Draft for Discussion

Environmental Assessment – Terms of Reference

Waste Management of Canada Corporation,
Ottawa Waste Management Facility

January 12, 2006
Table of Contents

1. Introduction ......................................................................................................................1

2. The Proponent – Waste Management of Canada Corporation ......................................4

3. Purpose of the Proposed Undertaking .............................................................................4
   3.1 Problem Assessment .................................................................................................5
   3.2 Opportunity Assessment .........................................................................................6

4. The Contents of the Environmental Assessment Document ...........................................7

5. Description and Rationale for the Proposed Undertaking .............................................7
   5.1 Description of the Proposed Undertaking ...............................................................8
   5.2 Rationale for the Proposed Undertaking ...............................................................8

6. Description and Rationale for “Alternatives To” the Undertaking .............................10

7. Description and Rationale for “Alternative Methods” of Carrying Out the Undertaking ..............................................................................................................10

8. Description of Environment Potentially Affected by the Proposed Undertaking ..............13

9. Environmental Assessment Methodology ......................................................................15
   9.1 Evaluation of “Alternatives To” and “Alternative Methods” ....................................15
   9.2 Detailed Assessment of the Undertaking ...............................................................16

10. Community Commitments Agreement .......................................................................17

11. Consultation ..................................................................................................................17
   11.1 Consultation on the Terms of Reference ...............................................................17
   11.2 Consultation Plan for the EA ................................................................................18

12. Other Approvals .........................................................................................................19

List of Figures

Figure 1. Site Location .........................................................................................................2
Figure 2. Existing Conditions ............................................................................................9

Appendices

A. Environmental Assessment Criteria and Studies
1. Introduction

Waste Management of Canada Corporation (WM) is preparing an environmental assessment (EA) to provide additional disposal capacity at its Ottawa waste management facility (WMF), currently located on Lots 3 and 4, Concession 3 in the former Township of Huntley, formerly in the Township of West Carleton, now the City of Ottawa near the intersection of Carp Road and Highway 417 (see Figure 1). The WMF is operated under Certificate of Approval A461002, issued on August 17, 1994. The site has a total area of 104 ha, of which 35 ha are licensed for waste disposal. The current WMF site is designated in the City of Ottawa Official Plan as a Solid Waste Disposal Site and the active landfill area is supported by the appropriate land use zoning (Waste Management Zone).

The reason for preparing this environmental assessment is to systematically gather and evaluate information about WM’s proposal to provide additional disposal capacity at the Ottawa WMF, and its alternatives, so that an informed and environmentally sound decision can be made. The EA will include the consideration of potential environmental effects, and the public interest, as part of its decision for providing additional disposal capacity at the Ottawa WMF. WM will identify and consult with interested stakeholders about the preparation of the EA and its conclusions.

The provision of additional disposal capacity at the Ottawa WMF is a “proposed undertaking” for the purposes of preparing an EA under Ontario’s Environmental Assessment Act (the “Act”). Section 1 (1) of the Act defines an undertaking as:

“[A] major commercial or business enterprise or activity or a proposal, plan or program in respect of a major commercial or business enterprise or activity of a person or persons, if an agreement is entered into under section 3.01 in respect of the enterprise, activity, proposal, plan or program”.

Section 3 of the Act specifies that the Act does not apply to this undertaking unless designated by regulations or by a written agreement under Section 3.01 of the Act. WM has applied to the Ontario Minister of the Environment (the “Minister”) for such an agreement for this undertaking.

These Terms of Reference (ToR) are the first step in the preparation of an EA. It is submitted to the Ontario Minister of the Environment for approval as required under Section 6 (1) of the Act. The Terms of Reference document describes the content of the proposed EA and how it will be carried out.
Draft for Discussion

Environmental Assessment – Terms of Reference
Waste Management of Canada Corporation, Ottawa Waste Management Facility

The proposed Terms of Reference have been prepared in compliance with Section 6 (2) of the Act and for the purpose of satisfying the obligations of WM regarding the preparation of the environmental assessment for the undertaking as required by Section 6.1 (2) of the Act.

This means that the environmental assessment will include:

6.1 (2) (a) a description of the purpose of the undertaking;
(b) a description of and a statement of the rationale for,
   i. the undertaking,
   ii. the alternative methods of carrying out the undertaking, and
   iii. alternatives to the undertaking;
(c) a description of,
   i. the environment that will be affected or that might reasonably be expected to be affected, directly or indirectly,
   ii. the effects that will be caused or that might reasonably be expected to be caused to the environment, and
   iii. the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking;
(d) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; and
(e) a description of any consultation about the undertaking by the proponent and the results of the consultation.

WM believes that an environmental assessment conducted in accordance with these Terms of Reference will be consistent with the purpose of the Act as set out in Section 2, providing for:

[T]he betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment.
2. The Proponent – Waste Management of Canada Corporation

Waste Management is a primary service provider in the collection and processing of recyclables and disposal of waste in the City of Ottawa, and the largest non-hazardous solid waste management company in Canada. WM manages its Eastern Canada operations from its regional head office, located in Ottawa, Ontario.

Across Canada, Waste Management employs over 3,300 people at 116 operating locations, in 8 provinces. The company provides waste management services to municipal, industrial, commercial and institutional customers. In total, WM serves 4.5 million residential customers and 170,000 industrial, commercial and institutional customers in Canada, making it the country’s largest private sector collector and processor of recyclables and waste. In Canada, WM currently owns and/or operates 20 recycling facilities and 18 landfill sites.

Waste management is a highly regulated industry in Ontario and the scope of services offered by WM fits within this regulated waste management framework. WM is a sophisticated, vertically integrated waste management company committed to the ongoing development of its waste diversion, recycling, disposal and energy development business operations. It currently owns and operates 10 material recovery facilities, five active landfill sites and operates a network of waste transfer stations across Ontario to support its collection programs and recycling and disposal facilities.

WM actively pursues additional opportunities to establish or enhance residential and commercial, industrial and institutional (IC&I) waste management business operations. The parent company is publicly traded on the NYSE (WMI). Waste Management, Inc. operates over 119 recycling facilities, 300 landfills and 17 energy from waste (EFW) facilities across North America.

3. Purpose of the Proposed Undertaking

The purpose of the proposed undertaking is to provide additional disposal capacity at the WM Ottawa WMF, in order to allow WM to continue to manage its current commercial interests and growth of its business operations. This includes the provision of waste management infrastructure to the City of Ottawa (the City) and other customers primarily located in the Outaouais region and Eastern Ontario.
The Ottawa WMF has historically supplied disposal capacity for residential waste generated within, and managed by, the City of Ottawa. The City has identified this disposal capacity as an integral component of its waste management system in both their Integrated Waste Management Master Plan (Phase One) and its recent environmental assessment approval for the expansion of the City’s Trail Road Landfill.

The City initiated Phase 1 of their Integrated Waste Management Master Plan in 2002. This Phase was intended to establish key strategic directions related to waste management for the City. At the conclusion of Phase 1, on April 3, 2003, the City’s Environmental Services Committee and Council approved a number of strategic policy directions. These strategic directions recognize the City’s continuing interests and practice of reserving capacity at the WM Ottawa WMF.

WM has an agreement with the City to reserve a significant portion of its disposal capacity for City generated wastes. The Ottawa WMF has historically reserved 90% of its disposal capacity for residential and industrial, commercial and institutional (IC&I) wastes generated within the City of Ottawa.

### 3.1 Problem Assessment

The WM Ottawa waste management facility presently includes a landfill, and related infrastructure, that is reaching its approved capacity. Because of WM’s commitments to the City, other municipalities and its IC&I sector customers, additional disposal capacity at the facility is required within 4 years, at current operating levels. Should this additional disposal capacity not be developed, closure of the existing facility would result in the following problems:

a) A detrimental impact on the commercial business interests of WM.

b) WM’s customers, including residents, commercial businesses, industries and institutions, from Ottawa and Eastern Ontario, would be faced with a lack of long-term disposal capacity.

c) The City would be put in the position whereby its own disposal capacity may be utilized more quickly, or face the proposition of finding disposal capacity outside of its political boundaries and export its waste.

d) Other municipalities in Eastern Ontario and commercial businesses, industries and institutions from across the region and broader area would lose access to cost competitive disposal capacity currently represented by the WM landfill.

e) An important component of the integrated waste management system that exists locally in the City and more broadly in Eastern Ontario will be lost.
3.2 Opportunity Assessment

In contrast to the potential problems associated with the closure of the WM Ottawa WMF, additional disposal capacity at the facility can provide WM, the City, other municipalities and IC&I sector clients from the Outaouais region and across Eastern Ontario with a number of opportunities:

a) The site would be in a position to expand customer services that promote diversion and recycling at source, as well as its environmental and waste minimization education and outreach programs.

b) Additional disposal capacity at the existing site would make efficient use of the land and infrastructure already in place at the current site (as compared to siting, permitting and building a completely new facility).

c) Building on the infrastructure of the existing facility, WM will look at enhancing their commercial operations through providing a wider range of integrated waste management services supporting waste diversion processing facilities, energy production through utilization of landfill gas and long-term secure disposal capacity.

d) The City and other municipal jurisdictions within the Outaouais region and Eastern Ontario would be able to rely on local disposal capacity for their residents, businesses/industries and institutions without the need to export waste outside the area or the Province of Ontario.

e) The Ottawa WMF will continue to serve as a key component of WM’s regional network of waste management facilities located across Ontario and operating within an integrated system.

f) The site could provide local emergency/contingency waste disposal capacity.

The EA will evaluate and confirm the purpose of the undertaking, to provide for additional disposal capacity at the WM Ottawa WMF in order to allow WM to continue to manage its commercial interests through the growth and operation of its business, through an assessment of the need for this waste management facility in the City of Ottawa, Outaouais region and Eastern Ontario areas over a 25-year planning period.

The EA will confirm that the purpose of the proposed undertaking is consistent with the purpose of the Act since the provision of future waste management infrastructure will permit the continuation of this essential service for the betterment of the people of Ontario. Subject to the findings of the EA, the undertaking will be carried out in a manner that protects, conserves, and wisely manages Ontario’s environment.
4. The Contents of the Environmental Assessment Document

WM has decided to proceed with these Terms of Reference in a manner set out in 6(2)(a) of the Act. The ToR will be prepared in accordance with the requirements of subsection 6.1(2) of the Act, as set out below. Upon completing the preparation and public review of its EA document, WM will submit the EA Document for review and approval by the Minister that will contain the following:

a) A description of the purpose of the undertaking.
b) A description of the undertaking.
c) The rationale for the undertaking.
d) A description of the environment potentially affected by the undertaking.
e) An assessment of the alternatives to the undertaking and the alternative methods of carrying out the undertaking.
f) A description of the effects that will be caused or that might reasonably be expected to be caused on the environment by the undertaking or the alternatives.
g) A description of mitigation measures that are necessary to prevent or reduce significant adverse effects on the environment.
h) An evaluation of the advantages and disadvantages to the environment as a result of the undertaking and the alternatives.
i) A description of consultation undertaken by WM in association with the environmental assessment.

5. Description and Rationale for the Proposed Undertaking

The completion of the environmental assessment in accordance with these Terms of Reference will result in the identification of the proposed undertaking. The purpose of the proposed undertaking will be described in accordance with Section 6.1(2)(a) of the Act, and a description of the proposed undertaking prepared in accordance with Section 6.1(2)(b)(i) of the Act.
5.1 Description of the Proposed Undertaking

The proposed undertaking, to provide additional disposal capacity at the WM Ottawa WMF, will continue to accept non-hazardous waste generated in the Province of Ontario. The current service area is proposed to be expanded to include the Outaouais region of Quebec in recognition of its importance as part of the Ottawa economic area. The WMF will be positioned to serve the Ottawa, Outaouais and Eastern Ontario regions. After the diversion or the beneficial use of appropriate materials at the facility, up to 18,750,000 m$^3$ of disposal capacity will be provided by the facility for a 25 year period.

The additional disposal capacity at the WMF would occur on lands owned or controlled by WM from time to time (see Figure 2). It will include a combination of on-site facilities to form an integrated waste management facility. This combination of waste management facilities may include facilities related to public education, waste diversion, recyclables processing, productive utilization of landfill gas and waste disposal.

The description of the proposed undertaking will be further refined during the EA.

5.2 Rationale for the Proposed Undertaking

WM’s description and statement of the rationale for the proposed undertaking will involve taking into consideration:

a) An inventory of solid non-hazardous waste generation, diversion and disposal (Ontario and export) for the base year (2005).

b) Public policy respecting current and future waste diversion targets in Ontario.

c) A five year projection (i.e. from the start of the EA to the expected development and operation of the proposed undertaking) of waste requiring disposal in Ontario considering disposal rates, capacity, demographics and diversion objectives to determine if, following that time, there will be a demand for disposal capacity.

d) Waste disposal supply/demand and constraints locally, regionally (including the Outaouais), and provincially having regard to the facts of analysis carried out under (a), (b) and (c).

e) WM’s business mandate and its role in the market sector.

f) WM’s role in providing waste disposal having regard to (d) and (e).

The rationale for the proposed undertaking will include a description of WM’s role in supporting increased waste reduction and diversion of waste from disposal in the City of Ottawa.
6. Description and Rationale for “Alternatives To” the Undertaking

The EA will consider specific “alternatives to” the WM undertaking. Alternatives to the proposed undertaking are functionally different ways of approaching and dealing with additional disposal capacity at the WM Ottawa WMF.

The EA, in accordance with the requirements of Section 6.1(2)(b)(iii) of the Act, will include a description of, and rationale for, the following “alternatives to” the proposed undertaking:

- **Do Nothing**
  WM would not undertake future development of its existing Ottawa facility.

- **Develop New Disposal Capacity within the WM Ottawa Market Region**
  WM would develop additional disposal capacity at one of its owned and controlled facilities (e.g., transfer stations, diversion facilities, open and closed landfills, etc.) within the primary market region of the Ottawa WMF (i.e., Ottawa, Outaouais region, Eastern Ontario) for providing the appropriate waste management infrastructure.

- **Export to Disposal Capacity outside the WM Ottawa Market Region**
  This alternative consists of the export of wastes, generated within the Ottawa, Outaouais and Eastern Ontario regions and managed by WM, to a WM owned and controlled disposal facility located outside the area. The facility may be located elsewhere in Ontario or within another jurisdiction.

The “alternatives to” that are proposed for consideration in the EA will be described in more detail as part of the EA.

7. Description and Rationale for “Alternative Methods” of Carrying Out the Undertaking

The EA will consider specific “alternative methods” of carrying out the undertaking. The following “alternative methods” for carrying out the undertaking are proposed:
Environmental Assessment – Terms of Reference
Waste Management of Canada Corporation, Ottawa Waste Management Facility

a) Landfill “footprint” alternatives
b) Site access alternatives
c) Leachate treatment alternatives
d) Leachate containment
e) End use alternatives

The EA, in accordance with the requirements of Section 6.1(2)(b)(iii) of the Act, will include a description of, and rationale for, the following “alternative methods” for carrying out the proposed undertaking:

a) **Landfill “Footprint” Alternatives**

The total proposed capacity of a landfill footprint alternative will be up to 18,750,000 m³. The expanded landfill would provide disposal capacity for 25 years of additional service.

WM has established three alternatives for the potential landfill footprint. The alternatives to be considered are bounded by Highway 417, Carp Road and Richardson Sideroad. The three alternatives are as follows:

- **Build Over Alternative:** Expansion of the facility over the north and south side slopes of the existing landfill and within the existing WM land holdings.
- **North Alternative:** Development of a stand-alone facility to the north of the existing landfill on land owned, and not currently owned, by WM.
- **West Alternative:** Development of a stand-alone facility to the west of the existing landfill on land not currently owned by WM.

In addition, mining/reclamation of a portion of the existing landfill property may be considered as part of any of these alternatives.

b) **Site Access Alternatives**

Three alternative entrances for accessing the site will be evaluated, dependent on the preferred landfill footprint alternative, as follows.

- **Existing Access Entrance:** Carp Road north to the existing site entrance.
- **New Access Entrance #1:** Carp Road north to a new entrance on the north side of the site.
- **New Access Entrance #2:** Carp Road north to Richardson Side Road, west on Richardson Side Road to William Mooney Road, south on William Mooney Road to the new entrance.
c) **Leachate Containment**

The provision of additional landfill disposal capacity at the Ottawa WMF, will be engineered in accordance with Ontario Regulation 232/98. For the Build Over landfill footprint alternative, a Site Specific Design approach (as specified in Regulation 232/98) will be used in those areas where development will occur over top of the existing landfill. The North and West stand-alone footprint alternatives, or landfill development on any currently undeveloped lands, will utilize Generic Design II, as specified in Regulation 232/98.

d) **Leachate Treatment Alternatives**

A number of leachate treatment alternatives will be considered for the additional landfill disposal capacity at the Ottawa WMF, including:

1. full on-site treatment with no liquid effluent discharge (e.g., distillation, evaporation, incineration, phyto-remediation);
2. full on-site treatment with discharge of effluent to surface water;
3. on-site pre-treatment with discharge to sewer;
4. off-site trucking to a sewage treatment plant; or,
5. leachate recirculation (in combination with any other alternative(s)).

Each leachate treatment alternative may be considered on its own or in combination with another alternative.

e) **End Use Alternatives**

During the EA, WM will propose one or more end uses for the site and consult with the stakeholders to determine if there are others. WM will either: enter into a formal evaluation and decision making process regarding a preferred alternative and establish a preference based on consensus among the stakeholders; or propose a process to determine the final end use at a later date, closer to the time of site closure.
8. Description of Environment Potentially Affected by the Proposed Undertaking

The Ottawa WMF has demonstrated that it is a suitable location for ongoing waste management activities. The WMF has the following characteristics:

a) A land base that is sufficient to contain all waste infrastructure necessary for the current operation of the site;
b) Efficient and safe vehicle access to the site that avoids any built up areas;
c) Hydrogeological control of the site;
d) Surface water management and control on-site with no off-site discharge;
e) Active gas collection and combustion on-site;
f) Sound operational practices; and,
g) Corporate experience and track record.

A preliminary description of the existing environment that may be affected by the proposed undertaking provides a general outline of subject areas that will be assessed in the EA. The potentially affected environment that will be assessed includes, but will not be limited to, land use; transportation; air quality; terrestrial and aquatic environments; and groundwater. An aerial view of the existing WM Ottawa WMF and surrounding area is shown in Figure 2.

Land Use

The WM Ottawa WMF is generally situated in a rural setting; with both rural industrial and commercial land uses adjacent the site. Land use around the site includes a mix of agricultural, rural residential, commercial, industrial and aggregate extraction.

The City of Ottawa has experienced significant economic and land development growth in recent years due mainly to the establishment and growth of the technology industry. Much of this growth has been in the areas west of the central urban core of the former City of Ottawa and in the former municipality of Kanata. This development pressure has moved southwest, along the Highway 417 corridor, through Kanata towards West Carleton and the landfill site. Although development pressures do not appear to be imminent in the site area during the short term, this landscape could undergo changes over the future operating life of the landfill.

Transportation

The landfill property is bounded by Regional Road 5 (Carp Road) to the northeast, Highway 417 to the southeast and William Mooney Road to the southwest. Richardson Sideroad is the main road to the northwest of the site. Access to the WMF is directly off Carp Road.
The Ottawa/Carp Airport is situated to the north of the WMF. The distance from the current northern property limit of the WMF site to the southern edge of the airport property limit is approximately 4.8 km.

**Air Quality**

The Ottawa WMF is operating within a rural environment including industrial land uses. Background particulate concentrations are highly influenced by these land uses relative to the WMF. WM implements various operating practices at the site to minimize the potential for dust impacts.

The WMF has implemented operational practices to control the potential release of nuisance odours. In addition, an odour control system has been installed on the northeastern side of the site. WM is not aware of any odour complaints being received by the Ministry of the Environment over the past two years.

A landfill gas collection system and flare are operated at the site. Combined with appropriate final covering of the waste, landfill gas emissions are being controlled.

**Terrestrial and Aquatic Environment**

The topography in the area surrounding the site ranges from sandy upland areas in the north and west to poorly drained swampy areas towards the east. Parts of the lands under consideration have been disturbed by landfill and prior extraction operations. Other lands include active farming operations; old field and remnant woodlot parcels.

There is no off-site surface water discharge from the landfill area. Surface water in the area generally flows north and east toward the Carp River. All surrounding properties use groundwater as their source of potable and process water.

The direction of regional groundwater flow is toward the Carp River, located approximately 4 km to the northeast. Locally, groundwater recharge likely occurs along the sand and gravel ridge located to the south and southwest of the site. The direction of shallow groundwater flow is toward the north and northeast, and at the northwest corner groundwater flow diverges to the northwest, generally following the bedrock topography.

Supporting documents to the ToR are:

9. Environmental Assessment Methodology

This section presents a description of the work that will be completed for the evaluation of the advantages and disadvantages to the environment of the alternatives to the undertaking and the alternative methods of carrying out the undertaking. A description is also provided of the work that will be completed for evaluation of the advantages and disadvantages of the undertaking itself, and for the technical approvals under the Environmental Protection Act (EPA), since WM is proposing a joint approval application.

9.1 Evaluation of “Alternatives To” and “Alternative Methods”

The “alternatives to” and “alternative methods” of the proposed undertaking will be evaluated in the EA, considering:

a) the environment potentially affected;
b) the effects that will be caused on the environment;
c) the actions necessary to prevent, change, mitigate or remedy the effects on the environment; and
d) an evaluation of the advantages and disadvantages to the environment.

A comparative evaluation methodology, consisting of the following steps, is proposed for this purpose and will be applied to the “alternatives to” and “alternative methods”. A comparative evaluation means that the differential impacts between two or more alternatives will be described and assessed.

1. Prepare a **description** of and **rationale** for each of the “alternatives to” listed previously in Section 6 and “alternative methods” in Section 7.

2. **Confirm alternative feasibility**. In the consideration of “alternatives to”, WM will consider all of its owned and controlled facilities within the primary market region of the Ottawa WMF (i.e., City of Ottawa, Outaouais region, Eastern Ontario). These various existing candidate facilities will be screened according to the following criterion to ensure their feasibility in accommodating the needed additional disposal capacity:

   - Must be sufficiently large to accommodate 18,750,000 m$^3$ of disposal capacity, following any waste diversion or beneficial use of appropriate materials, over an operating life of approximately 25 years.

Any candidate facility that fails to meet the requirements of this screening criterion will be eliminated from further consideration in the EA. The remaining candidate facilities will be carried forward for further consideration.
3. Screen the EA criteria listed in Appendix A against the following two factors:
   a) must apply to, and be relevant to, the effects that might be caused by the “short list” of alternatives; and
   b) must allow for a meaningful differentiation in environmental effects between the “short list” of alternatives;
   e) resulting in the establishment of a “short list” of comparative evaluation criteria.

4. Develop comparative evaluation indicators, to serve as measures of the potential effect for each of the “short list” comparative evaluation criteria.

5. Describe the environment potentially affected, based on the comparative evaluation criteria and indicators, by each of the “short list” alternatives.

6. Describe the net effects on the environment for each alternative when compared to each of the other “short list” alternatives, taking into account reasonable mitigation methods.

7. Evaluate the advantages and disadvantages to the environment for each of the “short list” of alternatives, and prepare a rationale for the preferred alternative(s).

If the comparative evaluation of “alternatives to” does not reach a conclusion on a preferred alternative, then more than one alternative will be carried forward for consideration at an “alternative methods” level of detail. If the comparative evaluation of “alternative methods” does not reach a conclusion on a preferred alternative, more than one alternative method may be carried forward to the detailed assessment of the undertaking. When a preferred alternative is identified, it will be carried forward for more detailed impact assessment.

9.2 Detailed Assessment of the Undertaking

A comprehensive impact assessment of the preferred alternative will be completed to determine the net effects that will be caused, or that might reasonably be caused, on the environment (i.e., the advantages and disadvantages to the environment). This includes consideration of any mitigation that might be necessary to reduce or eliminate impacts, and the appropriate monitoring, contingency and impact management plans while providing disposal capacity of up to 18,750,000 m³. WM may consider mitigation that:

- Identifies a maximum daily rate of fill;
- Varies the landfill height, depth, or footprint; or,
- Details specific landfill operational practices.
WM may consider compensation measures to alleviate any nuisance impacts that may occur after all reasonable mitigation efforts.

The baseline conditions for the impact assessment will account for the ongoing operation of the existing waste management facilities and any surrounding land uses. The baseline year for the existing facilities will be 2005, unless otherwise stated. The impact assessment will assume baseline conditions only of the operating landfill.

The criteria proposed to be used in the assessment are attached as Appendix A, along with the proposed technical studies. The study areas and typical study data sources are also included in Appendix A. The criteria, study areas and study data sources are not intended to be absolute. If significant new issues or concerns arise during the course of the EA, WM will be flexible in considering their inclusion. The study methods to be used will conform to commonly acceptable industry and government practices.

10. Community Commitments Agreement

WM has entered into an agreement with the City of Ottawa regarding the Ottawa WMF. As part of the agreement, and consistent with the City of Ottawa Act, WM pays a host community fee to the City. The total fee paid annually is based on the rate of filling at the facility. WM expects that the agreement with the City will carry forward into the future.

11. Consultation

11.1 Consultation on the Terms of Reference

WM intends to consult with a broad stakeholder group on the content of these Terms of Reference. WM proposes to consult with the public and agencies in the following manner:

a) Public announcement of the Environmental Assessment and the proposed undertaking.

b) Release of these draft Terms of Reference for review and comment by the public and agencies.
c) A timeline of 60 days will be established for the review and commenting period to ensure that the EA commences in a timely manner. Comments received during the specified review period will be addressed as part of the final Terms of Reference.

d) A consultation forum based on an open house format during the 60-day review period.

A description of the consultation activities undertaken regarding the content of these Terms of Reference will be provided in the final Terms of Reference.

11.2 Consultation Plan for the EA

In accordance with Section 6.1(2)(e) of the Act, a description of the consultation plan carried out by WM during the EA, along with the results of that plan will be documented in the EA. The objective of good consultation is to promote and obtain public and government agency input into the decision-making process, and demonstrate how this input was incorporated.

A consultation forum based on an open house/public meeting format at key decision points or milestones will be utilized throughout the EA. Public notice will be given to the public, City of Ottawa, Province of Ontario and other agencies at key milestones during the preparation of the EA when draft reports or component studies have been prepared and information is available for review and comment. Information will be released through the use of a website, newsletters and news releases, and interviews, correspondence and meetings with local residents, agencies and municipal representatives.

WM undertakes to give such notice and to consult with the public, City of Ottawa, Province of Ontario and other agencies at the following key milestones:

a) Upon completion of a draft report or component study on the rationale for the undertaking and on the “alternatives to” the undertaking and the recommended alternative.

b) Upon completion of a draft report or component study on the “alternative methods” of carrying out the undertaking, including the description of the recommended undertaking. A description of the existing baseline environmental conditions and the proposed facility characteristics (i.e., design concept) of the recommended undertaking will also be consulted on at this time.

c) Upon completion of a draft report or component study on the potential impacts associated with the recommended undertaking, including the proposed mitigation, monitoring and impact management.
In all cases, a timeline of 60 days will be established for the review and commenting period, related to each of the four key milestones, to ensure that the EA continues to progress in a timely manner. Comments received during the specified review period will be addressed as part of the final EA.

Additional notice to the public, City of Ottawa, Province of Ontario and other agencies will be provided during the course of the EA. WM proposes to provide additional notice at the following points:

   a) Upon receipt of the Minister of the Environment’s decision to approve the Terms of Reference.
   b) Upon completion and submission of the Final EA.

12. Other Approvals

In addition to the EA approval certain other approvals will necessarily be sought. It is intended that Environmental Protection Act approvals, as well as any other statutory approval requirements under Provincial Acts and Regulations, will be sought concurrently with the Environmental Assessment Act approval. Dependent on the preferred alternative(s) identified, land use approvals may also be required under the Planning Act.
Appendix A

Environmental Assessment Criteria and Studies
# Table of Contents

<table>
<thead>
<tr>
<th>Technical Discipline</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Assessment</td>
<td>2</td>
</tr>
<tr>
<td>Air Quality Assessment</td>
<td>3</td>
</tr>
<tr>
<td>Archaeological and Heritage Assessment</td>
<td>5</td>
</tr>
<tr>
<td>Economic Assessment</td>
<td>6</td>
</tr>
<tr>
<td>Hydrogeological Assessment</td>
<td>8</td>
</tr>
<tr>
<td>Land Use Assessment</td>
<td>10</td>
</tr>
<tr>
<td>Natural Environment and Resources Assessment</td>
<td>11</td>
</tr>
<tr>
<td>Noise Assessment</td>
<td>13</td>
</tr>
<tr>
<td>Social Impact Assessment</td>
<td>15</td>
</tr>
<tr>
<td>Transportation Assessment</td>
<td>17</td>
</tr>
<tr>
<td>Visual Assessment</td>
<td>19</td>
</tr>
</tbody>
</table>
Appendix A

Environmental Assessment Criteria and Studies

This appendix describes the environmental assessment criteria and the impact assessment studies that will be carried out during the environmental assessment of the WM Ottawa Waste Management Facility (WMF).

The proposed environmental assessment criteria for the Ottawa WMF environmental assessment are included in Table A.1. The criteria have been grouped into four major categories:

- Public Health and Safety;
- Natural Environment and Resources;
- Social and Cultural; and
- Economic.

A definition/rationale for each of the proposed criteria is also included in Table A.1.

For each group of criteria the location of the potential effects is considered in terms of three study areas. The study areas are as follows:

- **On-site and in the Site Vicinity** – This study area includes the waste disposal facility and any on-site buffer zones, and the area immediately adjacent to the waste disposal facility property that is directly affected by the on-site activities.
- **Along the Haul Routes** – The primary route along which truck traffic moves to the waste disposal facility, including the properties directly adjacent to these roads.
- **In the Community** – This study area typically includes the area beyond the site vicinity and can vary in size depending on the specific criterion.

The detailed assessment of the undertaking will include a number of impact assessment studies. The framework for each of the various studies is provided in the following sections of the appendix. Each section summarizes:

- the environmental assessment criteria that each study will be addressing;
- the study areas that will be used to address each of the criteria; and
- the legislation, regulations, or guidelines applicable in each study, and the typical data sources to be relied on.
Agricultural Assessment

Study Area

The following study areas will be used to determine whether the waste disposal facility will effect agricultural resources:

On-Site and in the Site Vicinity
• On-site and within 3 km of the site

Along the Haul Route
• Adjacent to the haul route

Criteria

The following criteria will be used to determine whether the waste disposal facility will effect agricultural resources:

Natural Environment and Resources
(a) On-site and Vicinity
• Displacement of Agricultural Land

Economics
(a) On-site and Vicinity
• Displacement of businesses (including farms)
• Disruption to businesses (including farms) due to nuisance effects
(b) Along the Haul Routes
• Disruption to businesses (including farms) due to nuisance effects

Regulations, Guidelines, or Source Material

The agricultural assessment will rely on the following regulations, guidelines, or source materials:

• Base mapping
• Assessment mapping and data
• Soils and soil capability for agriculture mapping
• Air photographs
• Land use systems mapping
• Artificial drainage system mapping
• Census of agriculture data
• OLI – agricultural land use mapping and land use systems
• Agriculture Canada Census data
• Canada Lands Inventory
• Municipal soils reports
• Farm drainage mapping
Air Quality Assessment

Study Area

The following study areas will be used to determine whether the waste disposal facility will effect air quality.

*On-Site and in the Site Vicinity*
- On-Site and within a minimum of 3 km of the site

*Along the Haul Route*
- Within 500m of the haul route on either side

Criteria

The following criteria will be used to determine whether the waste disposal facility will effect air quality.

*Public Health and Safety*

(a) On-Site and Vicinity
- Effects due to exposure to facility emissions
- Effects due to fine particulate exposure

(b) Along the Haul Route
- Effects due to fine particulate exposure

*Natural Environment and Resources*

(a) On-Site and Vicinity
- Disturbance to terrestrial ecosystems
- Disturbance to recreational resources

(b) Along the Haul Route
- Disturbance to terrestrial ecosystems
- Disturbance to recreational resources

*Social and Cultural*

(a) On-Site and in the Vicinity
- Disruption to use and enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disturbance to cultural resources due to nuisance effects
(b) Along the Haul Route
- Disruption to use and enjoyment of residential and agricultural properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disturbance to cultural resources due to nuisance effects

*Economics*
(a) On-Site and in the Vicinity
- Disruption to businesses (including farms) due to nuisance effects

(b) Along the Haul Route
- Disruption to businesses (including farms) due to nuisance effects

---

**Regulations, Guidelines, or Source Material**

- Ontario Regulation 346 & 337
- MOE Fugitive Dust Model (FDM)
- US EPA LandGEM
- US EPA Emission Standards
- Environment Canada MOBILE5C
Archaeological and Heritage Assessment

Study Area
The following study areas will be used to determine whether the waste disposal facility has the potential to effect archaeological and heritage resources:

_On-site and in the Site Vicinity_
- On-site, and
- Within 250 m of the site for built heritage features and archaeological resources.

_Along the Haul Route_
- Within 100 m on each side of the haul route.

Criteria
The following criteria will be used to determine whether the waste disposal facility will effect archaeological or heritage resources:

_Social and Cultural_
(a) on-site and in the site vicinity
- displacement of cultural resources
- disturbance to cultural resources due to nuisance effects
- displacement/destruction of archaeological resources

(b) Along the Haul Routes
- disturbance to cultural resources due to nuisance effects

Regulations, Guidelines, or Source Material
The archaeological study will rely on the following regulations, guidelines or source materials:
- _Ontario Heritage Act (1990)_
- Ministry of Citizenship, Culture and Recreation Archaeological Assessment Technical Guidelines
- Ontario Archives
- Metropolitan Toronto Reference Library
- LACAC documents
- Municipal Documents
Economic Assessment

Study Area

The following study areas will be used to determine whether the waste disposal facility will effect economic resources

*On-Site and in the Site Vicinity*
- On-site and within 1 km of the site for primary effects; and within 3 km of the site for secondary effects

*Along the Haul Routes*
- Adjacent to the haul route

*In the Community*
- Greater Ottawa Area

*Federal/Provincial*
- In Ontario

Criteria

The following criteria will be used to determine whether the waste disposal facility will effect economic resources

*Social and Cultural*
(a) On-site and Vicinity
- Effects on other public services

(c) In the Community
- Level of public service provided by the waste disposal facility
- Effect on level of other public services

*Economic*
(a) On-site and Vicinity
- Displacement of businesses (including farms)
- Disruption to businesses (including farms) due to nuisance effects
- Property Value Effects
- Business Losses

(b) Along the Haul Routes
- Disruption to businesses (including farms) due to nuisance effects
- Property Value Effects
(c) In the Community
   • New business opportunities related directly to waste disposal facility construction and operation
   • New business opportunities in related industries and services
   • Public costs for infrastructure
   • Direct employment in waste disposal facility construction and operation
   • Indirect employment in related industries and services
   • Effects on municipal tax base
   • Effects on the cost of service to customers

(d) Provincial/Federal
   • Effects on the provincial/federal tax base
   • Effects on provincial diversion programs

Regulations, Guidelines, or Source Material

The economic assessment will rely on the following data sources and materials.
   • Published business directories
   • Assessment data
   • Historic real estate data
   • WM Operations Plan
   • Municipal Financial Information Reports
   • Statistics Canada demographic & economic data
   • Municipal economic development information
Hydrogeological Assessment

Study Area
The following study areas will be used to determine whether the waste disposal facility will effect groundwater, surface water, or industrial mineral resources.

*On-Site and in the Site Vicinity*
- On-site and within 500m of the site for detailed investigations
- Regional context to be provided within 5 to 10 km of the site based on watershed boundaries.

Criteria
The following criteria will be used to determine whether the waste disposal facility will effect groundwater, surface water, or industrial mineral resources

*Public Health and Safety*
(a) On-site and Vicinity
- Explosive hazard due to gas accumulation in confined spaces
- Effects due to contact with leachate impacted groundwater or surface water
- Effects due to contact with non-leachate impacted groundwater or surface water
- Flood Hazard

*Natural Environment and Resources*
(a) On-site and Vicinity
- Loss/displacement of surface water resources
- Disruption/diversion of surface water resources
- Effect on the availability of groundwater supplies to wells
- Effects on baseflow quantity/quality
- Disturbance to terrestrial ecosystems
- Disturbance to aquatic ecosystems
- Sterilization of industrial mineral resources

Regulations, Guidelines, or Source Material
The hydrogeological study will rely on the following regulations, guidelines and source materials:

- MOE Regulation 232/98
- Landfill Standards – A Guideline of the Regulatory and Approval Requirements for New or Expanding Landfill Sites (1998)
- Guideline B-1: Water Management (1994)
- Guideline B-5: Drinking Water Quality
- Guideline B-7-1: Determination of Contaminant Limits and Attenuation Zones
- Guideline D-4: Land Use on or Near Landfills and Dumps (1994)
- MOE Guideline C-13: Engineered Facilities at Landfills
Land Use Assessment

Study Area

The following study areas will be used to determine whether the waste disposal facility will effect land use

*On-Site and in the Site Vicinity*
- On-site and within 3 km of the site

*In the Community*
- Carp
- West Carleton
- Stittsville
- City of Ottawa

Criteria

The following criteria will be used to determine whether the waste disposal facility will effect land use

*Social and Cultural*
(a) On-site and Vicinity
- Effects on other public services

(c) In the Community
- Level of public service provided by the waste disposal facility
- Effects on other public services
- Compatibility with municipal land use designations and official plans

Regulations, Guidelines, or Source Material

The land use study will rely on the following regulations, guidelines and source materials:

- The Planning Act, R.S.O. 1990
- Provincial Policy Statement
- The City of Ottawa Official Plan
- The City of Ottawa Zoning By-law(s)
- The National Capital Commission
Natural Environment and Resources Assessment

Study Area

The following study areas will be used to determine whether the waste disposal facility will effect the natural environment and resources.

On-Site and in the Site Vicinity
• On-site and within 3 km of the site

Along the Haul Routes
• Adjacent to the haul route

In the Community
• Within 8 km of the waste disposal facility for airport assessment

Criteria

The following criteria will be used to determine whether the waste disposal facility will effect the natural environment and resources.

Public Health and Safety
(a) On-site and Vicinity
• Flood hazard
• Disease transmission via vectors

(c) In the Community
• Aviation Effects due to bird interference

Natural Environment and Resources
(a) On-site and Vicinity
• Loss/Displacement of surface water resources
• Disruption/diversion of surface water resources
• Effects due to discharge of treated leachate to surface water
• Effects on baseflow quantity/quality
• Loss of terrestrial ecosystems
• Loss of aquatic ecosystems
• Disturbance to terrestrial ecosystem
• Disturbance to aquatic ecosystems
• Displacement of forestry resources
• Displacement of recreational resources
• Disruption to recreational resources
(b) Along the Haul Route
- Disturbance to terrestrial ecosystems
- Disturbance to aquatic ecosystems
- Disruption to recreational resources


Social and Cultural
(a) On-site and Vicinity
- Nuisance associated with vectors

Regulations, Guidelines, or Source Material
The natural environment and resources study will rely on the following guidelines, material and data sources:

- Provincial Policy Statement.
- Natural Heritage Information Centre, MNR Branch
- Aeronautics Act Land Use Guidelines
- Transport Canada Publication TP1247. Land Use in the Vicinity of Airports
**Noise Assessment**

### Study Area

The following study areas will be used to determine whether the waste disposal facility will affect noise levels.

**On-Site and in the Site Vicinity**
- On-Site and within 3 km of the site.

**Along the Haul Route**
- Within 500m of the haul route on either side.

### Criteria

The following criteria will be used to determine whether the waste disposal facility will cause environmental effects due to noise levels.

**Natural Environment and Resources**

(a) On-Site and in the Site Vicinity
- Disturbance to terrestrial ecosystems
- Disruption to recreational resources

(b) Along the Haul Routes
- Disturbance to terrestrial ecosystems
- Disruption to recreational resources

**Social and Cultural**

(a) On-Site and in the Site Vicinity
- Disruption to use and enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disturbance to cultural resources due to nuisance effects

(b) Along the Haul Routes
- Disruption to use an enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disturbance to cultural resources due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
**Economics**
(a) On-Site and in the Site Vicinity
   - Disruption to businesses (including farms) due to nuisance effects

(b) Along the Haul Routes
   - Disruption to businesses (including farms) due to nuisance effects

---

**Regulations, Guidelines, or Source Material**
The noise study will rely in the following guidelines and source materials:

- MOE Publication NPC-103
- MOE Publication NPC-233
- ISO – 9613
- MOE “Noise Guidelines for Landfill Sites, Draft, October 1998”
## Social Impact Assessment

**Study Area**  
The following study areas will be used to determine whether the waste disposal facility will effect social characteristics.

- **On-Site and in the Site Vicinity**  
  - On-site and within 3 km of the site

- **Along the Haul Routes**  
  - Adjacent to the haul route

- **In the Community**  
  - Carp
  - West Carleton
  - Stittsville
  - City of Ottawa
  - Community as defined in consultation with the stakeholders

**Criteria**  
The following criteria will be used to determine whether the waste disposal facility will effect social characteristics.

- **Natural Environment and Resources**
  (a) **On-site and Vicinity**  
    - Displacement of recreational resources
    - Disruption to recreational resources

  (b) **Along the Haul Route**  
    - Disruption to recreational resources

- **Social and Cultural**
  (a) **On-site and vicinity**  
    - Displacement of residents from houses
    - Disruption to use and enjoyment of residential properties due to nuisance effects
    - Disruption to use and enjoyment of public facilities and institutions due to nuisances
    - Visual effects of the facility operations
    - Nuisance associated with vectors
    - Displacement of cultural resources
    - Disturbance of cultural resources due to nuisance effects
    - Displacement/destruction of archeological resources
    - Effects on other public services
(b) Along the Haul Route
- Disruption to use and enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disturbance to cultural resources due to nuisances

(c) In the Community
- Level of public service provided by the facility
- Effects on other public services
- Changes to community character
- Changes to community cohesion

Regulations
Guidelines or Source
Materials
The social impact assessment will include the following data sources and materials:

Secondary Data Sources include:
- Assessment roll data
- Census data from Statistics Canada
- Local planning/historical information

Primary data sources include:
- Field survey and mapping of residences, community and recreational facilities/services
- Survey of households within 1 km study area, including the haul route
- Interviews with representatives of community/recreational facilities (within 3 km study area)
- Interviews with key contacts (community leaders; representatives of local / community organizations) in the local community
- Survey of non-resident property owners
- Findings from the public consultation program
- Relevant findings of other disciplines with respect to potential nuisance effects (e.g., noise, dust, odour, traffic, litter, visual impact etc.)
- Relevant findings of other disciplines including natural environment, land use, economics, agriculture, heritage/archaeology.
Transportation Assessment

Study Area
The following study areas will be used to determine whether the waste disposal facility will effect transportation resources.

Along the Haul Route
- The main haul route and associated entrances/exits, bridges and interchanges
- Other secondary haul routes to the site that will be used for local waste deliveries.

Criteria
The following criteria will be used to determine whether the waste disposal facility will effect transportation resources:

Public Health and Safety
(b) Along the Haul Routes
- Risk of contact with spilled waste materials
- Potential traffic conflicts (including pedestrians and farm equipment)
- Effects due to fine particulate exposure

Natural Environment and Resources
(a) On-Site and Vicinity
- Disturbance to terrestrial ecosystems
- Disruption to recreational resources

(b) Along the Haul Routes
- Disturbance to terrestrial ecosystems
- Disruption to recreational resources

Social and Cultural
(a) On-Site and Vicinity
- Disruption to use an enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disruption to local traffic networks
- Disturbance to cultural resources due to nuisance effects
(b) Along the Haul Routes
- Disruption to use an enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Disruption to local traffic networks along the haul routes
- Disturbance to cultural resources due to nuisance effects

**Economics**
(a) On-Site and in the Site Vicinity
- Disruption to businesses (including farms) due to nuisance effects
(b) Along the Haul Routes
- Disruption to businesses (including farms) due to nuisance effects

**Regulations, Guidelines, or Source Material**
The transportation study will rely on relevant regulations, guidelines and/or source materials as provided by:
- MTO
- City of Ottawa
- National Capital Commission
Visual Assessment

Study Area

The following study areas will be used to determine the visual implications of the waste disposal facility.

*On-Site and in the Site Vicinity*
- On-Site and within 3 km of the site.

Criteria

The following criteria will be used to determine the visual implications of the waste disposal facility.

*Natural Environment and Resources*
(a) On-Site and in the Site Vicinity
- Disruption to recreational resources

*Social and Cultural*
(a) On-Site and in the Site Vicinity
- Disruption to use and enjoyment of residential properties due to nuisance effects
- Disruption to use and enjoyment of public facilities and institutions due to nuisances
- Visual effect of the waste disposal facility operations
- Disturbance to cultural resources due to nuisance effects

*Economics*
(a) On-Site and in the Site Vicinity
- Disruption to businesses (including farms) due to nuisance effects
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition/Rationale</th>
<th>Studies</th>
<th>Study Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public Health and Safety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive Hazard Due to Gas Accumulation in Confined Spaces</td>
<td>Gas (methane) generated at the waste disposal facility can accumulate in confined spaces (e.g., basements, manholes etc.) on or immediately adjacent to the facility. There is potential for an explosion to occur if the gas is exposed to an ignition source.</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
| Effects Due to Exposure to Facility Emissions | • Gas is produced at waste disposal facilities due to decomposition of waste and other operations (e.g. recirculation of leachate). There is potential for some constituents of these gases to degrade air quality if emitted to the atmosphere.  
  • On-site facilities associated with the waste disposal facility operation, including leachate treatment facilities may produce emissions that could degrade air quality in the vicinity of the site. | ✓       |             |
| Effects Due to Fine Particulate Exposure     | Construction and operational activities at the waste disposal facility can lead to increased levels of dust around the facility, which may effect the air quality. Airborne fine particulates are a health concern in certain size ranges and at certain exposure times. | ✓       | ✓ ✓ ✓       |
| Effects Due to Contact with Leachate-Impacted Groundwater or Surface Water | Leachate has potential to seep into the ground or surface water. Leachate could pose a public health concern if it enters local drinking water supplies, or if leachate mixes with surface water. |         | ✓           |
| Effects Due to Contact with Non-Leachate Impacted Groundwater or Surface Water | Waste disposal facility operations, including salting of on-site roads and use of dust suppressants, may result in impacts to ground or surface water. This may pose a public health concern if significant contamination reaches drinking water supplies or mixes with surface water. | ✓       |             |
| Flood Hazard                                 | The disruption of natural surface water drainage patterns, due to the configuration of the waste disposal facility, has the potential to increase local flooding.                                                                 | ✓       | ✓           |
| Disease Transmission Via Vectors             | Vectors are drawn to waste disposal facilities because of the potential food source may have the potential to transmit diseases.                                                                                          | ✓       |             |
| Risk of Contact with Spilled Hazardous or Dangerous Waste Materials | • There is potential for waste to spill while being transported to the waste disposal facility. This may pose a health or safety risk.  
  • There is potential for leachate to spill while being piped/ hauled from the waste disposal facility. This may pose a health or safety risk.  
  • There is potential for chemicals required in on-site treatment of leachate to be spilled while on route to the waste disposal facility. This may pose a health or safety risk. | ✓       | ✓           |
## Table A.1  Environmental Assessment Criteria and Corresponding Impact Assessment Studies

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition/Rationale</th>
<th>Studies</th>
<th>Study Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agricultural</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Air Quality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Archaeological</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heritage</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hydrogeological</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Land Use</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Natural Environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Noise</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visual</td>
<td></td>
</tr>
<tr>
<td>Potential for Traffic Conflicts (including pedestrians and farm equipment)</td>
<td>• Because of the increased volumes associated with the haulage of waste, construction and other materials, and leachate the number of potential traffic conflicts may increase along the haul route.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Aviation Effects Due to Avian Interference</td>
<td>• Birds are attracted to waste disposal facilities. This may pose a threat to any aviation activity occurring in the vicinity of the waste disposal facility area due to contact with aircraft.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Environment and Resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss / Displacement of Surface Water Resources</td>
<td>• Construction of a waste disposal facility may cause the removal of all or part of a natural stream.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Disruption / Diversion of Surface Water Resources</td>
<td>• The presence of a waste disposal facility creates the potential for disturbance in surface water flow, as the existing drainage pattern is altered, or the need to divert a stream channel.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Effects Due To Discharge of Treated Leachate to a Surface Water Body</td>
<td>• Leachate treatment alternatives under consideration may require discharge of treated leachate to a local surface water body.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect on the Availability of Groundwater Supply to Wells</td>
<td>• A waste disposal facility can impact the availability of the groundwater supply if groundwater is pumped from aquifers or if recharge to aquifers is reduced due to the facility construction and operation.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Effects on Baseflow Quantity / Quality</td>
<td>• The presence of a waste disposal facility has the potential to affect the baseflow quality and/or quantity of surface water in the vicinity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Terrestrial Ecosystems</td>
<td>• Terrestrial ecosystems refer to the land based habitats connected through the vegetation cover. The protection and integration of the terrestrial habitats maintains and regulates ecological health. The construction and operation of a waste disposal facility may physically remove all or part of these systems.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Loss of Aquatic Ecosystems</td>
<td>• Aquatic ecosystems refer to the biological habitats that are connected through surface waters. The protection and integration of aquatic habitats maintains and regulates ecological health. The construction and operation of a waste disposal facility may physically remove all or part of these systems.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Criteria</td>
<td>Definition/Rationale</td>
<td>Studies</td>
<td>Study Areas</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Disturbance to Terrestrial Ecosystems</strong></td>
<td>• Terrestrial ecosystems refer to the land based habitats connected through the vegetation cover. The protection and integration of the terrestrial habitats maintains and regulates ecological health. The presence of a waste disposal facility may alter the functioning of these systems.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Disturbance to Aquatic Ecosystems</strong></td>
<td>• Aquatic ecosystems refer to the biological habitats that are connected through surface waters. The protection and integration of aquatic habitats maintains and regulates ecological health. The presence of a waste disposal facility may alter the functioning of these systems.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Displacement of Agricultural Land</strong></td>
<td>• The establishment of a waste disposal facility has the potential to displace agricultural resources, including the loss of prime agricultural land.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Sterilization of Industrial Mineral Resources</strong></td>
<td>• The establishment of a waste disposal facility may limit the opportunity to extract industrial mineral resources located beneath or near the facility.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Displacement of Forestry Resources</strong></td>
<td>• The establishment of a waste disposal facility may limit the opportunity to utilize forestry resources located on the site.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Displacement of Recreational Resources</strong></td>
<td>• The establishment of a waste disposal facility may displace existing recreational resources in the area, which could adversely affect the community at large. Recreational resources include naturalist and interpretive opportunities.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Disruption to Recreational Resources</strong></td>
<td>• The establishment and operation of a waste disposal facility may effect existing recreational resources in the surrounding area. Disturbances could result from noise, dust, odour, visibility, gulls and traffic congestion. Recreational resources include naturalist and interpretive opportunities.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Social and Cultural</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Displacement of Residents from Houses</strong></td>
<td>• Residents living on the waste disposal facility site will have to relocate.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Disruption to Use and Enjoyment of Residential Properties Due to Nuisance Effects</strong></td>
<td>• Potential nuisance effects associated with the waste disposal facility may disturb the daily activities, and the use of residential and agricultural properties in the vicinity. Disturbances could result from noise, dust, odour, visibility, gulls, litter and traffic congestion.</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Table A.1  Environmental Assessment Criteria and Corresponding Impact Assessment Studies

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition/Rationale</th>
<th>Studies</th>
<th>Study Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruption to Use and Enjoyment of Public Facilities and Institutions Due to Nuisances</td>
<td>• Potential nuisance effects associated with the waste disposal facility may disturb the daily activities of community facilities in the vicinity. Disturbances could result from noise, dust, odour, visibility, gulls, litter and traffic congestion.</td>
<td>Agricultural: ☑️, Archeological/Heritage: ☑️, Economic: ☑️, Hydrogeological: ☑️, Land Use: ☑️, Natural Environment: ☑️, Noise: ☑️, Social: ☑️, Transportation: ☑️, Visual: ☑️</td>
<td>Site &amp; Vicinity: ☑️, Haul Routes: ☑️, In the Community: ☑️</td>
</tr>
<tr>
<td>Disruption to Local Traffic Networks</td>
<td>• Increased traffic volume resulting from the waste disposal facility could disturb the overall traffic flow through the study area, and effectively reduce the available road capacity</td>
<td></td>
<td>☑️</td>
</tr>
<tr>
<td>Visual Effect of the Facility Operations</td>
<td>• The presence of a waste disposal facility operation can affect the visual appeal of a landscape, including the perceived community character.</td>
<td></td>
<td>☑️</td>
</tr>
<tr>
<td>Nuisance Associated with Vectors</td>
<td>• Waste disposal facilities attract vectors, which can be a nuisance and lead to a decrease in property enjoyment by residents in the area. Vectors can also be a nuisance to agricultural operations.</td>
<td></td>
<td>☑️</td>
</tr>
<tr>
<td>Displacement of Cultural Resources</td>
<td>• Cultural resources (including built heritage buildings, cemeteries and cultural landscape units) are an important component of human heritage and are protected under legislation. These non-renewable cultural resources may be displaced by the construction of the waste disposal facility.</td>
<td></td>
<td>☑️</td>
</tr>
<tr>
<td>Disturbance to Cultural Resources Due to Nuisance Effects</td>
<td>• Cultural resources may be disturbed by the construction and ongoing operation of the waste disposal facility. Disturbances could result from noise, dust, odour, visibility, gulls, litter and traffic congestion.</td>
<td>Agricultural: ☑️, Archeological/Heritage: ☑️, Economic: ☑️, Hydrogeological: ☑️, Land Use: ☑️, Natural Environment: ☑️, Noise: ☑️, Social: ☑️, Transportation: ☑️, Visual: ☑️</td>
<td>☑️</td>
</tr>
<tr>
<td>Displacement / Destruction of Archaeological Resources</td>
<td>• Archaeological resources are non-renewable cultural resources that might be displaced or disrupted by the construction and operation of a waste disposal facility.</td>
<td></td>
<td>☑️</td>
</tr>
<tr>
<td>Level of Public Service Provided by the Facility</td>
<td>• The presence of a waste disposal facility operation within a municipality may provide an increased level of public service to local residents and businesses.</td>
<td>Agricultural: ☑️, Archeological/Heritage: ☑️, Economic: ☑️, Hydrogeological: ☑️, Land Use: ☑️, Natural Environment: ☑️, Noise: ☑️, Social: ☑️, Transportation: ☑️, Visual: ☑️</td>
<td>☑️</td>
</tr>
<tr>
<td>Effects on Other Public Services</td>
<td>• The presence of a waste disposal facility may have positive or negative spin-off effects on other public services.</td>
<td>Agricultural: ☑️, Archeological/Heritage: ☑️, Economic: ☑️, Hydrogeological: ☑️, Land Use: ☑️, Natural Environment: ☑️, Noise: ☑️, Social: ☑️, Transportation: ☑️, Visual: ☑️</td>
<td>☑️</td>
</tr>
<tr>
<td>Changes to Community Character</td>
<td>• Perceived incompatibility of the waste disposal facility with the existing and future physical characteristics of the community, as well as potential changes in social stability.</td>
<td></td>
<td>☑️</td>
</tr>
<tr>
<td>Criteria</td>
<td>Definition/Rationale</td>
<td>Studies</td>
<td>Study Areas</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes to Community Cohesion</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• The waste disposal facility is perceived as reducing the attractiveness of the community as a place to live, or in some way interferes with residents patterns of social interaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compatibility with Municipal Land Use Designations and Official Plans</td>
<td>• The waste disposal facility has the potential to affect the viability of present and future land uses, which may have an effect on planning decisions made in the surrounding community.</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Displacement of Businesses (including farms)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Businesses on-site would be displaced by the waste disposal facility. These businesses may incur a business loss as a result of relocation.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Disruption to Businesses (including farms) due to Nuisance Effects</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• Some types of businesses located in the site vicinity may be adversely affected by the potential nuisance effects or perceived effects associated with the construction and operation of a waste disposal facility such as noise, litter, dust, odour, visibility, gulls, vermin and traffic congestion. These businesses may incur losses as a result of these nuisance effects, or perceived effects. Furthermore, businesses may choose to relocate causing a loss of employment in the vicinity.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Property Value Effects</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The waste disposal facility operation may adversely affect property values in the vicinity.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Business Losses</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The potential or perceived effects associated with the construction and operation of a waste disposal facility may adversely affect some types of businesses in the vicinity. The presence of a waste disposal facility may also keep some potential customers away, and could result in a reduction of spin-off employment in the area.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>New Business Opportunities Related Directly to Waste Disposal Facility Construction and Operation</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A large capital project, such as the construction and operation of a waste disposal facility, can have positive economic effects on the municipality in which it is located. New business opportunities may be created for local businesses supplying products or services directly to the waste disposal facility.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>New Business Opportunities in Related Industries and Services</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• New business opportunities may be created for local businesses, or as secondary suppliers to industries working for the waste disposal facility (e.g., restaurants, gas stations, machine shops, repair shops, welding shops, equipment rentals etc.).</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Criteria</td>
<td>Definition/Rationale</td>
<td>Studies</td>
<td>Study Areas</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Public Costs for Infrastructure</td>
<td>• Some public infrastructure may have to be upgraded as a result of the waste disposal facility.</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Direct Employment in Waste disposal Facility Construction and Operation</td>
<td>• The waste disposal facility will create new employment opportunities both in the construction, and in the day-to-day operation of the facility.</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Indirect Employment in Related Industries and Services</td>
<td>• The waste disposal facility has the potential to create increased employment opportunities in local firms supplying products or services directly to the facility, or as secondary suppliers to industries working for the waste disposal facility.</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Effects on the Municipal Tax Base</td>
<td>• The waste disposal facility has the potential to affect municipal tax revenues.</td>
<td>☑</td>
<td>✓</td>
</tr>
<tr>
<td>Effect on the Cost of Service to Customers</td>
<td>• The costs of constructing the waste disposal facility will effect the price of tipping fees to the site. This affects the cost of service to customers of the facility.</td>
<td>☑</td>
<td>✓</td>
</tr>
<tr>
<td>Effects on the Provincial / Federal Tax Base</td>
<td>• The waste disposal facility has the potential to affect provincial/federal tax revenues.</td>
<td>☑</td>
<td>✓</td>
</tr>
</tbody>
</table>

- Indicates the study with the primary responsibility for addressing the specific criterion.
- Indicates the studies that will be responsible for providing secondary or supporting information to address the specific criterion.