of criteria similar to those applied in the evaluation of Alternative Methods and address potential effects on the natural, social, cultural, and economic environments (Table 6-1). To facilitate the concept design, the detailing of potential environmental effects, and specific designs of mitigation measures technical studies will be undertaken for various environmental components (e.g., comprehensive hydrogeological drilling program and assessment, noise modelling and assessment in accordance with MOE 1998, air quality dispersion modelling) to supplement existing data, reports, and preliminary field work that may have been conducted at earlier stages in the process. In particular, the data collection will need to ensure that comprehensive baseline data will be available for comparison with future monitoring results (see Section 7).

Mitigation measures will represent technically and economically feasible measures to avoid, or reduce adverse effects of the undertaking. They will be developed for specific characteristics and sensitivities of the environmental components. Mitigation measures will also include recommendations for monitoring. The significance of the potential effects that remain after the application of mitigation measures, i.e., the significance of the net environmental effects, will be determined based on criteria such as, magnitude of the effect, its frequency/duration, and the likelihood of its occurrence. Advantages and disadvantages of the concept will be summarized for each of the environmental components.

As part of the concept design development, approval requirements, mitigation or compensation measures, as well as enhancement opportunities will be discussed with government agencies, stakeholders, and Aboriginal communities.

7.0 COMMITMENTS AND MONITORING

The City is committed to include in the EA Study Report a comprehensive list of commitments made during the Terms of Reference process including a reference to where and how these have been addressed in the EA study. It is anticipated that this will be accomplished through a compliance list in table format.

The City is equally committed to include in the EA Study Report a comprehensive listing of commitments, to the extent that these will have been made during the preparation of the EA. These commitments are expected to be related to:

- Impact management measures (including mitigation measures and contingency planning);
- Additional works and studies to be carried out subsequent to the EA;
- Monitoring, documentation and reporting;
- Public consultation and contingency planning; and
- Documentation and reporting.

The EA report will include a comprehensive listing of all impact management and mitigation measures. If applicable, additional works and studies (e.g., further hydrogeological drilling programs) will be outlined as part of the description of the implementation of the undertaking.

During the EA, a monitoring framework will be developed that will consider all phases of the proposed undertaking (i.e., construction, operation, and decommissioning). It will also include both, compliance monitoring and effects monitoring. The compliance monitoring will aim at monitoring the compliance of the project with the commitments made during in the EA and the conditions of EA approval. The effects monitoring will determine the environmental effects of the undertaking and attempt to verify the impact predictions made in the EA study report and the effectiveness of impact management and mitigation measures. As such, monitoring is expected to address the criteria listed in Table 6-1 to the extent that these are relevant to the performance of the undertaking.

All monitoring programs proposed for the undertaking will be summarized in the EA Report including a strategy for program implementation, reporting and communication.

8.0 CONSULTATION PLAN

8.1 Introduction and Background

The Consultation Plan (Plan) outlines the City's consultation and engagement program that will support the development of the Environmental Assessment (EA). This program was also used to support the development of the Terms of Reference (ToR).

Specifically, the Plan outlines:

- Principles and benefits of engagement;
- Plan objectives and purpose;
- Identification of project participants and interested parties;
- Consultation approach;
- Consultation activities;
- Aboriginal community consultation;
- Schedule and key decision-making points;
- Documentation of consultation;
- An issues resolution strategy; and
- Evaluation and modification of the Consultation Plan.

8.2 Principles and Benefits of Engagement

The following principles will guide consultation on the project:

Early notification: Information about the project will be provided to interested parties in a timely manner to facilitate the consultation process.

Honest, open, and transparent communication: All pertinent information about the project will be shared with the public, government agencies, and Aboriginal communities. Input will be sought, documented, and will be addressed in the EA. If comments or concerns are not addressed, justification will be provided in the EA. Outstanding concerns will be clearly stated in the EA report.

Accessibility: A variety of consultation techniques and methods will be used to distribute information about the project and to gather stakeholder and Aboriginal community feedback.

Flexibility: Feedback on the consultation process will be sought from interested parties to ensure that sufficient opportunities for meaningful input are provided. Throughout the process the

approach will remain flexible and responsive to the needs and concerns of participants. An evaluation of the consultation process will be conducted and changes will be made to the program as needed to address stakeholder needs and preferences.

Mutual Respect: Respect will be given to the differing values and constraints of each party and to project timelines. There will be follow-through on commitments made.

Efficiency: The consultation process will be designed to make the most effective use of existing planning and proposed environmental assessment processes and resources while optimizing the contributions of all participants. The approach will be specifically tailored to the needs of the project and the community.

Timely: Consultation is most effective if initiated as early as possible before decisions are made. Therefore, clear and reasonable timelines will be established for input and comments and these timelines will be communicated clearly.

The implementation of the Consultation Plan on the basis of the above principles is envisaged to generate the following overall benefits:

- The provision of first hand information to all interested parties;
- Recognition and integration of stakeholder issues and concerns (including those of the Government Review Team and Aboriginal communities);
- Better informed environmentally-sound decisions; and
- Compliance with permits, licences and regulatory requirements and guidelines.

8.3 Plan Objectives and Purpose

The purpose of this Plan is to outline:

- The general objectives and methods proposed for involvement;
- How input from interested persons will be obtained;
- A description of key decision making milestones during the EA when consultation will occur; and
- An issues resolution strategy.

The consultation plan will provide a guide for the exchange of information between the project team, the public, government agencies, and Aboriginal communities. This will enable participants the identification of important environmental interests and issues early in the decision making process and will ensure that these issues are given appropriate consideration in the EA process.

The following is a list of objectives for the public, Government Review Team, and Aboriginal community involvement during the development of the EA:

- Inform interested persons about the proposed project;
- Identify project-related interests and concerns;
- Gather feedback on the EA;
- Provide opportunities for public, stakeholder, Government Review Team, and Aboriginal community involvement;
- Document the consultation process, issues and concerns and how stakeholder views have been incorporated in project decision making through the EA; and
- Show how feedback from the public, Government Review Team, and Aboriginal communities has been used to influence the EA.

These objectives also pertained to public, Government Review Team, and Aboriginal community involvement during the development of the ToR.

8.4 Identification of Project Participants and Interested Parties

8.4.1 General Approach

Project participants and interested parties will be identified using the following criteria:

- Reference to the MOE Government Review Team list;
- Proximity to the project; if the interested persons were resident in, had jurisdiction over or an interest in the area in which the project is proposed (residents within approximately 500 m were automatically considered);
- Past or current interest in similar projects or developments in the City or region (for example the recent consultation program for the Waste Management Master Plan for the City of Temiskaming Shores);
- The interested persons were potentially impacted by possible biophysical and socio-economic environmental effects of the project; and
- Aboriginal communities that historically used or are currently using lands and/or resources potentially affected by the project.

The contact list will be regularly updated and used during the EA process to conduct the mail/email distributions. An initial contact list was used for distributions of the Notice of Commencement of the ToR and was established based on input received from:

- Consultation with MOE Environmental Approvals Branch (EAB);

- City of Temiskaming Shores Council and staff; and
- AMEC experience with previous EA work in the region and stakeholder involvement.

The contact list was regularly updated and used during the ToR process.

All notices and mail/email distributions during the EA process will include an invitation to interested parties to have their contact information added to or removed from the mailing list. Mail/email distributions will be based on the most recent contact list.

A preliminary list of project participants is appended (in Appendix B) and includes:

- Provincial government ministries;
- Federal government departments;
- First Nation and Métis communities;
- City interest groups (business, economic development, heritage, etc.);
- Local MP and MPP;
- Adjacent landowners; and
- Non-government (environmental) groups.

The number of interested parties involved in the project is dynamic. Interests and concerns may be addressed and a stakeholder may choose to drop out of a process; conversely, interests or concerns may arise or individuals move and new stakeholders may enter the process at any time. To reflect and manage this dynamism, a record of stakeholders and individuals involved in the project will be maintained and updated regularly during the EA process.

Follow-up steps (phone calls) to notices and correspondence will be undertaken, in particular with members of the Government Review Team and Aboriginal communities. The objective is to verify the correspondence was received and has been forwarded to the appropriate person for review and to obtain written comments or statements of no concern. Contacts made and the study team's follow-up steps will be recorded and documented as part of the EA (Section 8.9). The same approach was used during the ToR process and documented as part of the Record of Consultation on the ToR (Section 8.9.1).

8.4.2 Aboriginal Communities

Aboriginal rights and treaty rights are protected by section 35 of the Constitution Act, 1982. Aboriginal rights stem from the practices, customs and traditions, which are integral to the distinctive culture of the Aboriginal community claiming the right. Treaty rights stem from the signing of treaties by Aboriginal communities with the Crown.

The Crown may have a duty to consult with Aboriginal communities in order to satisfy the Crown's responsibilities with potential adverse impacts of undertakings on asserted or established Aboriginal or treaty rights. However, the Crown may delegate the procedural aspects of consultation to proponents, and recognizes a corresponding responsibility of Aboriginal communities to participate in this process, make their concerns known and respond to efforts to address their concerns.

While the duty to consult rests with the Crown, the City of Temiskaming Shores will seek to engage Aboriginal communities in a manner that provides those communities with an opportunity to receive information about the EA and advances their meaningful input in the development of the EA process. Aboriginal community engagement will be undertaken in accordance with the consultation plan as outlined. It should be noted that whether or not the Crown has a constitutional duty to consult with an Aboriginal community, the community may be an interested person for the purposes of consultation.

Potentially interested Aboriginal communities will be identified through:

- Consultation with the MOE, Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada to assist in identifying those Aboriginal communities who have Aboriginal or treaty rights that may be potentially impacted by the project and
- Review of information provided by the Métis Nation of Ontario and individual Aboriginal communities.

The following Aboriginal communities may have an interest in the project:

- Algonquin Anishinabeg Tribal Council;
- Algonquin Nation Secretariat;
- Barrière Lake First Nation;
- Beaverhouse First Nation
- Communauté anicinape de Kitcisakik;
- Conseil de la Première nation Abitibiwinni;
- Eagle Village First Nation – Kipawa;
- Kitigan Zibi Anishinabeg;
- Long Point First Nation;
- Matachewan First Nation;
- Mattagami First Nation;
- Nation Anishnabe du Lac Simon;

- Temagami First Nation;
- Timiskaming First Nation;
- Wahgoshig First Nation;
- Métis Nation Ontario;
- Temiskaming Metis Council; and
- Wolf Lake First Nation.

The focus of Aboriginal engagement and consultation activities will be with those Aboriginal communities whom have asserted Aboriginal or treaty rights, and/or potentially impacted by the proposed undertaking. Contact will be made with the highest levels of decisions-making within the Aboriginal communities (i.e. the Band Chief and Council) and correspondence will includea personally addressed cover letter. Subsequent Aboriginal community engagement activities will involve persons identified in consultation with the respective government agencies. Follow up steps will be undertaken, including up to two or three phone calls, if necessary, to verify the correspondence was received and has been forwarded to the appropriate person for review. The objective is to obtain written comments on the project or a statement of no concern. Dates and results of these follow up steps will be documented in the EA. Once an Aboriginal community indicates it is not interested in the project, they will not be sent further notices, unless a significant time lapse in the EA process occurs or if the preferred undertaking changes and potentially impacts the Aboriginal community.

8.5 Consultation Approach

The City considers consultation an integral component of the EA process and has prepared and will implement this Plan to meet the requirements and objectives of the EAA and the MOE's Code of Practice documents (MOE 2007a, b, d and e). As such, the public, Aboriginal communities and government agencies will be encouraged to participate through various consultation activities (Section 8.6) in the development of the draft EA and final EA.

The approach to be followed aims at a two-way communication between the project team and interested parties. All involvement activities will be documented and issued as part of the EA report.

During the development of the ToR, the public, Aboriginal communities and government agencies were encouraged to participate through various consultation activities (Section 8.6). All involvement activities were documented and issued as part of the Record of Consultation on the ToR.

Through involvement in the preparation and review of the ToR, interested parties had an early opportunity to participate in the EA process and to obtain information about and comment on the project proposal that may affect them. It also allowed them to decide early in the planning

process about the level of their concern and their need for continued participation in the process.

Consequently, the Plan has been designed to remain flexible and responsive to feedback obtained throughout the EA process. Plan elements can be expanded, supplemented and/or altered if required and identified via participant feedback.

8.6 Consultation Activities

8.6.1 Public Notices

Public notices will be issued throughout the EA process to communicate opportunities for participation and engagement in the study, to solicit stakeholder feedback and to announce milestones in the decision making process. At this point in time the following public notices have been issued and/or are foreseen (see also schedule/milestones) for the following activities:

- Commencement of ToR Process, issued on May 4, 2011;
- Invitation to 1st Open House held on May 9, 2011;
- Opportunity to Review Revised Draft ToR, issued on March 30, 2012;
- Submission of the proposed ToR;
- MOE approval of ToR;
- Commencement of EA;
- Invitation to 2nd Open House;
- Invitation to 3rd Open House
- Submission of EA Report; and
- MOE approval of EA.

The MOE approval notices will be issued by the MOE. All other notices are issued by the City and communicated via mail/email distributions, newspaper advertisements, and the project website (Section 8.6.4). All notices identify the project, the planning process, contact information, opportunities for involvement and, when applicable, associated timelines.

The MOE approval notices will communicate the Minister's decision on the ToR and EA respectively. This includes an updating of the environmental assessment page of the Ministry's Environmental Assessment website to reflect the Minister's decision.

8.6.2 Mail/Email Distributions

Mail/email distributions will be used throughout the EA process to communicate public notices, milestone events, and public meetings and to solicit feedback on the project, documents and decision making. The distribution will be directed to all addresses identified on the contact list. Where email addresses are available, these will be used in lieu of regular mail.
Correspondence with Aboriginal communities will be via letter unless the community, in response to the City's first letter mail out, explicitly requests that communication be conducted via e-mail. The format for correspondence with the Government Review Team will follow the preferences of individual team members as communicated on the MOE's Master Government Review Team list.

The mail/email distributions will occur at the same time as the publication of notices in local newspapers and on the project website. All mail/email distributions provide the opportunity to request a removal from the mailing list or for the addition of a new party, not yet included in the contact list.

The same approach was used for mail/email distributions during the ToR process.

8.6.3 Newspaper Advertisements

All notices (see Section 8.6.2) issued during the EA process will be advertised in one or more local news papers. If possible, the notices will be published in the issues with the largest circulation (typically Saturday or Wednesday publications). The same approach was used for all notices issued during the ToR process.

8.6.4 Project Website

To facilitate the information exchange over the course of the EA planning process and to complement the MOE's information on environmental assessments in the province, the City established a page on their existing website to house information about the project (http://temiskamingshores.ca/en/municipalservices/LandfillExpansionEA.asp). The webpage is exclusively dedicated to the proposed undertaking and associated EA approval process. The website is user-friendly and easy to navigate. It contains the following key information sections:

- Project description;
- Notices;
- Documents;
- Schedule/events;
- Frequently Asked Questions; and
- Contact information.

The address of the project website will be included in all published notices and mail/email distributions. The website provided an interactive tool for disseminating information and soliciting feedback from website visitors.

To maintain manageable file sizes, figures and photographs may be posted in separate files rather than integrated within the document files.

The content on the website and the system architecture will be reviewed on an on-going basis throughout the life of the EA to ensure that the information provided and technical functions remains timely and up-to-date.

The team recognizes that not all potentially interested parties have access to the internet and may prefer traditional, not internet-based ways of communicating. Therefore, the consultation program ensures that all notices and milestone events are also communicated through the above mentioned notices and mail/email distributions. Timelines for review periods will take into account the increased time requirements for the use of these traditional media. No key information on the project, schedule, and decisions will be communicated exclusively via the project website. The website however, will serve as the fastest medium for obtaining and reviewing up-to-date project information.

Information related to the ToR was made available during the ToR process via the project website. Reports were posted in PDF format to ensure ease of access.

8.6.5 Review of Documents and Reports

During the planning process, the EA Report will be made available for public review and comment. A draft EA Report will be issued for stakeholder and public review prior to submission of the EA to the MOE for the regulated review period.

The draft and final EA Reports will be made available for review on the project website. Hard copies of these documents will also be accessible for review in at least two public locations (e.g., local library, City Hall, MOE District Office). The MOE EAB office (located in Toronto at 2 St. Clair Avenue West, Floor 12A) will also provide access to hard copies of the draft and final EA Reports. The completion of the documents and the locations where these reports can be accessed and reviewed will be communicated via the public notices, mail/email distributions and the project website (see above).

The final EA will be circulated to Aboriginal communities and government agencies in addition to the public.

The same approach was used for the review of ToR documents.

8.6.6 Public Meetings and Stakeholder Workshops

Public meetings and stakeholder workshops are considered an effective tool for disseminating information, soliciting feedback and discussing issues, concerns and the proposed undertaking. It is proposed that three public meetings are held during the ToR and EA process. A public meeting occured once during the ToR process and will occur twice during the development of the EA (One during EA preparation, one upon completion of the draft EA). Depending on the level of interest and feedback, part of the public meetings may be held in a workshop format for the general public and/or specific to stakeholder groups and Aboriginal communities.

The public meetings are envisioned to be held in an “Open House” format but with a different focus for the discussion:

First public meeting (ToR process) - discussion focused on:

- Project Description;
- EA and ToR process;
- Draft ToR;
- Approach to EA; and
- Consultation Plan.

Second public meeting (EA process – general approach) - discussion will focus on:

- Project update;
- EA process;
- Identification and evaluation of Alternatives; and
- Potential environmental effects and mitigation measures.

Third public meeting (EA process - preliminary results) - discussion will focus on:

- Project update;
- Preliminary results on identification and evaluation of Alternatives;
- The preferred alternative (the undertaking); and
- Potential environmental effects and mitigation measures.

Input received during the first public meeting was used to revise the ToR. Similarly, issues, concerns, and other comments received on the EA during the second public meeting will be applied in the decision making on such issues as alternative waste management approaches,

alternative sites, etc. The study team will work feedback obtained during the third meeting on the draft EA Report into the detailing of the undertaking (design, operation, impact management, mitigation etc) and the finalization of the EA Report.

The public meetings will be advertised via public notice and mail/email distribution and will be conducted in an easily accessible venue in the City.

The decision on whether or not to hold further public meetings and in what format (e.g., open house, workshop, stakeholder group-specific meeting or any combination thereof) will be subject to a review of stakeholder feedback and the outcome of each of the two public meetings. The decision will depend on the level of stakeholder interest, the nature of the concerns raised and the comments obtained on the proposed undertaking.

Should the stakeholder interest be limited or focused on a specific issue or stakeholder group, issue-specific meetings with one or more stakeholder groups or individuals may be preferred over a public “Open House” meeting. This and the specific format would be discussed and implemented in direct consultation with the affected stakeholder/individuals.

8.7 Aboriginal Community Consultation

The project team intends to provide opportunities for involvement of Aboriginal communities throughout the EA planning process. All notices and mail/email distributions will be sent to the leadership of each potentially interested Aboriginal community, unless other forms of engagement are arranged or the City is informed by the community that such an involvement is not desired.

Provided the interest is expressed, the project team will also engage the Aboriginal communities expressing an interest in the project to discuss:

- Project proposal;
- Aboriginal community interests, issues and concerns; and
- Preferred ways and level of participation in the EA process.

The extent and format of the subsequent involvement will be determined in consultation with the individual Aboriginal communities. This may include meeting(s), site visit(s) and dissemination of written information.

The program for involvement of Aboriginal communities will remain flexible over the course of the EA planning process to permit adjustments should the needs of the participants change. It is expected that, as a minimum, Aboriginal communities will be included in the all mail/email distributions and the review process for documents and reports pertaining to the EA process.

The mail/email distributions will be followed up with a phone call to determine interest in further participation in the EA process.

The same approach was used during the development of the ToR. Prior to circulating the draft ToR, the city sent out a letter to the leadership of each of the Aboriginal communities. The letter included information on the proposed project, the planning process, and an invitation to participate in the planning process.

8.8 Schedule and Key Decision-Making Points

The implementation of the Consultation Plan will run in parallel to other activities of the planning process. This process is expected to extend over approximately one and a half, to two years. Consultation formally commenced with the publication of the Notice of Commencement of the ToR process. The following general timelines are anticipated:

- Consultation on the ToR: Spring 2011 to Spring 2012; and
- Consultation on the EA: Fall 2012 to Fall 2013.

This schedule will be reviewed and refined as the project unfolds. Milestone events are reflected by the planned public notices (Section 6.1.1). Key decision making points are associated with the:

- Public Open House on the draft ToR (held May 9, 2011);
- Public Review of Revised Draft ToR;
- Submission of Proposed ToR to MOE;
- Finalization of the ToR (based on Minister's decision);
- Public Open House on the draft EA involving the evaluation of alternatives and the selection and assessment of the preferred alternative;
- Finalization of the EA Report (based on Minister's decision) and
- Submission of final EA to MOE.

8.9 Documentation of Consultation

8.9.1 ToR Consultation Documentation

The consultation activities undertaken during the development of the ToR is documented in a Record of Consultation. This Record is presented under a separate cover and submitted to the MOE with the Proposed ToR. The Record is an integral part of the Proposed ToR document. The Record of Consultation includes information on the:

- Parties consulted during ToR preparation (no personal names);
- Process used to identify consulted parties;
- Consultation activities which took place (methods, schedule of events);
- Public notices issued;
- Approach applied to identify interested Aboriginal communities and how they were consulted;
- Comments (summary) made by all interested parties;
- Proponent's response and how concerns were considered in the development of the terms of reference; and
- Outstanding concerns.

The Record of Consultation further documented the minutes of any meetings held with interested parties and copies of written comments received from interested parties.

The summary of the comments received and the City's responses to those comments are presented in table format. The comments from the general public are arranged by subject or issue (e.g., water quality). For the Government Review Team and Aboriginal communities, the comments are organized by agency and community.

8.9.2 EA Consultation Documentation

The same approach as described in Section 8.9.1 is proposed for the documentation of the consultation activities and results related to the EA process itself. Instead of a Record of Consultation presented under a separate cover, a section on consultation will be included in the EA report.

8.10 Issues Resolution Strategy

The City is committed to make every reasonable effort to respond to concerns and conflicts that may arise during the planning process. Should the activities described in this Plan not be sufficient to identify agreeable solutions and alleviate concerns, additional steps will be considered involving such strategies as one-on-one meetings with those individuals with specific concern. Another approach that will be considered is the initiation of smaller working sessions for interested persons to attend to provide an opportunity for everyone to hear the views of all sides. Also, if required, third party involvement may be utilized to provide a degree of neutrality to the discussions and to employ conflict resolution techniques as per MOE's Code of Practice entitled *Mediation in Ontario's Environmental Assessment Process* (MOE 2007e).

8.11 Evaluation and Modification of the Consultation Plan

The study team will evaluate this Plan periodically and made adjustments/updates as needed. The first main review took place upon the completion of the first public meeting on the draft ToR. The meeting together with the written responses to the Notice of Commencement of the ToR process, provided the study team with feedback on the adequacy of the:

- Consultation Plan specifically on the ToR; and
- Consultation Plan proposed (as part of the ToR) on the subsequent EA process.

An evaluation of the consultation program will be made using such criteria as outlined in Table 8-1.

Table 8-1: Evaluation Criteria for the Consultation Plan

Type of Evaluation Criteria	Criteria (Examples) **The consultation activity was a success if . . .**
Results-based	The engagement activity involved a wide cross-section of citizens living in the region or the stakeholders, Aboriginal communities or organizations that it was meant to engage.
	Information reached the intended audience.
	Community, stakeholder and Aboriginal communities' feedback was heard and influenced the outcome.
Process-based	Information and project information resources were broadly accessible; information to make informed decisions was made available in a number of different accessible formats and methods.
	There was early involvement; information and activities occurred early enough to allow for meaningful participation.
	Methods used to engage the target stakeholders and Aboriginal communities were culturally appropriate.
	Information and decision making process was clear and understandable to the participants (plain language).
	The community's feedback on how they would like to be engaged in the ToR and EA were considered and implemented.

As the planning process and consultation activities unfold, adjustments will be made as a result of continuous process improvement efforts by the project Team. Feedback on the consultation efforts will be captured through comment forms and from informal dialogue with participants during the EA process on a continuous basis and used to improve future activities and standards.

Changes to the communication process may be proposed by any participant. Requests for changes to the program will be reviewed by the project team and implemented, if appropriate. Feedback on the consultation program and activities will also be captured as part of the record on stakeholder comments together with the team response.

9.0 FLEXIBILITY TO ACCOMMODATE NEW CIRCUMSTANCES

The EA will be prepared in accordance with the approved ToR. It is possible, that during the preparation of the EA, adjustments from this ToR may be required to accommodate new circumstances that may be identified as the EA study progresses. This ToR therefore permits a certain degree of flexibility to provide for a responsive planning process. For instance, the study area and the range of Alternatives discussed are considered preliminary since these may change as information on the study area, potential effects, and stakeholder interest and concerns are gathered. It should be noted that although some aspects of the ToR are preliminary and may be flexible, the requirements outlined in the ToR provide the minimum requirements for the preparation of the EA. Adjustments to this ToR will be undertaken in consultation with the Ministry of the Environment.

10.0 OTHER APPROVALS REQUIRED

As part of the EA Study, the City will identify other environmental approvals that will be required to implement the proposed undertaking. This will involve consultation with approval agencies during the course of the EA to obtain information on approval requirements, timing of approvals and whether or not approvals are ultimately obtainable.

Other approvals that may be required include approvals pursuant to the *Environmental Protection Act*, and the Ontario *Water Resources Act*, however, a more detailed list of other required approvals is dependent on the preferred alternative and will be identified in the EA Report.

In the context of development of waste management facilities and programs, permits/approval/ authorizations typically required include but are not limited to:

- Environmental Compliance Approval pursuant to Section 27 of the Ontario *Environmental Protection Act* (administered by the MOE); and
- Environmental Compliance Approval pursuant to Section 53 OWRA for sewage works to manage leachate and stormwater runoff (administered by MOE).

11.0 EA REPORT PREPARATION AND SUBMISSION

The EA process and its results will be presented in a comprehensive EA Study Report. The EA Study Report will be prepared in accordance with subsection 6(2)(a) and 6.1(2) of the EAA and based on the provisions of Ontario Regulation 334 under the EAA. Further, the EA Study Report will comply with the requirements and commitments established by this Terms of Reference document.

Upon completion, the EA Study Report and its supporting documents will be submitted to the MOE for review and approval.

12.0 REFERENCES

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City of Temiskaming Shores, New Liskeard Landfill, Operation and Maintenance Manual, dated May 2004, prepared by Sutcliffe Rody Quesnel Inc. (SRQ, May 2004).

New Liskeard Landfill Site, Annual Monitoring Report 2004, dated February 2005, prepared by Sutcliffe Rody Quesnel Inc. (SRQ, February 2005).

New Liskeard Landfill Site, 2007 Annual Groundwater Monitoring Report, dated May 2008, prepared by Jagger Hims Limited. (JHL, May 2008).

Corporation of the City of Temiskaming Shores, Leachate Plume Delineation and Contaminant Attenuation Zone Calculations, Haileybury Landfill Site, dated May 2008, prepared by Story Environmental Services. (SES, May 2008)

City of Temiskaming Shores, Application to Amend Provisional Certificate of Approval Waste Disposal Site No. A570402, dated June 2008, prepared by Story Environmental Services. (SES, June 2008).

City of Temiskaming Shores, 2008 Annual Monitoring Report, Haileybury Landfill Site, dated April 2009, prepared by Story Environmental Services (SES, April 2009).

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APPENDIX A

WASTE QUANTITY ESTIMATES
(SECTIONS 2.3 AND 2.4 OF FEASIBILITY STUDY FOR DEVELOPMENT OF A LONG-TERM LANDFILL DISPOSAL STRATEGY)

(June 2010, AMEC)

Waste Quantity Estimates

Source: Sections 2.3 and 2.4 from *Feasibility Study* (AMEC, 24 June 2010)

2.3 Historical Quantity of Disposed Solid Waste

There are currently no weigh scales at either the New Liskeard or Haileybury Landfill sites, therefore the amount of waste disposed per year at each site was based on the visual pre-disposal waste volume estimates recorded by Phippen, as provided to AMEC by the City, and quantities reported in the following background documents:

- Provisional Certificate of Approval No. A571505 (New Liskeard Landfill Site), dated 9 May 2000, amended 27 April 2005 and 17 April 2007;
- Provisional Certificate of Approval No. A570402 (Haileybury Landfill Site), dated 10 November 1998, amended 27 April 2005;
- *Corporation of the Town of Haileybury, Landfill Site Approval Report, Project No. E9100*8, revised July 1997, prepared by Sutcliffe Engineers & Surveyors (Sutcliffe, July 1997);
- *Municipal Groundwater Study, Central Temiskaming Area,* dated June 2003, prepared by Knight Piesold Consulting (KPC, June 2003);
- *City of Temiskaming Shores, New Liskeard Landfill, Operation and Maintenance Manual*, dated May 2004, prepared by Sutcliffe Rody Quesnel Inc. (SRQ, May 2004);
- *New Liskeard Landfill Site, Annual Monitoring Report 2004,* dated February 2005, prepared by Sutcliffe Rody Quesnel Inc. (SRQ, February 2005);
- *New Liskeard Landfill Site, 2007 Annual Groundwater Monitoring Report,* dated May 2008, prepared by Jagger Hims Limited (JHL, May 2008);
- *Corporation of the City of Temiskaming Shores, Leachate Plume Delineation and Contaminant Attenuation Zone Calculations, Haileybury Landfill Site,* dated May 2008, prepared by Story Environmental Services (SES, May 2008);
- *City of Temiskaming Shores, Application to Amend Provisional Certificate of Approval Waste Disposal Site No. A570402,* dated June 2008, prepared by Story Environmental Services (SES, June 2008);
- *City of Temiskaming Shores, 2008 Annual Monitoring Report, Haileybury Landfill Site,* dated April 2009, prepared by Story Environmental Services (SES, April 2009); and
- *Draft Solid Waste Management Master Plan*, dated August 2009, prepared by Earth Tech Canada Inc. (Earth Tech, August 2009).

A detailed accounting of the annual quantity of waste disposed at the Haileybury Landfill from 1997 to 2008 was provided in Table 1 of the *Feasibility Study* (AMEC, June 2010) based on pre-disposal waste volume estimates provided to AMEC by the City. A compaction factor of 45% was applied to the uncompacted waste, derived from a ratio of the estimated density of the

waste arriving at the landfill (i.e. 260 kg/m^3) and the estimated density of the compacted waste in the landfill cells (i.e. 475 kg/m^3). A similar detailed accounting for the waste disposed at the New Liskeard Landfill was not provided to AMEC.

A summary of the annual quantity of waste disposed at the New Liskeard Landfill from 2000 through 2006 is reported in Section 5.1.1 of the *Draft Solid Waste Management Master Plan* (Earth Tech, August 2009). The quantity of waste disposed in 2009 is currently not known, although the amount of waste disposed in 2008 was provided by the City as approximately 25,447 cubic yards (19,456 m^3).

A summary of the annual quantity of waste disposed at both the New Liskeard and Haileybury Landfills from 1997 to 2008 is provided in Table 2 of the *Feasibility Study* (AMEC, June 2010). It should be noted that these estimates of historical annual waste volumes were recorded prior to disposal and compaction by the landfill operators.

2.4 Project Needs – Planning Period, Waste Densities and Long-Term Solid Waste Disposal Volume

Based on AMEC's discussions with the City, a long-term solid waste disposal planning period of 30 years was chosen. For the purposes of the *Feasibility Study*, the 30-year planning period begins in January 2009 and extends to December 2039. This planning period provides the basis for the calculation of projected long-term waste disposal quantities generated by the communities forming the City of Temiskaming Shores. These communities include Haileybury, Dymond, Cobalt and New Liskeard. The projections were based on the following:

- Linear extrapolations of population growth calculated from 1991, 1996, 2001 and 2006 census data, as provided by Statistics Canada for the City of Temiskaming Shores and the Town of Cobalt;
- Uncompacted waste quantity estimates for 2008, as presented in Tables 1 and 2 of the *Feasibility Study*; and
- Uncompacted waste generation estimates of 2.6 m^3 per capita for the communities of Haileybury, Cobalt and Dymond (combined) and 3.9 m^3 per capita for the former Town of New Liskeard.

McBean, et. al. (1995) indicates that the density of uncompacted residential solid waste generally ranges from 90 kg/m^3 to 180 kg/m^3, with a typical value of 150 kg/m^3. Therefore, it was assumed that the uncompacted residential waste generated by the City will have a density of 150 kg/m^3. As such, the projected tonnage generated per year was calculated by multiplying the volume of uncompacted solid waste by a density of 150 kg/m^3 and dividing the result by a factor of 1,000 kg per tonne.

AMEC observed that waste disposed at the Haileybury Landfill was subjected to compaction using a HL760 front end loader. Although the actual densities of the compacted waste material at the New Liskeard and Haileybury Landfills are not known, McBean, et al. (1995) indicates

that the density of residential solid waste after landfill compaction generally ranges from 445 kg/m^3 to 505 kg/m^3. Therefore, the in-place density of residential solid waste after landfilling and compaction was conservatively estimated at 300 kg/m^3, representing an increase from the uncompacted residential waste density by a factor of two. Thus, the volume of compacted residential waste was calculated by multiplying the tonnage of projected waste generated by a factor of 1,000 kg per tonne and dividing the result by an in-place density of 300 kg/m^3.

The City of Temiskaming Shores (including the Township of Cobalt) is projected to cumulatively generate approximately 699,073 m^3 of compacted solid waste during the 30-year planning period. Although the City does administer the operation of an MRF for the management of recyclable waste, the MRF has limited capacity to accommodate the increased volume of recycled material generated by the City due to amalgamation. As such, AMEC assumed that, based on the current condition of the MRF, the volume of residential waste diverted by collection of recyclable materials will be negligible throughout the planning period. Therefore, any long-term solid waste management alternative developed by the City will have to accommodate a long-term solid waste disposal volume of approximately 699,073 m^3 of compacted residential waste.

It should be noted that typically, landfill operations in Ontario require that daily cover soil be applied on solid municipal waste at a ratio of 4:1 (waste to daily cover soil), representing approximately 20% of typical landfill capacity. Given a projected long-term solid waste disposal volume of approximately 699,073 m^3, the total landfill capacity of waste and daily cover soil is calculated as follows:

$$TC = 699{,}073\ m^3 \times R_{TOTAL}/R_{WASTE}$$
$$= 699{,}073\ m^3 \times [(4+1)/4]$$
$$= 699{,}073\ m^3 \times 5/4$$
$$= 873{,}841\ m^3$$

where TC = total capacity of projected solid waste generated
R_{TOTAL} = total ratio of solid waste plus daily cover soil
R_{WASTE} = ratio of solid waste

Any long-term solid waste management alternative developed by the City will be required to accommodate approximately 874,000 m^3 (rounded value) of landfill volume, including waste and daily cover soil quantities, as of January 2009.

Any long-term solid waste management strategy for the City would include the use of the remaining approved landfill capacity at the existing landfills. From the two existing landfills, the Haileybury Landfill is the only existing site within the City boundaries with remaining landfill capacity. The remaining site capacity at the Haileybury Landfill was estimated to have been approximately 188,691 m^3 at the end of 2008, including waste and daily cover soil. The remaining site capacity at the New Liskeard Landfill was consumed in 2009.

The preliminary design landfill capacity (685,150 m^3) was calculated by subtracting the remaining site capacity at Haileybury Landfill (188,691 m^3) from the total capacity of projected solid waste generated (waste and cover soil) volume requirement (873,841 m^3). This was rounded to 685,000 m^3 and can be multiplied by the in-place density of 300 kg/m^3 to obtain an estimated landfill mass of 205,500 tonnes.

References

AMEC Earth & Environmental (AMEC), *Feasibility Study For Development of a Long-Term Landfill Disposal Strategy, City of Temiskaming Shores*, June 2010.

McBean, E. A., Rovers F. A. and Farquhar, G. J. (McBean et al.), *Solid Waste Landfill Engineering and Design*, © 1995 Prentice Hall PTR.

APPENDIX B

PRELIMINARY LIST OF PROJECT PARTICIPANTS

(Contact List)

Aboriginal Communities
Algonquin Anishinabeg Tribal Council
Algonquin Nation Secretariat
Barrière Lake First Nation
Beaverhouse First Nation
Communauté anicinape de Kitcisakik;
Conseil de la Première nation Abitibiwinni
Eagle Village First Nation – Kipawa
Kitigan Zibi Anishinabeg
Long Point First Nation
Matachewan First Nation
Mattagami First Nation
Nation Anishnabe du Lac Simon
Temagami First Nation
Timiskaming First Nation
Wahgoshig First Nation
Métis Nation Ontario
Temiskaming Métis Council
Wolf Lake First Nation

Provincial Agencies
Ministry of Agriculture, Food and Rural Affairs
Ministry of Aboriginal Affairs
Ministries of Citizenship and Immigration
Ministry of Energy
Ministry of the Environment
Ministry of Health and Longterm Care
Ministry of Health Promotion
Ministry of Infrastructure
Ministry of Municipal Affairs and Housing
Ministry of Natural Resources
Ministry of Tourism and Culture: Culture Division
Ministry of Transportation

Federal Agencies
Aboriginal Affairs and Northern Development Canada
Canadian Environmental Assessment Agency
Environment Canada
Fisheries and Oceans Canada
Transport Canada

Municipal Agencies
City of Temiskaming Shores
Chamberlain Township
Municipality of Charlton and Dack

Town of Cobalt
Town of Elk Lake - Township of James
Town of Englehart
Town of Kirkland Lake
Town of Latchford
Township of Armstrong
Township of Black River-Matheson
Township of Brethour
Township of Casey
Township of Chamberlain
Township of Coleman
Township of Evanturel
Township of Gauthier
Township of Harley
Township of Harris
Township of Hilliard
Township of Hudson
Township of Kerns
Township of Larder Lake
Township of Matachewan
Township of McGarry
Village of Thornloe

Community/Business
Black River – Matheson Chamber of Commerce
Business Improvement Association
Central Temiskaming Planning Board
Charlton Agricultural Society
Earlton-Timiskiming Regional Airport
Elk Lake & Area New Prospects Club
Elk Lake Recreation committee
Elk Lake Ski Club
Elk Lake Trail Blazers
Englehart & District Agricultural Society
Englehart & District Chamber of Commerce
Englehart Nordic Ski Club
Haileybury Golf Club
Harley Community Improvement Committee
Information Centre New Liskeard Golf Club
Information Timiskaming
Ontario Federation of Agriculture
Ontario Federation of Snowmobile Clubs
Ontario's Wilderness Region
Ontario Provincial Police - North East Region
Mount Kanasuta Ski Centre

New Liskeard Golf Club
Kirkland Lake & District Community Development Corporation
Kirkland Lake Airport
Kirkland Lake District Chamber of Commerce
Kirkland Lake Fire Services
Larder Lake Ski Club
Timiskaming Abitibi Trail Association, Golden Corridor Snow Drifters Club
Timiskaming District Housing Corporation
Timiskaming Forest Alliance Inc
Temiskaming Development Fund Corporation
Temiskaming Federation of Agriculture
Temiskaming Shores and Area Chamber of Commerce
Temiskaming Shores Fire Department
Temiskaming Shores Haileybury Business Group
Temiskaming Shores Tourism
Town of Kirkland Lake Snowmobile Club (Golden Corridor Snowdrifters)
Shining Tree Trail Plan – Snowmobile Club
South Temiskaming Active Travel Organization
South Temiskaming Community Futures Development Corporation

Non-Governmental Organizations (Environmental)
Ducks Unlimited Canada – Englehart
Nipissing Environment Network
Northwatch
Ontario Environment Network
Responsible Environmental and Economic Prosperity Assoc.
Temiskaming Environmental Action Committee
Temiskaming Wildlife Centre
Wildlife North

Residents, Businesses, Land Owners
Residents/land owners within approximately 500 m of New Liskeard Landfill Site
Businesses within approximately 500 m of New Liskeard Landfill Site

SUPPORTING DOCUMENT #1

GENERAL INFORMATION NEEDS UNDER CEAA

(Source: CEAA 2005)

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 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 aboriginal communities; and any structure, site or thing that is of historical, archeological, 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[1];
- 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;

[1] 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

- 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 assessment.

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.

SUPPORTING DOCUMENT #2

DRAFT WASTE MANAGEMENT MASTER PLAN:
SUMMARY, CONCLUSIONS/ RECOMMENDATIONS

(Source: Earth Tech 2009)

Note: The Supporting Document #3 presents text excerpts from the Draft Waste Management Master Plan (WMMP). This includes:

- Table of Contents
- Executive Summary
- Section 1: Introduction
- Section 2: Stated Problems
- Section 13: Recommendations

A copy of the complete text can be accessed via the project's website: (http://www.temiskamingshores.ca)

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Haileybury, Ontario P0J 1K0

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Fax: (705) 672-2911
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July 9, 2012

Director
Environmental Assessment and Approvals Branch
c/o Antonia Testa, Project Officer
Ministry of the Environment
2 St. Clair Avenue W., 12th Floor
Toronto, Ontario, M4V 1LS
By e-mail: michelle.whitmore@ontario.ca

Dear Sir/Madam:

Re: City of Temiskaming Shores New Waste Management Capacity
Terms of Reference

The City of Temiskaming Shores (City) has initiated a study under the Ontario *Environmental Assessment Act* to address the City's need for new waste management capacity. Currently, the City's waste is disposed of at its Haileybury Site. This site will reach its capacity in 2016. The City places emphasis on intensifying its waste reduction and recycling efforts but also identified the need for new waste management capacity by 2016. In a Feasibility Study (2010), the City determined that the waste volume to be managed over a 30-year time period (2009 to 2039) amounts to approximately 700,000 m^3.

On June 1, 2012, the City submitted a Terms of Reference (ToR) to the Minister of Environment for approval. During the public review period for the New Waste Management Capacity Environmental Assessment, proposed Terms of Reference, a number of comments were received from the government review team. The City along with our consultant, AMEC Environment & Infrastructure, has responded to all of these comments and has copied Ms.Michelle Whitmore, the Ministry of the Environment Project Officer for this Project. This erratum replaces the erratum issued on July 4, 2012.

The nature of the comments and responses required (minor corrections / additions to the proposed ToR) were such that the City has prepared an erratum to reflect the necessary edits rather than amend the proposed ToR. This erratum is attached for your consideration. The erratum can be issued to those individuals who received the ToR on your request.

If you have any additional comments or questions, please do not hesitate to contact us.

Yours truly,

David B. Treen, CET
Manager of Engineering and
Environmental Services

City of Temiskaming Shores New Waste Management Capacity
TERMS OF REFERENCE - ERRATUM

Page	Existing Text	Page	Correction Required
15-16, Section 4.4	Aboriginal communities located in the general region include (Chiefs of Ontario 2009; AANDC 2012): • Algonquin Anishinabeg Tribal Council; • Algonquin Nation Secretariat; • Barrière Lake First Nation; • Beaverhouse First Nation • Communauté anicinape de Kitcisakik; • Conseil de la Première nation Abitibiwinni; • Eagle Village First Nation – Kipawa; • Kitigan Zibi Anishinabeg; • Long Point First Nation; • Matachewan First Nation; • Mattagami First Nation; • Nation Anishnabe du Lac Simon; • Temagami First Nation; • Timiskaming First Nation; • Wahgoshig First Nation; • Métis Nation Ontario; • Temiskaming Metis Council; and • Wolf Lake First Nation.	15-16, Section 4.4	Aboriginal communities located in the general region include (Chiefs of Ontario 2009; AANDC 2012): • Beaverhouse First Nation • Matachewan First Nation; • Mattagami First Nation; • Temagami First Nation; • Timiskaming First Nation; • Wahgoshig First Nation; • Métis Nation Ontario; and • Temiskaming Métis Council.
16-17, Section 4.4	Other social, cultural, and economic environmental features such as archaeologically significant areas, heritage features, specific recreation infrastructure. Potentially sensitive noise receptors (residences; hospitals etc.), and traffic noise levels will be presented in the context of the EA (Sections 5 and 6).	16-17, Section 4.4	Other social, cultural, and economic environmental features such as archaeologically significant areas, heritage features, specific recreation infrastructure, potentially sensitive noise receptors (residences; hospitals etc.), and traffic noise levels will be presented in the context of the EA (Sections 5 and 6).
18, Table 4-1 Under Waste disposal in landfill, Adverse effects on groundwater	"Siting of landfill away from groundwater extraction wells"	18, Table 4-1 Under Waste disposal in landfill, Adverse effects on groundwater	"Siting of landfill away from groundwater extraction wells"
29, Section 6.3.1	"The Provincial Planning Policy (MMAH 2005)"	29, Section 6.3.1	"The *Provincial Policy Statement* (MMAH 2005)

Page	Existing Text	Page	Correction Required
29, Section 6.3.1		29, Section 6.3.1	"The appropriate municipal planning documents (e.g. applicable official plan and zoning by-law) will also be reviewed'
30, Section 6.4	"the conceptual design will be based on *Landfill Standards: A Guide to the Regulatory and Approval Requirements for New and Expanding Landfills* (MOE 2010) and the various standards referred to in the document."	30, Section 6.4	"the conceptual design will be based on *Landfill Standards: A Guide to the Regulatory and Approval Requirements for New and Expanding Landfills* (MOE 2012) and the various standards referred to in the document."
Appendix B, Preliminary List of Project Participants	Aboriginal Communities Algonquin Anishinabeg Tribal Council Algonquin Nation Secretariat Barrière Lake First Nation Beaverhouse First Nation Communauté anicinape de Kitcisakik; Conseil de la Première nation Abitibiwinni Eagle Village First Nation – Kipawa Kitigan Zibi Anishinabeg Long Point First Nation Matachewan First Nation Mattagami First Nation Nation Anishnabe du Lac Simon Temagami First Nation Timiskaming First Nation Wahgoshig First Nation Métis Nation Ontario Temiskaming Métis Council Wolf Lake First Nation	Appendix B, Preliminary List of Project Participants	Aboriginal Communities Beaverhouse First Nation Matachewan First Nation Mattagami First Nation Temagami First Nation Timiskaming First Nation Wahgoshig First Nation Métis Nation Ontario Temiskaming Métis Council