

***Draft
Environmental Assessment
Terms of Reference***

...prepared in accordance with Sections 6.(1) and
6.(2)(a) of the *Environmental Assessment Act*

City of Toronto
Long-term Residual Waste Management Study

March 19 2007

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Supporting Documentation (Not Forming Part of this Draft EA Terms of Reference)

Provided Separately on DVD

Consultation Record

- Round 1 Consultation
- Round 2 Consultation

Background Document 1: Purpose and Need for the Undertaking

Background Document 2: Identification of Alternative Technologies

Background Document 3: Formulation and Evaluation of Alternatives

Background Document 4: Description of the Environment Potentially Affected

Background Document 5: Community Compensation Overview of Approaches

Background Document 6: Relevant Policies & Approvals Requirements

1. Introduction

This introduction provides; an overview of waste management within the City of Toronto, background on the Environmental Assessment (EA) Act, a reference to the appended Glossary of Terms and an outline of the scope of the EA Terms of Reference as required by provincial legislation.

1.1 Background on the Study

1.1.1 Background on the Toronto Long-term Residual Waste Management Study

The City of Toronto has decided to undertake an Environmental Assessment (EA) Study, entitled the “*Long-term Residual Waste Management Study*” (hereinafter referred to as the ‘Residual Waste Study’), to find a means by which the residual waste that remains after the City of Toronto’s current and planned at-source diversion programs can be processed to recover resources and reduce the quantity of material that requires landfill disposal. The City of Toronto intends to address the broad environmental concerns of interested parties through this Residual Waste Study, which will examine potential waste processing alternatives and identify a preferred alternative.

The City of Toronto is responsible for managing about one million tonnes of municipal solid waste (MSW) per year, generated by the following sectors:

- approximately one million households (both single and multi-family);
- small businesses (primarily through the yellow-bag program);
- City agencies, boards (including school boards), commissions, divisions and public spaces;
and
- charitable and religious institutions.

Approximately 40% of this waste was recycled or composted through waste diversion programs like the Blue Box and Green Bin in 2005. It is estimated that at-source diversion will increase to 42% for 2006. Based on 2005 waste tonnages, approximately 346,000 tonnes of material were

diverted through these programs, and 528,000 tonnes of material were disposed in the Carleton Farms landfill located in the State of Michigan, U.S.A. Additional detail is provided in “*Background Document 1: Purpose and Need for the Undertaking*”. The City of Toronto is presently pursuing an aggressive program to provide for the diversion of additional materials from disposal and anticipates achieving 60 to 65% at-source diversion over the course of the 25 year planning period for the Residual Waste Study.

The City of Toronto has been dependent upon the use of landfill capacity located in the State of Michigan, U.S.A, since the closure of the Keele Valley landfill in 2002. Over the past few years, various initiatives have been proposed in the U.S.A. to reduce or prohibit the import of some, or all, waste materials from Canada to the U.S.A., and legislation is currently being proposed to ban Canadian waste. In order to address cross-border concerns, the City of Toronto has committed to reducing the annual quantity of waste exported to Michigan, and ceasing waste exports by 2010.

In September 2006, Council approved the purchase of Green Lane Landfill in Elgin County, which would provide the City of Toronto with disposal capacity. As part of the acquisition of Green Lane, City Council resolved that the City’s previous position regarding 100% diversion from landfill be reconsidered in the development of the Terms of Reference for the Residual Waste Study.

The purchase of the Green Lane landfill site (expected to be finalized in March 2007) would provide approximately 13 million tonnes of approved disposal capacity. This may be insufficient to provide for long-term disposal of all residual wastes over the 25-year planning period, given that there are other contractual commitments that the City of Toronto intends to honour that will consume some of this capacity. Conservation of landfill space would ensure that the City of Toronto and other municipal disposal requirements could be met over the long-term. The City of Toronto also recognizes that there are potential benefits associated with the recovery of resources from the residual waste stream.

1.1.2 Background on the Environmental Assessment Act (EA Act)

Since the adoption of the Environmental Assessment Act (EA Act) in the 1970s, the EA process has evolved into a study or decision-making process undertaken in consultation with interested

parties, that evaluates alternatives considering the potential effects on the environment, the availability of mitigative measures that address these effects, in whole or in part, and the comparison of the advantages and disadvantages of the remaining or “net” effects. The result of this process is to provide the planning rationale and support for a preferred solution.

An EA Study provides a planning approach where environmental constraints or opportunities are considered in the context of the broad environment as defined in the EA Act and potential effects are understood and addressed before development occurs.

All public sector (i.e., provincial or municipal) undertakings that have the potential for significant effects in terms of their scope are generally subject to the Act. With respect to waste management, certain types of waste management undertakings require approval under the EA Act. In general, approval under the EA Act is required for the establishment or the expansion of facilities for the final disposal of waste (i.e. landfills and incinerators). It may also be required for other facilities depending on the potential for environmental impacts.

Under the EA Act, an Environmental Assessment (EA) Terms of Reference must be prepared and submitted to the Minister of the Environment for approval before an EA Study can be undertaken.

The Ministry of the Environment has released a draft regulation under the EA Act, the “*Waste Management Projects Regulations*” to revise the environmental assessment process by classifying proposed waste undertakings on the basis of the waste type, the size of a prospective facility and whether a prospective facility would generate energy. The Regulations would apply to both private and public sector undertakings. The promulgation of this regulation could result in some significant changes as to how the EA Act would apply to the various technologies under consideration in the Residual Waste Study.

1.2 Background on CEAT

In February 2006, Toronto City Council established a Community Environmental Assessment Team (CEAT) to participate with Staff in the preparation of the City’s environmental assessment for the management of residual waste under the Ontario Environmental Assessment Act. At the

Toronto City Council meeting of January 31 – February 2, 2006, Council appointed 22 Toronto citizens as members of the CEAT. The Team held its first meeting on March 2, 2006.

Based on the strategic direction provided by City Council, CEAT will, in addition to other functions and responsibilities developed during the course of the EA:

- (i) participate with staff and project consultants in the development of the Terms of Reference, the consultation plan, and the Environmental Assessment that will be prepared on behalf of the City;
- (ii) have a standing presentation to every regular meeting of Works Committee to provide for regular and direct communication with Works Committee; and
- (iii) participate, to the extent allowed by City policies, in procurement processes for project consultants.

CEAT is to be comprised of up to 25 citizens of Toronto. Membership will be for the duration of the project, including the EA Terms of Reference, the public consultation program, and the EA. For more details about membership selection criteria and CEAT mandate, see:

http://www.toronto.ca/garbage/ceat/pdf/schedule_1_mandate_for_agreement_2006-02-14.pdf.

1.3 Glossary of Terms

A glossary of terms and abbreviations that are used in this EA Terms of Reference and over the course of the EA Study is included in Appendix “A”.

1.4 Overview of the Draft EA Terms of Reference

This Draft EA Terms of Reference has been prepared in accordance with the following sections of the Environmental Assessment Act (EA Act):

- 6.(1) *Terms of Reference* – *The proponent shall give the Ministry [of the Environment] proposed terms of reference governing the preparation of an environmental assessment for the undertaking*

and,

6.(2) **Same** – *The proposed terms of reference must,*

- (a) *indicate that the environmental assessment will be prepared in accordance with the requirements set out in subsection 6.1(2);...*

The Environmental Assessment will be prepared in accordance with the requirements set out in Subsection 6.1(2) of the EA Act with regards to the content of an environmental assessment:

6.1(2) **Contents** - *....the environmental assessment must consist of,*

- (a) *a description of the purpose of the undertaking;*
- (b) *a description of and a statement of the rational for,*
- (i) *the undertaking,*
- (ii) *the alternative methods of implementing the undertaking and*
- (iii) *the alternatives to the undertaking;*
- (c) *a description of,*
- (i) *the environment to 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*

implementing 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 implementing 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.*

This Draft EA Terms of Reference has been prepared in accordance with the requirements of the Environmental Assessment Act and with guidance provided by the Ministry of Environment Environmental Assessment and Approvals Branch (EAAB). This Draft EA Terms of Reference also reflects the spirit and intent of the recently issued draft “Codes of Practice” regarding the Environmental Assessment process.

The Draft EA Terms of Reference document is organized as follows:

- Section 1*** - introduction that provides some background to the Study and the scope of the EA Terms of Reference document;
- Section 2*** - identification of the proponent;
- Section 3*** - purpose and description of the proposed undertaking;
- Section 4*** - description of the range of alternatives that will be evaluated in the EA Study;
- Section 5*** - description of the environment potentially affected by the undertaking;
- Section 6*** - description of the evaluation methodologies and criteria to be applied in the evaluation of alternatives;
- Section 7*** - consultation plan for the environmental assessment;

Section 8 - a commitment by the City of Toronto to prepare a monitoring strategy for performance of the undertaking, once in place; and

Section 9 - a discussion regarding flexibility in the application of the EA Terms of Reference.

This Draft EA Terms of Reference is accompanied by a consultation record that includes the results of public and government agency consultation undertaken as part of the Terms of Reference development. There are two summary reports that have been prepared for the two rounds of public consultation held to date. Summary tables regarding the results of Round 1 and Round 2 consultation have been prepared. **The Consultation Record does not form part of the Terms of Reference submitted for review and approval by the Minister.** The Consultation Record is available at www.toronto.ca/ceat or by contacting the City of Toronto at 416-392-6000 or by email to nmartin@toronto.ca.

This Draft EA Terms of Reference is also accompanied by a series of *Background Documents* that contain the rationale supporting the development of this Terms of Reference. **The Background Documents will not form part of the Terms of Reference submitted for review and approval by the Minister.**

The accompanying background documents are as follows:

Background Document 1: Purpose and Need for the Undertaking;

The purpose of this Background Document is to provide the supporting rationale for the statement of Need and Purpose of the undertaking as set out in the Draft EA ToR. This report provides an outline of the expected quantities and composition of residual wastes that will remain after the application of Toronto's at-source waste diversion (reduction, reuse, recycling and composting) programs that will be generated during the study's planning period.

Background Document 2: Identification of Alternative Technologies;

The purpose of this Background Document is to describe the processing technologies being considered for processing the residual waste managed by the City of Toronto.

Background Document 3: Evaluation of Alternatives;

The purpose of this Background Document is to provide a detailed description of the proposed method of developing and evaluating alternatives, including the proposed evaluation factors and criteria, that is proposed for the City of Toronto Residual Waste Management Study.

Background Document 4: Description of the Environment Potentially Affected;

The purpose of this Background Document is to identify the broad environment that may be potentially affected by the undertaking.

Background Document 5: Community Compensation Overview of Approaches;

The purpose of this Background Document is to summarize the approaches taken by the proponents of other solid waste management facility development initiatives to establish agreements with respective host communities.

Background Document 6: Relevant Policies & Approvals Requirements;

The purpose of this Background Document is to outline applicable legislation and approvals requirements that will form a fundamental part of the subject Environmental Assessment Study process. This document provides an outline of each level of regulatory context in the Province of Ontario (federal, provincial and municipal) and describes the approval requirements and related processes that must be followed to ensure successful compliance.

The Background Documents are available at www.toronto.ca/ceat or by contacting the City of Toronto at 416-392-6000 or by email to nmartin@toronto.ca.

2. Identification of the Proponent

The proponent for the proposed Environmental Assessment (EA) Terms of Reference and the corresponding EA Study is the **City of Toronto**. Toronto City Council must approve the Proposed Terms of Reference prior to its submission to the Minister of the Environment for Approval.

2.1 Potential for Cooperation with Public and Private Sector Partner(s)

The proposed EA Study will focus primarily on the processing of waste generated within the municipal boundaries of the City of Toronto. The option for partnerships or other forms of contractual relationships with the public or private sector may result in consideration of a residual waste processing solution that would process other wastes in addition to Toronto's material. Partnerships or other forms of contractual relationships may be pursued that offer mutual benefits to both the City of Toronto and public and/or private sector partners in the selection, siting and development of residual waste management facilities.

The EA Study may also result in the identification of a preferred residual waste processing system that would require a procurement process and selection of a company(s) to design, construct and possibly operate specific processing facilities.

The identification of a preferred partner(s) may be necessary or desirable prior to seeking EA Approval:

- To allow for a sufficiently detailed description of the undertaking (including its design, operation, maintenance, monitoring and contingency measures) and respective net effects;
- If the preferred undertaking includes a site that is offered through a partnership or some other form of contractual arrangement; and/or
- If the preferred undertaking includes a partnership or some other form of contractual arrangement that would result in the introduction of processing feedstock other than City of Toronto residual wastes.

Following the possible procurement process and selection of a preferred partners(s), it may be decided to include these parties in the EA submission to the Minister as "participants", along with the City of Toronto (as the proponent), in the implementation of the preferred alternative residual processing facility(ies) at the preferred alternative site(s).

3. Purpose and Description of the Undertaking

3.1 Purpose of the Undertaking

The purpose of the undertaking is:

To process – mechanically, biologically, chemically, and/or thermally – either all or a portion of the waste that remains after the application of the City of Toronto’s at-source waste reduction and diversion programs in order to recover resources and to reduce the amount of material requiring landfill disposal.

Specifically, the waste to be managed will be:

- Municipal solid waste (MSW) from single family and multi-family residential sources generated within Toronto after at-source diversion;
- MSW from City agencies, boards (including school boards), commissions and divisions as well as charitable and religious institutions within Toronto;
- MSW from eligible small commercial establishments that is collected and managed by the City of Toronto;
- MSW from litter containers located in the City’s public spaces;
- Residential self-hauled MSW accepted at the City of Toronto’s transfer stations; and
- Post-diversion MSW from potential public sector parties with whom partnerships or other forms of contractual relationships may be established as part a sustainable post-diversion residual waste management solution.

At-source diversion programs refer to the initiatives applied at the source of solid waste generation to reduce the amount of waste generated, manage the waste at the source and/or to divert solid wastes to an appropriate facility (e.g. separation of recyclables from the waste stream by the home owner and placement of these materials in a blue cart for curb side collection and transfer to a material recycling facility for processing).

3.2 Description of the Undertaking

The following description of the undertaking is for the purpose of initiating the EA Study only. It may be refined or altered based on public or stakeholder input and the findings of the various EA steps and studies. The final description of the undertaking will be included in the EA document submitted to the Minister for approval in accordance with the requirements of Section 6.1(2)(a) of the EA Act.

The undertaking that would be subject to EA Act approval in accordance with this EA Terms of Reference would be a residual waste processing system which would be capable of managing some or all of the approximately 400,000 tonnes/year of residual wastes projected to remain after the achievement of the City of Toronto's diversion objectives. Over the 25-year planning period (from 2010 to 2035) it is projected that a minimum of 9.6 million tonnes of residual wastes will require management. *“Background Document 1: Purpose and Need for the Undertaking”* provides additional details on the development of these estimates. It should be noted that any policies or programs, supporting diversion, that are identified for implementation as a result of the “Alternatives To” evaluation (i.e., identification of the preferred technology) could be implemented without the need for EA Act approval and, therefore, do not form part of the undertaking described in this EA Terms of Reference.

During the evaluation of the “Alternatives To” (processing technologies) and the development of the minimum facility and site size requirements, a review of the performance of the City of Toronto's various diversion programs will be undertaken to update the residual waste generation projections established as the basis for the EA Study. If it is evident that the performance of the City of Toronto's planned diversion programs will likely not, on their own, achieve projected diversion rates, then the addition of some contingency capacity to the proposed undertaking will be considered in consultation with the public.

Similarly, over the course of the EA Study, it may become evident that opportunities exist to provide residual processing capacity beyond that required by the City of Toronto. This excess capacity could be used to benefit the City of Toronto's residents and the broader environment. Any such possibilities would be considered in consultation with the public.

The waste to be managed does not include biosolids generated and managed by the City of Toronto. The City of Toronto is currently undertaking a “*Biosolids and Residuals Master Plan*”, to prepare a biosolids management strategy for the City. If during the course of this EA Study, it is determined that there may be some similarities between the technology selected for managing the City of Toronto’s biosolids, and the systems considered for processing residual waste, the EA Study would consider the potential benefits of managing both streams together as part of an integrated system.

4. Range of Alternatives to be Evaluated in EA Study

4.1 “Alternatives To” the Undertaking (Alternative Technologies)

4.1.1 Technologies

During development of the EA Terms of Reference, potentially available ways to process the waste remaining after diversion, or “Alternatives To”, have been identified. Each of these technologies has potential to process some, or all, of the City of Toronto’s residual waste stream.

“*Background Document 2: Identification of Alternative Technologies*”, provides the rationale for the technologies that have been identified for consideration in the EA Study. These technologies reflect those identified through previous initiatives undertaken by the City of Toronto including the results of work undertaken by Toronto’s New and Emerging Technologies, Policies and Practices Advisory Group from 2002 to 2004.

Very broadly, these technologies include mechanical, biological, chemical and thermal processing.

Each of these technologies has differing abilities to recover resources and is anticipated to have different advantages and disadvantages. Consideration of a broad range of alternatives at the outset of the EA Study is intended to ensure that reasonable technologies for meeting Toronto’s long-term residual waste management requirements are addressed.

For the purpose of this study, it is assumed that the City of Toronto will achieve sixty percent (60%) at-source diversion at the beginning of the planning period and sixty five percent (65%) during the planning period. If during the course of the EA Study, additional at-source diversion options are identified that are not currently addressed in the City of Toronto’s diversion plan, these options would be considered by the City of Toronto outside of the EA Study, as such initiatives do not require approval under the EA Act. Additional at-source diversion programs may allow the City to achieve greater than 65% diversion over the planning period.

Although the development of landfill capacity is not part of this EA Study, landfill will be considered as the means of disposing of materials remaining after the implementation of the undertaking that are not diverted and/or recovered by the residual waste processing systems under consideration. Landfill will also represent the “Do-nothing” alternative against which other alternatives can be compared. The landfill capacity required to dispose of materials that remain after the implementation of the preferred residual processing system, would be assumed to be either owned by or contracted for by the City of Toronto.

4.1.2 Consideration of Residual Waste Processing Systems

To ensure that alternatives are considered in the context of cumulative impacts, residual waste processing systems will be evaluated rather than independent component technologies. This approach recognizes that municipal waste management solutions require integrated strategies to effectively manage solid waste. Many of the component technologies are more efficient and effective when linked to another, for example, use of mechanical processing to separate the organic fraction of the waste stream for aerobic composting rather than composting the entire residual waste stream.

4.2 “Alternative Methods” of Implementing the Undertaking (Alternative Sites)

Following the identification of a short-list of reasonable residual waste processing systems (see Section 6.1) “Alternative Methods” i.e. sites, will be identified and evaluated. The process of identifying and evaluating sites is included within “*Background Document 3: Formulation and*

Evaluation of Alternatives”, including the rationale for the process that is proposed for the purpose of locating a residuals processing facility(ies).

The proposed Study Area consists of:

- the City of Toronto;
- sites located outside of the municipal boundaries of the City of Toronto that are owned by the City, and are identified as potential sites during the EA Study; and
- locations within the Greater Toronto Area (GTA) south western or south central Ontario that are identified during the course of the EA Study for facilities developed through partnerships or other forms of contractual relationships with the public or private sector.

During the proposed evaluation process, Sites will be identified based on their ability to meet site-specific attributes required to implement the short-listed residual waste processing systems including minimum site size and servicing requirements. The sites that would be evaluated include:

- City-owned sites within and outside the municipal boundaries of the City of Toronto;
- sites to be offered for sale to the City of Toronto; and
- sites that are proposed/offered by the public and/or private sector entities during the EA Study, as part of proposed partnerships or other types of contractual arrangements with the City of Toronto.

5. Description of Environment Potentially Affected

The description of the Toronto study area is initially focused on lands within the geographic boundaries of the City of Toronto, which could potentially be affected by the proposed undertaking. The description of the Study area may be expanded during the EA Study to include City owned sites and sites offered by willing sellers located beyond the City of Toronto boundaries, and partner sites to be identified and described during the course of the EA Study.

The initial Study Area is generally described in the following sub-sections. A more detailed description is provided in “*Background Document 4 - Environment Potentially Affected*”.

5.1 Natural Environment

The City of Toronto is situated on the northwest shore of Lake Ontario which forms its southernmost boundary. The general extent and boundaries of the City of Toronto are illustrated in the map provided in Appendix B.

The City of Toronto is located within the Lake Erie Lowland Ecoregion. This ecoregion extends from Windsor to Toronto, and has one of the warmest climates in Canada (Environment Canada 2005).

The glacial Lake Iroquois shoreline and major river valleys represent other significant landform features in the study area. The Lake Iroquois Shoreline was formed by post-glacial Lake Iroquois. Distinctive features of the Lake Iroquois Shoreline are its extensive sand and gravel deposits. The Lake Iroquois Shoreline acts as the headwater for many smaller creeks and is characterized by a high water table, which makes this area a significant groundwater resource.

There are a number of watersheds in the City of Toronto, including some of the major river valleys that account for significant landforms in the study area. Some of the watershed areas include:

| | |
|--------------------|-------------------|
| 1. Don River | 2. Humber River |
| 3. Etobicoke Creek | 4. Highland Creek |
| 5. Mimico Creek | 6. Rouge River |

Although the Oak Ridges Moraine does not fall within the study area, it is still an important physical landform in the area serving as the headwater region for most streams draining south to Lake Ontario. The Toronto Waterfront is a prominent natural feature in the study area, spanning 46 kilometres from the Etobicoke Creek to the Rouge River. Along this waterfront area, land use

varies from recreational lands to industrial and commercial activities. The Toronto Harbour is a major inland commercial shipping port which features a small commercial airport on the Toronto Island. The waterfront area is a major recreational and tourist destination as well as being very attractive for multi-residential dwellings.

The Natural Heritage Information Centre database, maintained by the Ministry of Natural Resources, has identified 7 provincially significant Earth Science ANSIs (Areas of Natural and Scientific Interest) and 3 provincially significant Life Science ANSIs within the City of Toronto. As well, 4 regionally significant Life Science ANSIs are present in the City of Toronto. The Life Science ANSIs in Toronto include plant communities that are characteristic of naturally occurring vegetation on the landforms of the ecological districts within which they occur, as well as providing habitat for rare, threatened and/or endangered species. Environmentally Sensitive Areas (ESAs) are lands that have been designated by a municipality or conservation authority as having natural features that warrant protection and conservation within the jurisdiction of the designating agency. The City of Toronto recognizes “environmentally significant areas” (ESAs) designation, which includes not only environmentally sensitive areas and ANSIs but also;

- Significant landforms and physical features, including drumlins and the Lake Iroquois shorecliff;
- Watercourses and hydrological features and functions;
- The littoral zone which encompasses the aquatic habitat adjacent to a watercourse that is essential to a healthy stream;
- Valley slopes and floodplains;
- Terrestrial natural heritage types, including forest, wetland, successional, meadow, and beaches and bluffs;
- Significant aquatic features and functions;
- Vegetation communities and species of concern; and,
- Significant biological features that are directly addressed by Provincial policy, such as Areas of Natural and Scientific Interest.

The following are regional and provincial ANSIs and Provincially Significant Wetlands (PSWs) located within the boundaries of the City of Toronto:

| | | |
|--------------------------|--------------------------------|---|
| Woodbridge Railway Cut | Humber River Marshes | High Park Oak Woodlands |
| Toronto Islands | Toronto Island Wetland Complex | Rouge River Marshes |
| East Branch of Don River | Seminary Section | Cathedral Bluffs |
| Scarborough Bluffs | Cudia Park Till Section | East Point |
| Rouge River Section | Townline Swamp Complex | Little Rouge Creek Section |
| Rouge River Valley | Highland Creek Wetland | Toronto Brickyard (formerly the Don Valley Brickyard) |

Within the study area, there are a number of species of birds, plants, fish, animals, insects, amphibians and reptiles which have been identified as being of concern, at-risk, or threatened with a variety of protective strictures. These are further described in “*Background Document 4 – Description of the Environment Potentially Affected*”.

The management of the natural environmental features within the City of Toronto’s boundaries are primarily under the jurisdiction of the Ministry of Natural Resources and the Toronto and Region Conservation Authority.

5.2 Social and Cultural Environment

The City of Toronto is the largest city in Canada and has a diverse and multi-cultural population totalling about 2.5 million with over 100 languages spoken. The City of Toronto is an urban area interspersed with parks and natural heritage features. The City of Toronto’s development plans and strategies focus on creating a better urban environment, a competitive local economy and a more socially cohesive city by attracting more people and jobs to targeted areas such as centres, avenues, employment areas and the downtown.

Brownfield redevelopment is a priority and compact mixed-use development is encouraged. The redevelopment of lands to accommodate regional growth is known as re-urbanization (City of Toronto 2006). The City of Toronto's population increased by about 4% per annum for the period from 1996 – 2001. This annual growth rate increased to about 6% for the period from 2001 to 2006. Population is projected to increase by an average rate of about 5% per annum from 2007 to 2035. Other regions in the Greater Toronto Area (GTA) have experienced a much higher increase in population; however, this percent increase is based on a much smaller population base. Toronto is expected to have a much lower rate of increase in future population growth than other regions in the GTA as it is a more established city with less room for growth and more limited housing opportunities than in the GTA.

According to data provided by the City of Toronto, the current single-family dwelling/multi-family dwelling unit split is about 50/50. This split is expected to change as more multi-family residences are built resulting to a split closer to 35/65 in 2035.

There are a wide variety of sports and recreational facilities located within the City of Toronto. Toronto is home to the Toronto Blue Jays, the Toronto Maple Leafs, the Toronto Raptors, the Toronto Argonauts, the Toronto Lynx Soccer Club, the Toronto Marlies, the Toronto Rock and Woodbine Racetrack. There are numerous parks and conservation areas that are located throughout the study area operated by the City of Toronto and conservation authorities. The shores of Lake Ontario provide water recreation activities and tourism at the Harbourfront area, Toronto Islands and the Beaches area of Toronto.

5.3 First Nations Communities

There are no First Nations communities or reserves within the City of Toronto. The two closest reserves are the Chippewas of Georgina Island First Nation, located in Lake Simcoe in York Region, and the Mississaugas of Scugog Island First Nation, one of the smallest First Nations in Canada, located in the Region of Durham. The Chippewas of Georgina Island are located on Georgina Island. The Mississaugas of Scugog has had a high level of development within the past 10 years. The Great Blue Heron Charity Casino provides strong economic development for the First Nation community.

Additionally, the Chippewas of Mnjikaning (Rama) First Nation is located north of Toronto in Ramara Township. The Chippewas of Mnjikaning (Rama) First Nation are the descendants of a larger Band known as the Chippewas of Lake Huron and Lake Simcoe. The Casino Rama, which opened in 1996 on Chippewas of Mnjikaning First Nation land, has become Central Ontario's most popular commercial tourist attraction. The Casino hosts approximately 12,000 patrons a day, based on annual average. The Chippewas of Mnjikaning First Nation holds shares in the Casino and Rama is the largest Casino employer of First Nations in Canada.

In addition to these three most relevant First Nation communities, a number of other First Nation communities neighbouring the greater Toronto area, are also considered in this Study:

- Batchewana First Nation
- Beausoleil First Nation
- Caldwell First Nation
- Curve Lake First Nation
- Delaware First Nation
- Mississaugas of Alderville First Nation
- Mississaugas of the New Credit First Nation
- Mississaugas of Scugog Island
- Bkwejwanong Territory (Walpole Island)
- Chippewas of Aamjiwnaang (Sarnia)
- Munsee-Delaware Nation
- Mohawks of the Bay of Quinte
- Ojibways of Hiawatha First Nation
- Oneida Nation of the Thames
- Six Nations of the Grand River
- Wahta Mohawks
- Chippewas of Saugeen
- Chippewas of Nawash
- Chippewas of the Thames
- Chippewas of Kettle and Stony Point
- Huronne-Wendatt Nation

A more detailed description of the First Nations communities is provided in “*Background Document 4 - Environment Potentially Affected*”.

5.4 Economic Environment

The economic environment of the City of Toronto is very diverse, ranging from manufacturing to more “knowledge based” sectors such as office, institutional, technological and informational sectors. The City of Toronto has identified “industry clusters” that contribute to its economic development. These are: aerospace, biomedics and biotechnology, business services, design, fashion and apparel, film and television, financial services, food and beverage, information and

communication technology, and tourism. Toronto is able to provide a skilled labour force with over 60 per cent of Toronto's work force having post-secondary education and 35 per cent with a university degree.

Toronto has also designated areas across the City as Employment Districts. These areas are set aside exclusively for employment related uses and are characterized by manufacturing, warehousing and product assembly activities or commercial office parks. They make up 30% of the entire City's employment. Industrial districts occur in areas zoned as "Employment Areas" and "Regeneration Areas" within the City of Toronto's Official Plan (2006). Most development occurs primarily along the major transportation routes in the study area. These include the Highway 401 corridor, especially near the Highways 427, 400 and 404 interchanges; in Scarborough near Highway 401 and in the harbour areas near the Gardiner and Don Valley Expressways. Industry requires additional capacity for access and transportation, so being sited near these major expressways is ideal. These employment districts are located in the Don Valley Parkway Corridor, Rexdale, South Etobicoke, Highway 400 Corridor, Tapscott Marshalling Yard, Dufferin Keele (North and South), South West Scarborough, West Central Scarborough, Scarborough Highway 401 Corridor, North West Etobicoke, Central Inner City (East/West), Milliken, Weston Road/Junction, South East Scarborough, Airport Corporate Centre.

Toronto is one of Canada's top tourist destinations featuring attractions ranging from sports and arts venues attracting over 18 million people every year. Toronto is also home to a number of famous landmarks such as the CN Tower, and other well known attractions such as the Royal Ontario Museum.

The City of Toronto's economy comprises 11% of Canada's gross domestic product (GDP), with Toronto's GDP topping \$117 billion in 2005. Toronto-based businesses export over \$70 billion in goods and services to every corner of the globe with retail sales of \$47 billion annually.

Toronto is an attractive destination for many companies with more nationally and internationally top-ranked firms located in Toronto than any other Canadian City. Toronto has a very diverse economy with employment in offices accounting for the highest proportion of jobs in Toronto,

Canada's largest University, a number of important medical centres, a strong institutional sector accounting for 16% of jobs in Toronto and a healthy manufacturing, retail and service industry.

5.5 Transportation Systems

Major transportation systems servicing the City of Toronto include an extensive highway network, the third largest public transit system in North America, rail haul, major airports and one of the largest inland ports in the Great Lakes.

5.5.1 Major Highways

The study area contains an extensive and integrated roadway network that facilitates the movement of people and goods. Highway 401 is the primary highway in the area. The 401 corridor runs east-west and follows the top edge of the City of Toronto. Highway 400 runs north from the 401 into the Region of York. Highway 404 also runs north from Toronto through the eastern portion of York Region. Highway 407 runs east-west, just above the northern boundary of Toronto. The QEW enters Toronto at its western-most boundary and changes to the Gardiner Expressway just east of Highway 427. Highway 427 runs north from the QEW/Gardiner interchange to Highway 7 to the north of the City of Toronto. The Don Valley Parkway begins at the intersection with the Gardiner Expressway and changes into Highway 404 at the intersection at Highway 401. The William R. Allen Expressway is a small piece of highway that starts at Eglinton Avenue and extends north past Highway 401, almost to Sheppard Avenue.

5.5.2 Public Transit

The City of Toronto has an extensive public transit system including the largest subway system in Canada. The Toronto Transit Commission is the third largest transit system in North America after New York City and the Mexico City Metro.

5.5.3 Airports

There is one commercial airport in the study area: the Toronto City Center Airport located on Toronto Island. The facility is accessible only by ferry. The Lester B. Pearson international

airport located adjacent to the westernmost boundary of the study area in the City of Mississauga.

5.5.4 Rail

The two national railroads that run through the study area are the main line of the Canadian National Railway (CNR) and the main line of the Canadian Pacific Railway (CPR). These lines are also used for an inter-regional public transportation system, GO Transit, which carries 48 million passengers a year throughout the GTA.

5.5.5 Water

The City of Toronto contains a large harbour. The Toronto Harbour is divided into two main areas – the inner harbour and the outer harbour. The Toronto Port Authority operates the facility, which is one of Canada’s largest major inland ports, as well as a large marina and the City Centre Airport located on Toronto Island.

5.6 Power Generation and Transmission Corridors

Toronto is one of the largest cities in North America that does not have the capacity to generate significant amounts of power locally. It produces just 1.2% of the power used in the City of Toronto while consuming 20% of the power used in Ontario. The central city (south of Eglinton) receives the majority of its power via two Hydro One transmission corridors. The primary distributor of electricity in Toronto is Toronto Hydro, which is owned by the City of Toronto. Electricity is provided by Ontario Power Generation via Hydro One from various GTA power plants.

The City of Toronto is investigating ways to reduce dependence on outside sources of energy by manufacturing energy in Toronto. A number of alternative energy projects initiated by a variety of parties are underway such as wind power, solar power, deep water cooling and a natural gas power plant located at the Portlands Energy Centre.

5.7 Legal / Jurisdictional Considerations

The City of Toronto became a single tier municipality after amalgamation in 1998. The City of Toronto has combined 6 disparate waste management programs into one program; Solid Waste Management Services (SWMS). SWMS has expanded its services to include a source separated organics program and an expanded blue box program for single and multi-family buildings. SWMS is responsible for 9 operations yards, 7 transfer stations and household hazardous waste/recycling depots, one material recovery facility, one organics processing facility, a maintenance yard and 158 closed landfill sites.

6. Evaluation Methodologies and Criteria

The evaluation method proposed for this EA Study links the evaluation of alternative residual waste processing systems and potential sites early in the process. This evaluation method has three major components:

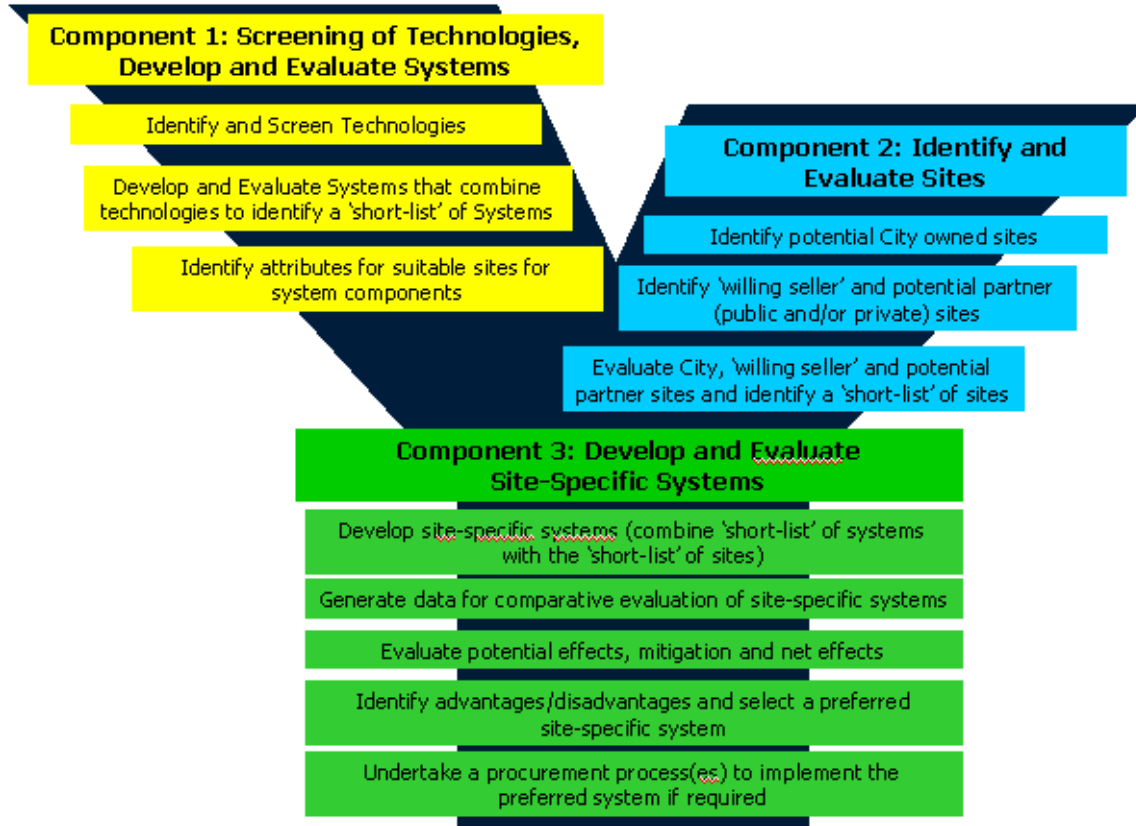
Component 1: Screening of Technologies, Develop and Evaluate Systems: resulting in the identification of a short-list of reasonable Residual Waste Processing Systems.

Component 2: Identification and Evaluation of Sites: resulting in the identification of a short-list of reasonable Sites.

Component 3: Develop and Evaluate Site Specific Systems: resulting in the identification of a preferred site-specific system.

Figure 1 provides an overview of the proposed evaluation process:

Figure 1: Consideration of Alternatives: Evaluating Technologies and Sites



6.1 Component 1: Screening of Technologies, Develop and Evaluate Systems

The intent of Component 1 is to undertake an evaluation of “Alternatives to” to identify a short-list of reasonable residual waste processing systems. Component 1 will consist of the following activities:

- initial consultation;
- identification and screening of technologies;
- development of residual waste processing systems that combine technologies and evaluation of those systems using comparative factors to select a ‘short-list’ of systems;
- identification of the critical attributes required for suitable sites for systems and/or system components; and

-
- consultation on the ‘short-list’ of systems and proposed method of evaluating sites set out in Component 2.

Initial Consultation

Consultation will be undertaken with the public and agencies in order to:

- seek additional input on the proposed criteria for screening technologies; and
- seek additional input to the proposed method of developing and ‘short-listing’ residual waste processing systems.

Identification and Screening of Technologies

A broad set of technologies as noted in Section 4.1, will be considered in the EA Study. These will include biological, mechanical, chemical and thermal processing. At the outset of the EA Study, the technologies that have been identified in “*Background Document 2: Identification of Alternative Technologies*” will be reviewed and further research undertaken to identify any other technologies that were not included, resulting in preparation of a ‘long-list’ of potential Alternative Technologies.

Screening criteria would be applied to the ‘long-list’ of technologies so that only those that have reasonable potential to manage Toronto’s residual waste will be used to develop systems.

Technologies that cannot meet all of the screening criteria, will not be considered further. The proposed screening criteria are included in “*Background Document 3: Evaluation of Alternatives*”.

Develop and ‘Short-list’ Residual Waste Processing Systems

The technologies that remain after screening will be assembled into residual waste processing systems with each system being capable of managing the entire projected residual waste stream. Each system would combine technologies such that the outputs and potential environmental effects of that system would be unique.

Technology specific factors will be applied to determine potential advantages and disadvantages of the systems. A consideration of relative advantages and disadvantages will be used to ‘short-

list’ residual waste processing systems for further consideration. Proposed technology specific factors are included in “*Background Document 3: Evaluation of Alternatives*”.

Identification of Critical Attributes for Suitable Sites

Each of the ‘short-listed’ residual waste processing systems is anticipated to have specific siting requirements that will vary, based on the combination of technologies that are included in the systems. In some cases, the technologies would be ‘closely coupled’ requiring a site that could host more than one facility or an integrated facility. In other cases it may be reasonable to assume that system components can be sited in different locations.

Based on the ‘short-list’ of residual waste processing systems, ‘minimum’ site attributes would be identified for application in the selection of a ‘short-list’ of sites (see Section 6.2, Component 2). These minimum site attributes would address specific requirements that would have to be met by sites to be considered in the study (i.e. minimum site size etc).

Consultation on the ‘Short-list’ of Systems and Siting Methodology

Consultation will be undertaken with agencies, stakeholders and the public to:

- Present and discuss the ‘short-list’ of residual waste processing systems and ‘minimum’ required site attributes; and
- Review the methodology and factors proposed for the identification and evaluation of sites.

6.2 Component 2: Identify and Evaluate Sites

The intent of Component 2 is to undertake an evaluation of the “Alternatives methods” to identify a ‘short-list’ of reasonable sites. Component 2 will consist of the following activities:

- Identification of potential sites (City owned sites and ‘willing seller’ sites) that have the critical attributes for the system characteristics as described in Component 1 above;
- Identification of potential partners (public or private sector);
- Evaluation and ‘short-listing’ of reasonable sites.

Identification of Potential Sites

The identification of potential sites will have three major elements:

- Sites currently owned by the City of Toronto, either within or outside the urban boundaries of the City and that meet the minimum site attributes, will be identified.
- The City of Toronto may issue formal notice of its interest in sites that meet the minimum site attributes, and seek submissions from parties that own suitable sites that would be willing to offer these sites for sale to the City of Toronto (i.e. ‘willing seller’ sites).
- The City of Toronto recognizes that there may be benefits to both the City and other parties, if partnerships or other contractual arrangements are pursued to develop facilities for the technologies included in the ‘short-listed’ residual waste processing systems. The City of Toronto may solicit potential partnerships by issuing documents such as a Request for Expressions of Interest (REOI). This could result in the identification of other potential sites.

These potential sites would be carried forward for evaluation.

Evaluation and ‘Short-listing’ of Reasonable Sites

Site-specific factors will be applied to determine potential advantages and disadvantages of the identified sites. The balance of relative advantages and disadvantages will be used to ‘short-list’ reasonable sites for further consideration. Proposed site-specific factors are included in *“Background Document 3: Evaluation of Alternatives”*.

6.3 Component 3: Develop and Evaluate Site-Specific Systems

The evaluation of the site-specific residual waste processing systems will be a comparison of the advantages and disadvantages associated with each system, determined using a “net” effects analysis as set out below.

Initial Consultation

Prior to initiation of the evaluation of site-specific systems, the proposed evaluation methodology and criteria will be reviewed in consultation with the public and agencies. This review will seek additional input on the proposed evaluation steps and criteria presented in the EA Terms of Reference and will seek to establish and confirm the priorities to be considered during the evaluation.

Develop Site-Specific Systems

Site-specific systems will be developed through combination of the ‘short-listed’ residual waste processing systems determined through Component 1 and the ‘short-list’ of potential sites determined through Component 2. These systems will be developed such that the potential environmental effects of each system would be unique. Each of these site-specific systems would have to include sufficient site(s) to accommodate the management of the residual waste generated by the City over the planning period.

Generate Data for Comparative Evaluation

Data collection will be undertaken for the purpose of applying each of the comparative evaluation criteria to each of the site-specific systems. The proposed comparative evaluation criteria are included in “*Background Document 3: Evaluation of Alternatives*” of this EA Terms of Reference. Suggested indicators and data sources may be adjusted at the initiation of the EA evaluation based on input received from agencies and the public.

Evaluate Potential effects, Mitigation and Net Effects

The comparative evaluation criteria will be applied to each of the site-specific systems and potential effects identified. The potential effects will be considered with respect to the availability of measures to mitigate (i.e., measures that may be applied to reduce or eliminate a negative potential effect) or enhance the effects (measures that may be applied to improve or increase the magnitude of a benefit or positive potential effect), and identify the remaining or ‘net effects’.

Identify Advantages/Disadvantages and Select a Preferred Site-Specific System

The net effects associated with each site-specific system under each comparative criterion will be compared and a list of relative advantages and disadvantages associated with each system will be developed. The relative advantages and disadvantages of each system will be considered in the context of priorities established in consultation with the public and agencies and the preferred system selected. The preferred site-specific system will be the one exhibiting the preferred balance of advantages and disadvantages, thus accounting for the significance of environmental categories and criteria established by the public and agencies.

6.4 Possible Procurement Processes

As noted in Component 2 of the proposed process to evaluate alternatives, procurement processes may be used during the identification of potential sites to determine if suitable sites would be made available for purchase by the City from ‘willing sellers’ and if there are potential partnerships or other contractual arrangements with public or private sector entities that could also identify suitable sites and/or facilities.

Following selection of the preferred site-specific residual waste processing system, formal contractual arrangements may be required to secure the preferred site(s) and to implement the system. It is not possible to determine, at this point, if any preferred system would include partnerships or other contractual arrangements. If the preferred system does include such arrangements, selection of the preferred system would result in the selection of preferred partner(s) and contract negotiations would proceed.

It is anticipated that procurement processes will also be required to ultimately select companies that can provide and construct the component technologies of the preferred site-specific residual waste processing system.

6.5 Health Impact Assessment (HIA)

This EA Study may include as a component, a Health Impact Assessment (HIA). The proposed evaluation process as set out in “*Background Document 3: Evaluation of Alternatives*”, proposes the integration of factors and criteria that are consistent with the principles and fundamentals of

the HIA processes during the evaluation of technologies, sites and in the selection of the preferred site-specific residual waste processing system. An HIA framework and methodology will be developed to provide further detail on the potential integration of a HIA within the EA Study.

The intent would be to incorporate key elements of a HIA into all three major components of the EA evaluation methodology. For example, during Component 1 a high level overview of potential health related issues related to both sites and systems could be discussed. Health related advantages and disadvantages for ‘short-listing’ sites could be evaluated in Component 2. Quantitative and semi-quantitative determinants of health could be identified as part of Component 3. The objective of the HIA would be to ensure that the preferred site-specific system would be first established then ultimately operated in a manner that has taken the protection of public health and the environment into consideration.

6.6 Estimated Study Schedule

The following presents an estimated Study schedule from the preparation of this EA Terms of Reference through to implementation of a proposed undertaking. This schedule will be updated as various Study activities are completed.

TABLE 6.1: ESTIMATED SCHEDULE

| Project Milestone | Estimated Timeframe |
|--|---------------------|
| ➤ Prepare EA Terms of Reference | 2007 |
| ➤ City of Toronto Council Consideration of Proposed EA Terms of Reference | June 2007 |
| ➤ Submit EA Terms of Reference to Minister for Approval | June/July 2007 |
| ➤ EA Terms of Reference Approved | September 2007 |
| ➤ Initiate EA Study | November 2007 |
| ➤ Evaluation Process Component 1: Evaluation of Technologies and Formulation of Systems | Early 2008 |
| ➤ Evaluation Process Component 2: Selection of Short-list of Sites | Mid 2008 |
| ➤ Evaluation Process Component 3: Formulation and Evaluation of Site-Specific Systems and Selection of the | Late 2008 |

| Project Milestone | Estimated Timeframe |
|--|---------------------|
| Preferred Site-Specific System | |
| ➤ Possible Procurement Processes to Identify a Preferred Technology Vendor(s) (if required) | Early 2009 |
| ➤ Complete Site-Specific Studies to Confirm Suitability and Documentation to Support Approvals and Submit Applications | Mid – Late 2009 |
| ➤ Submit EA Study to Minister for Approval | End of 2009 |
| ➤ EA Review and Approval by Minister | Mid 2010 |
| ➤ Implementation of Undertaking | 2010/2011 |

6.7 Detailed Site-Specific Studies

To establish and operate a residual waste processing facility(ies), the Environmental Protection Act (EPA) requires that a Provisional Certificate of Approval be obtained. Detailed investigations will be completed at the preferred site(s), once selected, to satisfy the requirements of the EPA, to obtain a Certificate of Approval, and to confirm the suitability of the proposed facility(ies) on the proposed site(s).

The scope of detailed studies to be undertaken will depend on the type of facility(ies) being established and the nature of the site location and its conditions. A detailed work program will be developed once the preferred site-specific residual waste processing system is selected and will be prepared in consultation with the public and relevant government agencies.

6.8 Applicability of the Canadian Environmental Assessment Act

This undertaking is subject to the requirements of the *Ontario Environmental Assessment Act*. However, the requirements of the *Canadian Environmental Assessment Act (CEAA)* may also apply. Should the CEAA be triggered, the proponent intends to work in a coordinated way with provincial and federal governments, with both governments having formally agreed to coordinate their respective EA processes established by the applicable environmental assessment legislation. The exact relationship between the proponent, the provincial government and the federal government will be determined upon identification of a potential CEAA trigger.

Under the CEAA, an Environmental Assessment must be completed where federal departments and agencies:

- carry out the project;
- provide financial assistance to a project;
- sell, lease or otherwise transfer control or administration of land to enable a project to be undertaken; and/ or
- issue an authorization to enable a project to go forward, such as approvals under other federal legislation, e.g. the Fisheries Act.

Further details are provided in “Background Document 6: Relevant Policies & Approvals Requirements”.

7. Consultation Plan for the Environmental Assessment

This section describes a general plan, which is intended to guide the consultation process over the course of the EA Study. It includes reference to the types of parties to be consulted over the course of the Study and the scope of consultation to be undertaken at various milestones during the Study. Provision is also made for issues resolution, which could be applied during the Study.

7.1 Parties to be Consulted During EA Study

In general, there are five types or categories of parties to be consulted over the course of the EA Study. These categories, together, are considered to cover the full range of stakeholders, which may have an interest in the EA Study and include:

- **CEAT** which will participate in the development of the Environmental Assessment that will be prepared on behalf of the City, in accordance with its mandate as approved by City Council, and will be involved in the implementation of the Consultation Plan;
- **Public Liaison or Advisory Committees** as identified over the course of the study that would represent the interests of study area communities particularly for sites/facilities that

are identified through partnership or procurement process that are located outside of the urban boundaries of the City of Toronto;

- **First Nations Groups** as identified by the City of Toronto in consultation with the Ontario Native Affairs Secretariat that may be potentially affected by the outcome of the EA Study;
- **Government and Agencies**, which represent the interests and mandate of various governmental departments, ministries and agencies potentially affected by the outcome of the EA Study; and
- **General Public**, which includes all residents and businesses within the study area, which could be directly affected by the Study outcome. Over the course of the EA Terms of Reference development, a contact list of those individuals and groups expressing interest in the Study has been compiled and will be updated as the Study proceeds.

The lists of parties to be consulted will be continually updated over the course of the EA Study.

7.2 Consultation with First Nations

An important aspect of community engagement is consultation with First Nations. The City of Toronto will be consulting with First Nations that could be potentially affected by results of the EA Study. The initial list of First Nations communities that have the potential to be affected, are identified in Section 5.3.

Consultation with First Nations may include:

- Letters and notices of EA Study commencement;
- Letters and notices regarding open houses; and
- Request to Aboriginal groups for meetings with community leaders and decision makers to discuss elements of the EA Study.

7.3 Scope of Public Consultation

To effectively disseminate information on the Study and to provide opportunities for the public and agencies to provide specific or general input to the Study, the City of Toronto will develop a

communications strategy. Elements of the Communications Strategy would include maintenance of a Study website, the development and issuance of public advisories, notices and news; and the provision of a range of avenues for communication between the public and the Study team. This strategy will be maintained and updated, as required, for the entirety of the Study.

The proposed scope of public consultation during the EA is outlined as follows.

| <i>Study Activities</i> | <i>Minimum Scope of Consultation</i> |
|--|--|
| Initiate EA Study and review of screening criteria for alternative technologies and proposed method of formulating and short-listing Residual waste processing systems (i.e. “Alternatives to”) | General public notices followed by events such as open houses or workshops intended to obtain input on finalizing the evaluation methodology and criteria. |
| <p>Component 1: Formulation and evaluation of systems(i.e. “Alternatives To” the Undertaking). Identification of a “short-list of alternative residual waste processing systems.</p> <p>Component 2: Identification and evaluation of sites (i.e. “Alternative Methods” of carrying out the Undertaking). Review of methodology and factors proposed for the identification and evaluation of sites.</p> | General public notices followed by Open House/Public Meeting type events open to the general public and intended to notify and receive input on the evaluation of “alternatives” and the identification of Site-specific Systems and the proposed methodology and factors proposed for the identification and evaluation of sites. |
| Component 3: Formulation and evaluation of site-specific systems, review of proposed criteria and methodology for evaluating site-specific residual waste processing systems | General public notices followed by Open House/Public Meeting type events open to the general public and intended to receive input on the proposed methodology and criteria proposed for the formulation and evaluation of site-specific systems. |

| | |
|---|---|
| <p>Component 3: Evaluate alternative site-specific residual waste processing systems and identify a preferred alternative.</p> | <p>General public notices of the selection of the preferred alternative.</p> <p>One-on-one meetings, such as kitchen table meetings, and focused information sessions with community/residents potentially affected by site-specific systems to inform and exchange information regarding local issues, next steps in the process and opportunities to discuss/resolve concerns.</p> |
| <p>Complete site-specific studies to confirm suitability of the preferred site-specific waste processing system and documentation to support approvals.</p> | <p>Provision of opportunity to form a Site Liaison Committee consisting of resident, agency and other interested representatives to review and provide input on site-specific studies.</p> <p>One-on-one meetings, such as kitchen table meetings, and focused information sessions with community/residents potentially affected by preferred alternative to obtain input on the site-specific Study methodologies and to inform and exchange information regarding Study results, design and operational implications and supporting documentation.</p> |

Feedback Mechanism for Responding to and Incorporating Public Comment

Following each public consultation event, comments received will be tabulated and addressed following the same process as utilized in the development of the EA Terms of Reference.

Comments will be summarized in a table format outlining the comment, the response to the comment, and any changes to the EA Study that may be required to address the issues raised.

These response tables will then be made available to interested parties through the website developed to support this study.

7.4 Issues Resolution

Over the course of the Study it is expected that issues will arise that require resolution either before moving from one step to the next or prior to the issuance of approvals. It is the City of Toronto's preference to resolve issues as they arise and without the assistance of an outside party. However, should this approach not work, the use of a facilitator to negotiate a resolution or use of the EA Act's mediation provisions would be considered. It is recognized that unresolved issues could be referred to the Province's Environmental Review Tribunal which would make a decision on approval of the undertaking and that unresolved issues could have a bearing on that decision and that conditions of approval could be imposed to deal with certain issues.

8. Monitoring Strategy

Over the course of the Study and during the application of evaluation criteria, potential effects and mitigative requirements will be identified for the proposed undertaking. It is noted that these considerations will be based on predictive studies and modeling and in the absence of the actual programs and/or facilities. Accordingly, over the course of completing the EA Study, the City of Toronto will develop a monitoring strategy and schedule for the purpose of confirming assumed or predicted impacts and the performance of mitigative measures once the undertaking is in place and operational. In addition, the monitoring strategy will address the monitoring of any conditions of EA Act approval including commitments made by the City of Toronto during the EA Study.

9. Flexibility in Application of the Terms of Reference

In the course of completing the Environmental Assessment study outlined in this Terms of Reference, the City of Toronto may determine that adjustments to the approaches and methodologies described herein are necessary and/or appropriate. Adjustments may include:

- Provision and/or identification of additional information requirements;
- Studies or consultation methods/events to address concerns expressed by the public as Study results become available; or,
- Adjustments to the sequence of Study events which may be required depending on Study results and circumstances.

Where there is likelihood that information or circumstances will change in the coming years as the EA is completed, this EA Terms of Reference makes reference to the intent or purpose of the consideration of alternatives the details for which are included in the background documentation.

Appendix A

Glossary of Frequently Used Terms and Abbreviations

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

| | |
|---|---|
| Aerobic Treatment: | Biological treatment of organic waste by bacteria that require oxygen. (e.g. windrow composting – see Composting) |
| Air Emissions: | For stationary sources, the release or discharge of a pollutant from a facility or operation into the ambient air either by means of a stack or as a fugitive dust, mist or vapour. |
| Alternative Disposal Technology (ADT): | Technologies, other than landfill, capable of disposing municipal waste (e.g. incineration, EFW, gasification, pyrolysis, etc.). |
| Alternative Fuel: | Fuel, that is obtained via various mechanical and biological processes that recover materials such as plastics, fibre, wood and dried organic matter from the residual waste stream for input to a thermal process. |
| Anaerobic Treatment: | See Anaerobic Digestion |
| Anaerobic Decomposition: | See Anaerobic Digestion |
| Anaerobic Digestion (AD): | The controlled biological conversion of organic material, by bacteria, in the absence of oxygen, to produce biogas, liquid effluent and a solid, partially stabilized organic material. |
| Approved Site or Facility: | A landfill site or waste management facility with a current valid Certificate of Approval. |
| Ash: | The non-combustible fraction that remains after combustion of waste. |
| ‘At-Source’: | Referring to a waste minimization or management activity occurring at the source of waste generation (e.g. at the household, at the business, etc.). |
| Baghouse Residue: | Leftover material that is captured by an air pollution control / filtering device that removes dust and particles from the exhaust gas stream. |
| Baling: | Compacting solid waste into blocks to reduce volume and simplify handling. |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

| | |
|------------------------------------|--|
| Biocell: | A cell in which organic waste is decomposed biologically in an aerobic process and landfill gas is extracted. |
| Biodegradable: | Capable of decomposing under natural conditions. |
| Biogas: | Gas formed during the anaerobic decomposition of organic material, mainly consisting of methane and carbon dioxide. |
| Biological Treatment: | A treatment technology that uses bacteria to process organic waste. |
| Biomass: | Plant material, vegetation, or agricultural waste used as a fuel or as an energy source. |
| Biosolids: | Biosolids are a nutrient-rich, organic by-product of the wastewater treatment process. Toronto's biosolids are treated to reduce bacteria and viruses, so that they are suitable for recycling as land applications during the warm, dry months. |
| Bottom Ash: | The non-airborne ash resulting from burning waste in an incinerator. The material, which falls to the bottom of the combustion grate and is removed mechanically in an EFW facility. |
| Briquetting: | The compaction of waste into small bricks to be burned in an incinerator. Bricks are easier to manage and have a higher calorific value than regular uncompacted waste. |
| British Thermal Unit (BTU): | Unit of heat energy equal to the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit at sea level. |
| Buffer Area: | That part of a disposal site or facility that is not a waste fill area (in the case of a landfill) or is not occupied by a building. (i.e., area between actual facility and the property boundary). |
| Bulky Waste: | Large items of waste materials, such as appliances, furniture, large auto parts, trees, stumps. |
| Calorific Value: | The amount of heat produced by a specific material type when combusted under specific conditions. Calorific Value is usually expressed in Calories or Joules per kilogram (i.e. Cal/Kg or J/Kg). |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

| | |
|---|---|
| Canadian Council of Ministers of the Environment (CCME): | A council made up of environmental ministers from provincial and federal levels of government that proposes nationally consistent environmental standards and objectives to achieve high levels of environmental quality for waste management, air pollution, and toxic chemicals across Canada. |
| Candidate Site: | Property identified as suitable for consideration as a potential site for a waste management facility. |
| Carbon Monoxide (CO): | A colourless, odourless, poisonous gas produced by incomplete fossil fuel combustion. |
| Carcinogenic: | Capable, in sufficient quantities, of causing the cells of an organism to change in such a way as to produce cancer. |
| Catalyst: | A substance that changes the speed or yield of a chemical reaction without being consumed or chemically changed by the chemical reaction. |
| Cells: | In landfill sites, areas where waste is placed, compacted, and covered with layers of cover material on a daily basis. |
| Cellulose: | A complex carbohydrate that is composed of glucose units and makes up the cell walls in plants. Naturally occurs in wood and other fibrous products such as cotton and is the raw material of many manufactured goods, such as paper, rayon, and cellophane. |
| Certificate of Approval: | Certificates of approval are legal documents issued by the Ministry of the Environment through the Environmental Assessments Approval Branch (EEAB) that permit an activity to proceed in compliance with all relevant legislation (for waste management facilities the legislation is primarily the Environmental Protection Act and the Ontario Water Resources Act). Facilities that release emissions to the atmosphere, discharge contaminants to ground and surface water, provide potable water supplies, or store, transport or dispose of waste, are all required to obtain Certificates of Approval to ensure ongoing operations will not result in harmful impacts to health or the natural environment. |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

| | |
|--|--|
| Class Environmental Assessment (EA): | A planning and approvals process for a group of projects which are routine, similar in nature, limited in scale, and possess predictable environmental effects. |
| Cogeneration: | The consecutive generation of useful thermal and electric energy from the same fuel source. |
| Combustion: | 1. Burning, or rapid oxidation, accompanied by the release of energy in the form of heat and light. 2. Refers to controlled burning of waste, in which heat chemically alters organic compounds, converting into stable inorganics such as carbon dioxide and water. |
| Combustion Chamber: | The actual compartment where waste is burned in an incinerator. |
| Combustion Product: | Substance produced during the burning or oxidation of a material. |
| Commercial Waste: | All solid waste emanating from business establishments such as stores, markets, office buildings, restaurants, shopping centers, and theatres. |
| Community Environmental Assessment Team (CEAT): | As part of the EA process, CEAT was established to help guide the City's environmental assessment of a long-term, post-diversion solid waste management system under the <i>Ontario Environmental Assessment Act</i> . |
| Community Recycling Centre (CRC): | A waste management facility that offers waste management services to small businesses and residents. A CRC is a place to drop off items such as electronics, white goods, household hazardous waste, leaf and yard waste, and blue box recyclables items. |
| Compactor: | Equipment used to crush and compact waste, to reduce volume. |
| Completely Mixed Reactor: | When liquid enters the completely mixed reactor, it quickly mixes completely with the liquid already in the reactor, making the contents of the reactor homogenous. Also, commonly referred to as a continuously stirred tank reactor. |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

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| Compost: | The relatively stable humus material that is produced from the aerobic decomposition or composting process in which bacteria in soil mixed with degradable organic materials break down the mixture into an organic soil amendment. |
| Composting Facilities: | 1. A facility where the organic component of municipal solid waste is decomposed under controlled conditions; 2. An aerobic process in which organic materials are ground or shredded and then decomposed to humus in windrow piles or in mechanical digesters, drums, or similar enclosures. |
| Composting: | Composting is the process that produces compost, an end product of a natural process that reduces organic waste to humus. Compost contains a good range of major and minor plant nutrients, trace elements essential for healthy plant growth, as well as soil microbes and organic fibre for building healthy soil. Compost benefits gardens, green spaces and lawns. Composting helps reduce garbage output by over 30 per cent (one-third less garbage requiring landfill disposal). Composting is a cheap and easy way to reduce waste! |
| Contingency Plan: | A plan developed to be implemented should some aspect of the project need to be altered or some aspect of the operation fail (i.e. “Plan B”). |
| Corporations Supporting Recycling (CSR): | A Canadian, not-for-profit, private sector organization that works with municipalities and industries to aid in developing sustainable municipal recycling and waste diversion systems. |
| Cover Material: | Soil, or other approved (by MOE) materials, used to cover compacted solid waste in a sanitary landfill. Alternatives to soil include non-hazardous ash from incinerator facilities, tarps, and other materials. |
| Cyclone: | A cone-shaped air-cleaning device that collects and separates particles of different densities, from the air/gas stream, by using a rapid rotational effects and gravity. |

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| Design and Operation (D&O) Plan/Report: | A document (plan/report), required for obtaining a Certificate of Approval, which describes in detail the function, elements or features of a landfill site/facility or waste management facility, and how a landfill site/facility or waste management facility would function including its monitoring, and control/management systems. |
| Digestion: | The biochemical decomposition of organic matter |
| Disposal: | Final placement or destruction of wastes. Disposal is typically accomplished through use of approved sanitary landfills or incineration with or without energy recovery. |
| Disposal Facilities: | Facilities for disposing of solid waste, including landfills and incinerators, intended for permanent containment or destruction of waste materials. |
| Diversion: | (aka: Waste Diversion) is the practice of removing specific materials from the waste stream or preventing identified materials from entering the waste stream, prior to disposal. Diversion initiatives can include municipal recycling programs, home composting, bottle return, reusable item donation, waste reduction initiatives, product stewardship or “take-it-back” programs. |
| Diversion Rate: | The percentage of waste materials diverted from traditional disposal such as landfilling or incineration to be recycled, composted, re-used, or avoided. |
| Dump: | A site used to dispose of solid waste without environmental controls. |
| Ecological/Environmental Risk Assessment (ERA): | A scientific method used to examine the nature and magnitude of risks from the exposure of plants and animals to contaminants in the environment. |
| Economies of Scale: | The theory that constructing a larger facilities can be less expensive to construct and operate, on a per unit basis, than several smaller facilities having the same capacity, or throughput. |

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| Eddy Current: | Circular electric currents in metals that create repulsive forces, similar to magnetic forces, in non ferrous electrical conductors such as Aluminum. (e.g., eddy current separator used to separate aluminum and other non ferrous metals). |
| Electrostatic Precipitator (ESP): | A device that removes particles from a gas stream after combustion occurs. The ESP imparts an electrical charge to the particles, causing them to adhere to charged metal plates inside the precipitator. Rapping on the plates causes the captured particles to fall into a hopper for disposal. |
| Emission Factor: | A representative value that relates the quantity of pollutant release to the atmosphere with an activity or input associated with the release of that pollutant. |
| Emissions: | Technically, all solid, liquid, or gaseous discharges from a processing facility, but normally referring to Air Emissions (with solids referred to as residue and liquids as effluent). |
| Emissions Trading: | The creation of surplus emission reductions at certain stacks, vents or similar emissions sources and the use of this surplus to meet or redefine pollution requirements applicable to other emissions sources. This allows one source to increase emissions when another source reduces them, maintaining an overall constant emission level. Facilities that reduce emissions substantially may "bank" their "credits" or sell them to other facilities or industries. |
| Endothermic: | A chemical reaction that requires (takes in) heat. |
| Energy-from-Waste (EFW): | An EFW facility is an electrical power generation plant that converts the heat energy in solid waste material into energy in the form of electricity and/or heat a portion of which is renewable energy. Modern EFW plants may employ advanced thermal technologies that produce energy through the combustion of solid waste in specially designed power plants equipped with the most modern pollution control equipment to clean emissions. |

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Energy Recovery: The recovery of energy in the form of heat and/or power from the thermal treatment of waste. Generally applied to incineration, pyrolysis, gasification but can also include the combustion of landfill gas and gas produced from anaerobic digestion of organic materials.

Environment (as it relates to the Environmental Assessment Act): The environment is broadly defined under the Environmental Assessment Act as follows:
 (a) air, land or water,
 (b) plant and animal life, including human life,
 (c) the social, economic and cultural conditions that influence the life of humans or a community,
 (d) any building, structure, machine or other device or thing made by humans,
 (e) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities, or
 (f) any part or combination of the foregoing and the interrelationships between any two or more of them.

Environmental Assessment (EA): An Environmental Assessment is a systematic process, conducted in accordance with the *Environmental Assessment Act* in Ontario, to assess the effects of a proposed undertaking on the environment. An EA includes evaluating the need for the project, reviewing alternatives and assessing potential impacts on the environment (i.e., the biophysical, economic, cultural and social environments). An EA also considers the mitigative, remedial, monitoring and/or compensatory measures associated with potential impacts. Generally, a municipality must undertake an EA study in order to develop new long-term waste disposal capacity.

Environmental Assessment Act (EAA): Provincial (Ontario) legislation (Act), the purpose of which is to provide for the: protection; conservation; and, wise management of Ontario’s environment. To achieve this, the EAA ensures that environmental problems or opportunities are considered and their effects are planned for before development or building takes place.

Environment and Plastics Industry Council (EPIC): A council of the Canadian Plastics Industry Association (CPIA) dedicated to sustainable plastics recycling and to minimizing plastic waste sent to landfill.

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| Environmental Protection Act (EPA): | An Ontario Act to provide for the protection and conservation of the natural environment. |
| Environmental Assessment Terms of Reference: (EA) Terms of Reference | An Environmental Assessment Terms of Reference outlines the steps to be taken for an Environmental Assessment. |
| Exothermic: | A chemical reaction that gives off heat. |
| Exports : | In solid waste programs, municipal solid waste and recyclables transported outside the municipal jurisdiction or locality where they originated. |
| Expression of Interest (EOI): | A preliminary document prepared by an outside source documenting their interest in a proposed project and a very general set of qualifications they possess that would make them eligible to participate further in the project. |
| Extended Producer Responsibility (EPR): | A policy to shift the responsibility of a product's life cycle away from the municipality to the producers and to provide incentives for producers to consider the environmental impacts into the selection of materials and the design of the product. |
| Feedstock: | The input material to be processed at a waste management facility. |
| Extended Producer Responsibility (EPR): | A policy to shift the responsibility of a product's life cycle away from the municipality to the producers and to provide incentives for producers to consider the environmental impacts into the selection of materials and the design of the product. |
| Ferrous Metals: | Metals derived from iron or steel; products made from ferrous metals include appliances, furniture, containers, and packaging like steel drums and barrels. Recycled products include processing tin/steel cans, strapping, and metals from appliances into new products. |
| Flares: | A controlled open flame device used to burn off unwanted or unusable natural gas, biogas, or landfill gas. |

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| Flue Gas: | The air coming out of a stack or a chimney after combustion in the burner it is venting. It can include carbon oxides, water vapour, nitrogen oxides, sulphur oxides, particles and other chemical pollutants. |
| Fluidized Bed Incinerator: | An incinerator that uses a suspended bed of hot sand or other granular material to transfer heat directly to waste. Used mainly for destroying municipal sludge or other materials of uniform particle size. |
| Fly Ash: | The airborne ash resulting from burning waste in an incinerator removed by air pollution control systems. |
| Fugitive Emissions: | Emissions not caught by a capture system. |
| Gasification: | Conversion of solid material such as coal or waste into a gas for use as a fuel. |
| Gigajoule (GJ): | A measurement of energy. A typical single family household (approx. 2000 sq. ft.) uses approximately 60 to 90 GJ annually for heating (NRCan). |
| Grapple: | A mechanical device used to grasp materials (e.g., waste). A bucket, with several hooks to grasp, hold and release material. |
| Grapple Feeding: | A process in which material is fed by a grapple into the processing system. Usually involves grasping a planned amount of the material from a large pile. |
| Greater Toronto Area (GTA): | The GTA is a geographical entity that includes the City of Toronto and the Regional Municipalities of Halton, Peel, York and Durham. |
| Greenhouse Effect: | The warming of the Earth's atmosphere attributed to a build-up of carbon dioxide or other gases; some scientists think that this build-up allows the sun's rays to heat the Earth, while making the infra-red radiation atmosphere opaque to infra-red radiation, thereby preventing a counterbalancing loss of heat. |

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| Hazardous Waste: | Materials that can pose a substantial or potential hazard to human health or to the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special MOE or EPA lists. |
| High Density Polyethylene (HDPE): | A material used to make plastic rigid containers, milk and juice jugs, margarine tubs, and detergent bottles. The plastic is translucent or opaque and does not crack when bent. Referred to as No. 2 Plastic. |
| Household Hazardous Waste (HHW): | Paints, pesticides, propane tanks, batteries, syringes, used motor oil and many cleaning products are just some examples of household hazardous wastes that are used daily by residents. HHW products can be poisonous, corrosive, flammable or explosive. These items contain toxic ingredients and should be used and disposed of with caution, not placed out for regular garbage pick-up. Motor oil, paints or solvents should not be poured down the drain or into sewers. Many municipalities make available disposal/reuse depots to collect HHW for safe disposal or, if applicable, for reuse. |
| Household Waste (Domestic Waste): | Solid waste, composed of garbage and rubbish, which normally originates in a private home or apartment house |
| Hydrolysis: | Decomposition of a chemical compound by reaction with water, such as the dissociation of a dissolved salt or the catalytic conversion of starch to glucose. |
| Impact Studies: | Under the provisions of the <i>Ontario Environmental Protection Act</i> and the <i>Ontario Environmental Assessment Act</i> , impact studies may be required to review potential consequences of a proposed undertaking on numerous environmental considerations (i.e., impacts to natural, economic, cultural and social environments). Health, hydrological and land-use impact studies could be part of the EA. |
| Imports: | Municipal solid waste and recyclables that have been transported to a jurisdiction or locality for processing or final disposition (but that did not originate in that jurisdiction or locality). |

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| Incineration: | A thermal treatment technology involving destruction of waste by controlled burning at high temperatures with the overall aim of reducing the volume of waste. |
| Incinerator: | A furnace for burning waste under controlled conditions. |
| Individual Environmental Assessment: | <p>An Individual Environmental Assessment requires the following steps to fully address the requirements of the EAA:</p> <ul style="list-style-type: none"> • Preparation of the Proposed EA Terms of Reference; • Submission of the EA Terms of reference to Minister of Environment for Approval; • Completion of the EA Study in accordance with approved EA Terms of Reference, and; • Submission of the EA Study to Minister of Environment for Approval. |
| Industrial, Commercial & Institutional (IC&I) Waste: | ICI waste is generated by industrial, commercial and institutional sectors and is not typically picked up at the curb or accepted at public drop-off facilities as part of the municipal, residential waste collection process. This material is primarily managed through contracts with private waste management service providers. |
| Industrial Waste: | Unwanted materials from an industrial operation; may be liquid, sludge, solid, or hazardous waste. |
| Institutional Waste: | Waste generated at institutions such as schools, libraries, hospitals, prisons, etc. (part of the IC&I waste stream). |
| In-Feed: | Material that is fed into the front-end of a process. |
| Integrated Waste Management System: | The combination of diversion and disposal alternatives comprising one waste management system. For example - blue box recycling, source-separated organics composting, incineration, and landfilling of ash and residuals could all form part of an integrated waste management system. |

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| Landfill: | An engineered facility where residual waste is crushed and compacted with heavy machinery before it is buried in a series of cells and then covered with inert material. Modern landfill design includes: leachate monitoring; collection and storage; methane and biogas collection and storage; clay and membrane liners; and groundwater monitoring systems. A landfill receives waste for a specific period of time. At the end of this time, the landfill is capped with soil and vegetation and can be converted into another use such as a golf course, ski hill or recreation area. In addition, some modern landfills are able to capture and utilize biogases from the decomposing fill to generate energy. |
| Leachate: | Liquid that collects contaminants as it trickles through wastes, or other materials. Leaching may occur in landfills and may result in hazardous substances entering surface water, ground water, or soil. |
| Leachate Collection System: | A system that gathers leachate and pumps it to the surface for treatment |
| Lift: | In a sanitary landfill, a compacted layer of solid waste placed on top of a lower level of compacted solid waste including appropriate cover material. |
| Limestone Scrubbing: | Use of a limestone and water solution to remove gaseous stack-pipe sulphur before it reaches the atmosphere. |
| Liner: | A relatively impermeable barrier designed to keep leachate inside a landfill. Liner materials include plastic and/or dense clay. |
| Magnetic Separation: | Use of magnets to separate ferrous materials from mixed municipal waste stream. |
| Mass Burn Incineration: | The incineration of waste with minimal initial pre-treatment or separation of wastes. |
| Materials Recovery (or Recycling) Facility (MRF): | A facility that processes (separates, bales) residentially collected mixed recyclables into individual recyclable product streams, for shipment to market. |

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| Mechanical Separation: | The physical separation of wastes by material type, size or density using trommels, cyclones, various screens and other equipment. |
| Mechanical Treatment: | Involves the physical treatment of waste materials to recover recyclable materials and to prepare waste for further treatment or disposal. |
| Mediation: | An attempt to bring about a peaceful settlement or compromise between disputants through the objective intervention of a neutral party. |
| Ministry of the Environment (MOE) Ontario: | The MOE works to protect, restore and enhance the natural environment in Ontario through legislation and enforcement, innovative programs and initiatives, strong partnerships, and public engagement. The MOE works to provide all Ontarians with clean air, land and water. The MOE conducts inspections to ensure compliance with regulations and approved operating conditions. |
| Mitigation: | Measures taken to reduce adverse impacts on the environment. |
| Mixed Municipal Waste: | Solid waste that has not been sorted into specific categories (such as plastic, glass, yard trimmings, etc.) |
| Modular Facility: | A facility of several parallel units designed to allow for an expansion by adding additional units in parallel. |
| Moisture Content: | The percentage of a material that is water. |
| Monitoring: | Periodic or continuous surveillance or testing to determine the characteristics of a substance or the level of compliance with statutory requirements and/or pollutant levels in various media or in humans, plants, and animals. |
| Municipal Solid Waste (MSW): | Common garbage or trash generated by industries, businesses, institutions, and homes. |
| National Pollutant Release Inventory (NPRI): | The only legislated, nation-wide, publicly accessible inventory of information on annual releases to air, water, land, and disposal or recycling from all sectors in Canada. |

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| Non-combustible waste: | Waste, which cannot be combusted (burned) even if energy is added. (e.g. stone, glass and metals). |
| Non-Ferrous Metals: | Nonmagnetic metals such as aluminum, lead, and copper. Products made all or in part from such metals include containers, packaging, appliances, furniture, electronic equipment and aluminum foil. |
| Old Corrugated Cardboard (OCC): | Bulky cardboard that is typically found in boxes used for shipping and packaging. It is made from 2 strips of cardboard with a wavy, or “corrugated” strip running through the centre. |
| Old Newspaper (ONP): | Old news papers set out, collected and processed for recycling. |
| Ontario Guideline A-7: | Air emission guidelines developed by the Ministry of the Environment (MOE) to govern combustion and air pollution control requirements for new municipal waste incinerators and gasifiers in the Province of Ontario. |
| Ontario Regulation 347 (O. Reg. 347): | A regulation under the Environmental Protection Act that specifies standards and approval requirements for waste management sites and systems in Ontario. |
| Operating and Maintenance Costs: | Usually expressed annually, operation and maintenance costs are a sum of money to operate and maintain the facility in operating order (i.e., labour, utilities, equipment repairs, materials, supplies, disposal fees, etc.) |
| Open Burning: | Uncontrolled fires in a dump. |
| Organic: | Referring to or derived from living organisms. In chemistry, any compound containing carbon except carbon dioxide. |

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| Organic Waste: | Organic waste is waste that contains carbon material derived from living organisms (such as food and garden waste). In Toronto, organic material is collected through the Green Bin Program available to approximately 510,000 single-family households across the city, and selected multi-unit buildings participating in the City's pilot organics collection program and via Toronto's yard waste collection program. These programs, using a variety of methods, take organic material and turn it into nutrient-rich compost. |
| Package Plant: | Small wastewater treatment systems designed to treat limited sewage flow at the facility site. |
| Particulate: | A particle of a solid or liquid that is suspended in air. |
| Pelletizing: | The compaction of waste into small pellets to be thermally processed in an incinerator or gasifier. Pellets are easier to manage and have a higher calorific value than regular uncompacted waste. |
| Pilot Tests: | Small-scale testing of a waste management technology under actual site conditions to identify potential problems prior to full-scale implementation. |
| Plasma-Arc Reactor: | A thermal waste treatment technology that operates at extremely high temperatures and can produce a synthetic gas. |
| Plug Flow Reactor: | When a high solid slurry enters a plug flow reactor, its flow is unidirectional with minimal to no mixing in the axial direction, making the contents of the reactor heterogeneous. |
| Point of Impingement (POI): | A defined point or points set at a defined distance from a facility (usually between the facility and sensitive community receptors) at which a specific limit for air pollutants must be met. |
| Pollutant: | Generally, any substance introduced into the environment that can adversely affect the usefulness of a resource or the health of humans, animals, or ecosystems. |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

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| Pollution: | Generally, the presence of a substance in the environment that because of its chemical composition or quantity can prevent the functioning of natural processes and produce undesirable environmental and health effects |
| Polyethylene Terephthalate (PET): | A type of plastic that is clear or coloured transparent with high gloss. It is used for carbonated beverage bottles, peanut butter jars, and some household cleanser cleaners. Bottles have a raised dot on the base and is referred to as No. 1 Plastic. |
| Positive Displacement Pumps: | A pump that forces fluid from one chamber to another by reducing the volume of the first chamber while increasing the volume in the second chamber. |
| Post-Closure: | The time period, following the shutdown of a landfill, waste management or manufacturing facility; established for monitoring purposes. |
| Potable Water: | Water that is safe for drinking and cooking. |
| Powdered Activated Carbon (PAC): | Used in air pollution control systems to control mercury and dioxins/furans. PAC has a large surface area, which allows the carbon to adsorb (stick to) and react with contaminants. |
| Precipitator: | Pollution control device that collects particles from an air stream. |
| Proponent: | A term used in the Ontario Environmental Assessment (EA) process to describe the entity which is carrying out the EA. In the case of this particular EA, the proponent is the City of Toronto. |
| Proprietary Devices: | A device that is either used, produced, or marketed under exclusive legal right of the maker. |
| Public Consultation: | Engaging members of the public and other stakeholders in a dialogue on the proposed project. The purpose of consultation is to hear and record the comments and concerns about a project and to incorporate that feedback into the planning of a project. |
| Putrescible: | Able to rot quickly enough to cause odours and attract flies. |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

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| Pyrolysis: | Decomposition of waste and its constituent chemicals by heat in the absence of oxygen. |
| Quench: | A method to cool a substance quickly and suddenly after heating. Often performed by placing the hot material in water. |
| Receptor: | The person, plant or wildlife species that may be affected due to exposure to a contaminant. |
| Recycle: | This is the third “R” in the hierarchy of the “three Rs.” The practice of recycling materials reduces the amount of waste being generated through collecting and reprocessing items that might otherwise become waste. Items such as aluminium cans, paper and bottles may be processed back into their original form and reused or transformed into a new product, thereby saving energy and resources. |
| Reduce: | This is the first “R” in the hierarchy of the “three Rs.” The practice of decreasing the amount of items purchased or in what volume certain products are acquired, it is possible to reduce the amount of garbage generated that requires some form of disposal or processing. Buying items that have little or no packaging or recyclable packaging, returning unnecessary packaging to point-of-purchase or manufacturer, or buying in bulk to reduce the number of containers and packaging, are just some of the many ways to reduce waste. |
| Refuse Derived Fuel (RDF): | Waste that has been processed to remove non-combustible materials. RDF can be compacted or compressed through processes such as pelletizing or briquetting. Pelletized or Bricked RDF is easy to manage and handle, and also usually has a higher calorific value because of the increased density and reduced moisture content. Also referred to as “solid recovered fuel”. |
| Refuse Reclamation: | Conversion of solid waste into useful products; e.g., composting organic wastes to make soil conditioners or separating aluminum and other metals from waste for recycling. |

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| Reserve Capacity: | Extra treatment capacity built into infrastructure such as solid waste and wastewater treatment plants and interceptor sewers to accommodate flow increases due to future population growth. |
| Reuse: | This is the second “R” in the hierarchy of the “three Rs.” Often it doesn’t make sense to purchase something that can only be used once before throwing it away. Selecting items that are of a high quality and are durable increases the item’s lifespan, allowing for multiple uses. It also reduces the need to repurchase on a frequent basis. Many containers, once they’ve served their original purpose may be ideal to use in another way to store something else. One person may no longer want an item but that doesn’t mean someone else wouldn’t appreciate having it. Making unwanted items accessible for reuse by others is highly beneficial. |
| Residential Waste: | Waste generated in single and multi-family homes, including newspapers, clothing, disposable tableware, food packaging, cans, bottles, food scraps, and yard trimmings. |
| Residual: | Amount of a pollutant remaining in the environment after a natural or technological process has taken place; e.g., the sludge remaining after initial wastewater treatment, or particulates remaining in air after it passes through a scrubbing or other process. |
| Residual Municipal Solid Waste (RMSW): | Residual wastes are the solid materials that remain after the primary processing of solid waste, including materials leftover after maximizing such diversion programs as composting and recycling. Residual wastes include materials for which there are few or no approaches to divert these items from the waste stream. Some examples of residual waste include broken dinnerware, damaged shoes and sporting equipment, used toothbrushes, empty single-use pens, soiled or unusable textiles, potato chip bags and cleaning cloths. |
| Resource Recovery: | The process of obtaining matter or energy from materials formerly discarded. |

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| Rotary Lobe Pumps: | Type of rotary pump where two or more rotating lobes are put in a chamber between suction and discharge nozzles. Fluid that enters the suction nozzle is trapped in the pockets formed by the lobes. The fluid is then carried around and eventually forced out through the discharge nozzle. |
| Scrubber: | An air pollution device that uses a spray of water or reactant or a dry process to trap pollutants in emissions. |
| Selective Catalytic Reactor (SCR): | An air pollution control device that reduces the nitrogen oxide emissions, with a catalyst, to water vapour and elemental nitrogen by injecting ammonia into the flue gases. The catalyst is required because SCR systems occur at much lower temperatures than SNCR (see below) systems. |
| Selective Non-Catalytic Reduction (SNCR): | An air pollution control device that converts nitrogen oxide emissions into elemental nitrogen and water by injecting a chemical reagent typically urea, or another ammonia-based solution into the flue gas. |
| Self Hauled Wastes: | Wastes that are delivered to a waste management facility by the waste generator. |
| Service area: | The service area refers to the geographic area where the waste studied in this EA will come from. |
| Shrouded Flares: | Flares that are enclosed in order to control combustion and monitor emissions more reliably, as opposed to an open flame where there is a lack of control. |
| Siting: | The process of choosing a location for a facility. |
| Solid Recovered Fuel: | See Refuse Derived Fuel. |
| Solid waste: | Solid waste includes a wide variety of solid materials, which are unwanted, discarded or thrown into the garbage. |

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| Source Reduction: | Reducing the amount of materials entering the waste stream from a specific source by redesigning products or patterns of production or consumption (e.g., using returnable beverage containers). Synonymous with waste reduction. |
| SSO: | This stands for Source Separated Organics. It means the item in question, in this case organic material, is separated from other items set out for collection at the place/location (the source) of where they are used. Residents or businesses may sort and divide up the types of materials put out for collection instead of the sorting and separating happening at the processing or disposal facility/site. |
| Source Separation: | Segregating various wastes at the point of generation (e.g., separation of paper, metal and glass from other wastes to make recycling simpler and more efficient). |
| Spent Media: | Odour control substances or other materials that can no longer be used as a result of trapping solid residue. |
| Stabilized Organic Material: | Organic material that has converted to a form that resists any further change. Bacteria stabilizes organic material and converts the material to gases and other more inert materials. |
| Stack: | A chimney, smokestack, or vertical pipe that discharges flue gas or used air. |
| Stakeholder: | A stakeholder is any individual or entity, which could potentially be affected by the undertaking, which in this case is the EA. |
| Stoichiometric: | A chemical condition whereby there exists a mixture of chemicals having the exact proportions required for complete chemical combination, applied especially to combustion of materials. (e.g. stoichiometric conditions occur in an incinerator when there is sufficient oxygen present to completely combust the waste material) |
| Stratigraphy: | The order of rock or soil layers in a geological formation. |

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| Study area: | This refers to the geographical area that Toronto would study in its EA to find an appropriate location(s) or facility(ies) to dispose or process its residual waste. |
| Syngas: | A gas product (primarily hydrogen and carbon monoxide) resulting from gasification processes and that can be used as a fuel or feedstock chemical. |
| Terms of Reference (ToR or EA ToR): | An EA Terms of Reference document sets out the approach that would be used by the proponent to undertake the preparation of an Environmental Assessment. The Ontario EA Act requires that a proponent (in this case the City of Toronto) prepare a ToR and submit this document to the Ministry of the Environment for review and approval prior to proceeding with the EA. Once approved, the Terms of Reference is used to guide the EA Study. |
| Thermal Treatment: | Use of elevated temperatures to treat wastes (e.g., combustion or gasification) |
| Tipping Fee: | A tipping fee is a monetary fee paid to process or dispose of waste at a waste management facility |
| Toxic Equivalents (TEQs): | Used to report toxicity-weighted masses of mixtures of dioxins. The dioxin toxicity equivalent value is compared to 2, 3, 7, 8, tetrachloridibenzo- <i>p</i> -dioxin, and determined by adding the products of the measured concentration of each dioxin and furan congener multiplied by the toxicity equivalent factor. |
| Toxic Waste: | A waste that can produce injury if inhaled, swallowed, or absorbed through the skin. |
| Transfer Station: | Facility where material is transferred from collection vehicles to larger trucks or rail cars for longer distance transport. |
| Trommel: | A rotary cylindrical screen, typically inclined at a downward angle that separates materials of different physical size. Trommel screens are used to separate mixed recyclables, municipal solid waste components, or to screen finished compost from windrow and aerated static pile systems. |

GLOSSARY OF FREQUENTLY USED

TERMS AND ABBREVIATIONS

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| Undertaking: | A term, used in the Ontario Environmental Assessment process to describe the project under assessment. |
| United States Environmental Protection Agency AP-42 (US-EPA AP-42): | US-EPA document <i>Compilation of Air Emission Factors, Volume 1: Stationary Point and Area Sources</i> . |
| Urea: | A form of nitrogen that converts readily to ammonium. |
| User Fee: | Fee collected from only those persons who use a particular service, as compared to one collected from the public in general. |
| Venturi Scrubbers: | Air pollution control devices that use water to remove particulate matter from emissions. |
| Volume Reduction: | Processing waste materials to decrease the amount of space they occupy, usually by compacting, shredding, incineration, or composting. |
| Waste: | 1. Refuse from places of human or animal habitation. 2. Unwanted materials left over from a manufacturing process. |
| Waste Characterization: | The process of identifying the various components, including quantities, and materials found within a waste stream. |
| Waste Exchange: | Arrangement in which individuals or companies exchange their wastes for the benefit of both parties. |
| Waste Feed: | The continuous or intermittent flow of wastes into an incinerator or other device. |
| Waste Generation: | The weight or volume of materials and products that enter the waste stream before recycling, composting, landfilling, or combustion takes place. Also can represent the amount of waste generated by a given source or category of sources. |
| Waste Generator: | The individual, household, establishment or business engaged in an activity that generates a specific waste or wastes. |

GLOSSARY OF FREQUENTLY USED**TERMS AND ABBREVIATIONS**

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|--|---|
| Waste Management System: | A set of facilities or equipment used in, and any operations carried out for, the management of waste including the collection, handling, transportation, storage, processing or disposal of waste, and may include diversion programs and facilities and one or more waste disposal sites. |
| Waste Minimization: | Measures or techniques that reduce the amount of wastes generated during industrial production processes; term is also applied to recycling and other efforts to reduce the amount of waste going into the waste stream. |
| Waste processing: | Physically, thermally, biologically, chemically or mechanically treating residual waste in order to change its characteristics. |
| Waste Reduction: | Using at-source reduction, reuse, or composting to prevent or reduce waste generation. |
| Waste Stream: | The total flow of solid waste from homes, businesses, institutions, and manufacturing plants that is recycled, burned, or disposed of in landfills, or segments thereof such as the "residential waste stream" or the "recyclable waste stream." |
| Waste-to-Energy (WTE) Facility/Municipal-Waste Combustor: | Facility where recovered municipal solid waste is converted into a usable form of energy, usually via combustion. |
| White Goods: | Usually large household appliances such as washing machines, dishwashers, and refrigerators/freezers. |
| Yard Waste: | The part of solid waste generated at the household in the yard composed of grass clippings, leaves, twigs, branches, and other garden refuse. |
| Zero Waste: | Refers to efforts to reduce solid waste disposal to zero, or as close to zero as possible, by minimizing excess consumption and maximizing the recovery of wastes through recycling and composting and other diversion efforts. |

UNITS OF MEASUREMENT

Area

m³ cubic metre

scf standard cubic feet 35.3 m³

Mass/Weight

Re. Orders of Magnitude: $\times 10^2 = \times 100$, $\times 10^3 = \times 1000$, etc.

g gram

mg milligrams 1×10^{-3} grams

µg microgram 1×10^{-6} grams

ng nanogram 1×10^{-9} grams

kg kilogram 1×10^3 g

pg picogram 1×10^{12} grams

t metric tonne 1×10^3 kg

kt kilotonne 1×10^6 kg

lb pound 1 lb = 453.592 grams

Power

W watt

kW kilowatt 1×10^3 W

MW megawatt 1×10^6 W

Volume

L litre .

mL millilitre 1 L = 1×10^3 mL

m³ cubic metre 1 m³ = 1×10^3 L

Rm³ and DSm³ dry cubic metre of flue gas corrected to standard conditions (25°C, 101.3 kPa, 11% O₂) as defined by MOE APC on Incinerators Policy 01-03-02

Time

s second

min minute

hr hour

wk week

y year

ELEMENTS

Cd - Cadmium

Hg - Mercury

Pb - Lead

COMPOUNDS

CO - Carbon Monoxide

CO² - Carbon Dioxide

CH₄ - Methane
HCl - Hydrogen Chloride
TPM - Total Particulate Matter
PM_{2.5} - Particulate Matter Diameter ≤2.5 µm
NO_x - Nitrogen Oxides
N₂O - Nitrous Oxide
PCDDs - Polychlorinated Dibenzodioxins
PCDFs - Polychlorinated Dibenzofurans
SO₂ - Sulphur Dioxide
VOCs - Volatile organic compounds

MISCELLANEOUS

BTU - British Thermal Unit
°C - temperature in degrees Celsius
N/A - not available
% - percent
cfm - cubic feet per minute
ppmdv - part per million by dry volume
ppmv - part per million by volume
ppm - part per million
min - minimum
max - maximum

Appendix B

Study Area Base Map

