City of Brampton

Research Compendium (Phase 1)

Draft

Incineration and Waste Processing Transfer and Disposal Study

(File: N05)

Prepared by:

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PROJECT MANAGERS • ENGINEERS • SURVEYORS • PLANNERS

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Mr. Adrian Smith, MCIP, RPP
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Dear Mr. Smith,

Subject: Incineration and Waste Processing, Transfer and Disposal Study
Research Compendium (Phase 1)
Draft

We are very pleased to submit our Draft Phase 1 Research Compendium in relation to the Incineration and Waste Processing, Transfer and Disposal Study for your review. This Report summarizes our Phase 1 findings (in accordance with the Terms of Reference, March 9, 2006, MMM) and includes our review of the policy and regulatory environment, an inventory of land uses and relevant facilities (including consideration of new and emerging waste management technologies as they would be applicable to this study), and a profile of potential land use impacts.

We look forward to meeting to review and discuss this draft Report. Please call if you have questions or comments.

Yours truly,

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1.0 INTRODUCTION

1.1 Purpose

Marshall Macklin Monaghan Limited (MMM) was retained by the City of Brampton to undertake the Incineration and Waste Processing, Transfer and Disposal Study.

It is the purpose of this study to evaluate the appropriateness of the City's land use designations, applicable land use policies, as well as transportation modes and routes, to recommend implementation policies and zoning measures to guide development in proximity to incineration and waste processing, transfer and disposal sites.

This Research Compendium summarizes our Phase 1 findings (in accordance with the Terms of Reference, March 9, 2006, MMM) and includes our review of the policy and regulatory environment, an inventory of land uses and relevant facilities (including consideration of new and emerging waste management technologies as they would be applicable to this study), and a profile of potential land use impacts.

1.2 Approach

Our overall approach to this assignment is to acquire sufficient information to support a planning recommendation and Council decision regarding an Official Plan Amendment and Zoning By-law Amendment. The amendments will recommend appropriate land use policies with respect to incineration, waste processing, transfer and disposal sites, and adjacent land uses. This will be accomplished through a policy and regulatory review, background conditions and operational characteristics review, environmental best management practices analysis, evaluation and application to the City of Brampton.

Our approach does not envisage this as a scientific assignment, but rather as the development of a land use and environmental planning strategy. It has been established with City staff that the facilities relevant to the study are those that involve the various forms of waste management, including incineration, and combustion-based power generation (other than coal-fired since the Provincial government is phasing such facilities out of service in the near future). Subject facilities do not include other types of power generation (e.g., wind power, solar power, nuclear power and power generation based on other emerging technologies).

1.3 Context

Incineration, including processes involving energy recovery, and waste processing, transfer and disposal technologies are evolving. Many of the modern and emerging technologies were not contemplated in the City's current land use policy framework and zoning standards, nor are there other planning tools that the City may use to regulate such

uses. In recent years, there has been increased public interest and awareness surrounding waste management and energy. The City aims to position itself to address these issues properly through the administration of its obligations and responsibilities.

There are established Provincial and Federal regulatory processes for the approval of waste management and energy facilities. Recent experience suggests that the City planning policy and approvals process need to:

a) address issues of local interest;
b) reflect/relate to the approval responsibilities of Provincial and Federal agencies; and
c) fulfill the City's responsibilities that are not addressed in the Provincial or Federal levels, without unnecessarily overlapping them.

The City approved Interim Control By-law 312-2005 (ICB) on October 12, 2005, to prohibit new and expanded incinerators and waste processing, transfer and disposal facilities (except as is necessarily incidental to any permitted industrial or manufacturing use) for a period of one year, for lands shown on Schedule A to the ICB, which generally include all employment lands in the City. The ICB provides the opportunity for the City to evaluate its land use planning policies with respect to incineration and waste processing, transfer and disposal facilities.

For the purposes of the ICB, an incinerator is defined as *"a furnace or other arrangement for burning waste, garbage, trash, etc. to ashes for the purposes of power generation or waste disposal".*

The ICB excluded those facilities owned, operated or managed by or used for the purposes of a municipal waste program pursuant to a contract with the Region of Peel and the Sithe Energy facility, located west of Goreway Drive and north of Highway 407, which received planning approvals prior to the enactment of the ICB.

1.4 Municipal Interest

There are numerous municipal responsibilities associated with the consideration of waste and energy infrastructure including land use compatibility and the consideration for public health and safety as identified through the *Planning Act*, Provincial Policy Statement (PPS) and the *Municipal Act*. We have identified five key areas of the responsibilities:

1. Waste management infrastructure and energy supply need to be considered as part of the broader municipal planning framework as essential infrastructure to be included in municipal plans.

The *Planning Act* (Section 2(f)) identifies matters of a provincial interest that municipalities in carrying out their responsibilities shall have regard for, these include the adequate provision and efficient use of waste management systems.

The PPS (Section 1.6.8) requires that waste management systems be provided that are of an appropriate size and type to accommodate present and future requirements, and facilitate, encourage and promote reduction, reuse and recycling objectives. Waste management systems are to be located and designed in accordance with provincial legislation and standards.

The PPS (Section 1.6.8) promotes increased energy supply by providing opportunities for energy generation facilities to accommodate current and projected needs, and the use of renewable energy systems and alternative energy systems, where feasible.

The *Municipal Act* identifies waste management as a sphere of jurisdiction (Section 11(2)), which provides the assigned municipalities the power to pass by-laws related to waste management. The Region of Peel has the responsibility for waste management systems, with the exception of waste collection.

As discussed in Section 3.0 of this Report, the Region of Peel Official Plan indicates that the Region is responsible for the safe disposal of solid waste, generated by the area municipalities, while the lower-tier municipalities are responsible for the collection and transportation of non-residential waste to waste disposal sites operated by the Region. Section 6.4.2 of the Regional Official Plan provides broad guidance by requiring area municipal official plans to direct waste facilities, including processing and storage, to appropriate locations and ensuring that any new waste disposal facilities are consistent with the Regional and area municipal official plan policies.

2. The City has a responsibility for orderly distribution of land uses.

The *Planning Act* (Section 2(h)) identifies matters of a provincial interest that municipalities in carrying out their responsibilities shall have regard to, this includes the orderly development of safe and healthy communities. Municipalities are also required to prepare an Official Plan which establishes goal, objectives and policies to manage and direct physical change and the effects on the social, economic and natural environment (Section 16).

3. The City has to ensure compatibility with adjacent land uses.

Section 1.7.1 e) of the PPS promotes long-term economic prosperity through planning so that major facilities, such as waste management systems and sensitive land uses are appropriately designed, buffered and/or separated from

each other to prevent adverse effects from odour, noise and other contaminants, and minimize risk to public health and safety.

4. The City has a responsibility to ensure the orderly development of individual sites.

The *Planning Act* (Section 41) provides municipalities with the powers to regulate the development of individual sites through Site Plan Control, to address such matters as building and structure location, the location of all facilities and works to be provided, building massing and conceptual design, and the relationship of the proposed building to adjacent uses.

5. Brampton has a responsibility for public health and safety (e.g., fire protection).

The *Planning Act* (Section 2 (o)) identifies matters of a provincial interest that municipalities in carrying out their responsibilities shall have regard to, this includes the protection of public health and safety.

Section 1.1.1 c) of the PPS promotes healthy, liveable and safe communities by avoiding development and land use patterns which may cause environmental or public health and safety concerns.

The *Municipal Act* (Section 130) permits municipalities to regulate matters not specifically provided for by the Act or any other Act for purposes related to health, safety and well-being of the inhabitants.

Fire protection clearly falls within the jurisdiction of the City of Brampton.

2.0 THE POLICY AND REGULATORY ENVIRONMENT

2.1 Ontario is Growing

The Proposed Growth Plan for the Greater Golden Horseshoe anticipates an additional 3.7 million people (from 2001) for a total of 11.5 million people by 2031. This growth poses implications and presents challenges for energy generation, waste management, and the associated provincial policy frameworks. It is anticipated that Ontario will experience both energy and waste disposal facility shortages, if not crises, within a decade as a result of increasing populations and economic growth.

As part of their research for the Ontario government, the Ontario Power Authority estimates that due to current demand and projected demand from future growth, energy use in Ontario will begin to exceed available supply by 2014 (MOE, 2006). By 2025, the Authority estimates that the energy gap will be about 10,000 megawatts (MOE, 2006).

Earlier this year, the Ontario Waste Management Association (OWMA) reported that the total annual quantity of non-hazardous solid waste generated in Ontario is approximately 12 million tonnes. While we currently divert 2.4 million tonnes of that total are currently being diverted from disposal, 9.4 million tonnes are disposed of almost entirely by landfill, 3.2 million of which are trucked to Michigan (OWMA, 2006). If passed, a Bill currently before the United States House of Representatives would give Michigan the authority to close its border to Ontario's landfill traffic. This would create a 3.2 million tonne annual shortfall in landfill capacity for Ontario's waste.

Landfills in Ontario are regulated by the *Environmental Protection Act* under which each facility operates through the authority of a Certificate of Approval (C of A) which prescribes the quantity of waste that may be accepted, typically on an annual basis. If an abrupt disposal shortfall was to occur, as in the case of a border closing, it would be necessary to immediately adjust the C of A limitations at operating landfills in Ontario to accommodate the need for additional in-province disposal capacity. A corollary result of these adjustments would be a more rapid depletion of the current total disposal capacity in Ontario.

2.2 Shifting Public Policy: Changes at the Macro-level

The Province of Ontario has initiated a shift in energy policy that responds to growing demand and looming shortages, the established policy priorities to date include:

- Aggressive creation of an energy conservation culture;
- Preference for sustainable sources of energy; and
- Replacement of coal-fired generation for environmental and health reasons.

These policy priorities are supported by government action with respect to energy. In addition to aggressive conservation programs, the Minister of Energy has announced a plan to close all of Ontario's coal fired plants by 2009 and to replace them with cleaner sources of energy, although the Province has now indicated that even 2009 may not be achievable. In order to increase the supply of electricity from sustainable sources, the government has set targets of 1,350 megawatts by 2008 and 2,700 megawatts of electricity capacity by 2010 (OPA, 2006).

Unlike the energy policy, the Provincial policy with respect to waste has not been subject of the same degree of re-focus in response to Ontario's future waste requirements. While the government has focused largely on diversion through its implementation of the *Waste Diversion Act* and has targeted a 60% reduction in waste though diversion by 2008, these targets will likely not account for future projected growth and waste production. Ontario requires new solutions for waste disposal, specifically with respect to infrastructure. The Association of Municipalities of Ontario (AMO) has argued that Provincial policy must provide for an integrated waste strategy that encompasses all aspects of waste management from collection to transfer, recycling, composting, incineration and disposal (AMO, 2005).

Given that the province has re-directed its energy policy to promote energy efficiency; and its waste management policy to reduction and diversion, energy production and waste disposal capacity issues presents significant opportunities for the promotion of alternative forms of energy generation in Ontario.

Sustainable energy options for Ontario include wind power, solar power and energy from biomass, and where practicable to do, the combustible gas formed within landfills is being collected and utilized as combustion fuel for generating facilities. In order to replace energy from coal fired plants, the Ontario Power Authority has recommended that the provincial government explore these options, in addition to the use of more natural gas during peak periods.

Ontario already generates power from sustainable energy operations including, hydroelectric and wind power. Wind power, however, is dependent on the strength of the wind and can only be used in combination with other sources (MOE, 2006). There is potential for hydroelectric power in Ontario – but mostly through small projects. Natural gas is cleaner than coal; however its cost has risen significantly in recent years (MOE, 2006). Although nuclear is a non-renewable energy source, since it requires uranium, it is clean in terms of emissions and does not contribute to greenhouse gases. However, nuclear power is expensive to build and maintain (MOE, 2006), unpopular with the public and requires proximity to a source of water for intake.

On June 13, 2006, the Provincial government announced plans to refurbish existing nuclear plants, build new reactors on existing sites and doubling the amount of renewable power – such as hydroelectric and wind power. It is anticipated that the new nuclear

generation will provide roughly the same amount of power as it does today (roughly half the Province's needs), as older units are phased out of service.

Given the increasing demand for energy and the almost critical need for landfill space in Ontario, the controlled burning of municipal solid waste to reduce waste volume and to produce energy represents an alternative energy option for Ontario.

2.3 Evolving Planning Policy

Ontario's planning policy has also taken measures to respond to projected growth, increasing energy demands, and waste disposal needs, as described above. Most existing policy documents deal with energy and waste or have proposed amendments that would. In recent years, major planning policy documents have been introduced by the Province that would specifically address sustainable power generation and waste infrastructure, if passed.

Places to Grow

The Proposed Growth Plan for the Greater Golden Horseshoe (November 2005) responds specifically to rapid growth in Ontario by providing a framework for future growth. Both energy and waste systems are addressed in Places to Grow.

The Growth Plan specifically promotes the culture of conservation in Section 4.2.4 of the Plan. Energy conservation is required by municipalities though the establishment of municipally-owned energy facilities, the identification of opportunities and possible locations for alternative energy generation and the reduction of energy consumption. Energy efficient buildings and opportunities for cogeneration are promoted.

The Growth Plan recognizes that the waste system represents critical infrastructure and is an essential element in strong communities and requires that any growth area plan developed in the Greater Golden Horseshoe should consider the need for waste management infrastructure.

The Planning Act and Bill 51

Section 2.0 of the *Planning Act* identifies the "supply, efficient use and conservation of energy", as a provincial interest. The adequate provision and efficient use of waste management systems, and the minimization of waste, are also considered matters of provincial interest. As such, the Province has the authority to set the direction and provide a framework for dealing with the issues of energy and waste.

If passed, Bill 51, *The Planning and Conservation Land Statute Law Amendment Act*, would make numerous amendments to the *Planning Act*. The proposed amendments in fact would provide new planning rules and planning tools, specifically related to energy. In

order to strengthen the implementation of energy-related projects, as proposed, Section 23 of the Bill (Section 62.0.1 of the proposed Act) would allow the Lieutenant Governor in Council to exempt energy related projects from *Planning Act* approvals, if they have been approved or exempted under the *Environmental Assessment Act*. The proposed amendments are not necessarily a "blanket exemption", but may be applied with a more limited approach.

Increased Provincial support and guidance for alternative energy generation is also evident throughout the proposed Bill. Expanded site plan approval powers related to sustainable building design, for instance, would allow municipalities to require the use alternative energy sources.

Provincial Policy Statement, 2005

The latest Provincial Policy Statement (PPS), introduced by the government in 2005, endorses broad provincial policy direction with respect to energy and waste. Planning authorities, for instance, are required to support energy efficiency through land use and development patterns.

Of significant importance to Ontario's current energy circumstances is the promotion of renewable and alternative energy in the new PPS. Opportunities for energy generation facilities to accommodate the use of renewable energy systems and alternative energy systems, where feasible, are promoted in section 1.8.2 of the 2005 PPS. In addition, alternative and renewable energy systems are permitted in settlement areas, rural areas and prime agricultural areas in accordance with provincial and federal requirements (Section 1.8.3).

With respect to waste, again the 2005 PPS endorses broad provincial policy as discussed above, but it also promotes an integrated waste strategy that encompasses all aspects of waste management, including associated infrastructure. The 2005 PPS requires that waste management systems be provided of an appropriate size and type to accommodate present and future requirements, and facilitate, encourage and promote reduction, reuse and recycling objectives (Section 1.6.8). There are also provisions with respect to infrastructure that require waste management systems to be located and designed in accordance with provincial legislation and standards.

2.4 The Regulatory Regime

Legislative responsibilities in Canada, including as they are distributed between federal and provincial/territorial jurisdictions, are fundamentally defined within the federal *Constitution Act*. Interpretation and application of the Act and the legislative framework it prescribes has not always resulted in a fully consistent distribution of responsibilities. However, with some exceptions, it has generally evolved that the responsibility for waste management resides at the provincial level, with the federal government providing advisory

support. This distribution recognizes that it is incumbent upon the provinces and territories to have an appropriate regulatory regime in place to ensure effective management.

In terms of non-hazardous waste (e.g., municipal solid waste) provincial regulatory responsibility is well established and recognized. In some situations, however, involving other forms of waste, most notably hazardous, the federal government has taken a more active role. For example, the *Canadian Environmental Protection Act* (CEPA) enables Environment Canada to regulate toxic substances. However, individual provinces may be selectively exempted from the regulations on the basis of equivalent provincial legislation being in force. This form of exemption currently applies in the case of PCB waste in Ontario, which is managed under the provincial *Environmental Protection Act* (EPA) and its regulations specific to PCBs.

The federal government also maintains exclusive jurisdiction over nuclear facilities, including those involving radioactive material and waste. Under the *Nuclear Safety and Control Act* (NSCA), the federal government regulates the management, treatment and disposal of radioactive waste. Since any process or facility for radioactive waste must be approved and licensed by the Canadian Nuclear Safety Commission (CNSC), compliance with the *Canadian Environmental Assessment Act* (CEAA) is frequently invoked as a precursor to such approval.

In Ontario, provincial legislation such as the EPA and the *Ontario Water Resources Act* (OWRA) provide for the protection, conservation and management of the environment. These Acts require that activities not result in an adverse effect or impairment to the environment. Regulations have been implemented under the EPA and OWRA to provide direction for operations and activities that may affect the environment. These include the management of waste materials and controls for emissions to the atmosphere or waters from industrial and commercial operations. Among others, the regulations prescribe that Certificates of Approval (Cs of A) be obtained from the MOE for various facilities and the activities associated with them, including waste disposal and power generation facilities. Cs of A define the operating conditions for the approved facility or activity and typically include requirements for monitoring (air, water, noise, etc.), limits to wastes received, reporting and financial assurance. The MOE has also developed specific policies and guidelines that provide direction for the management of activities that may impact the environment. Although not enforceable in law, as applicable on a site-specific basis, the environmental management principles in these policies and guidelines are typically incorporated into Cs of A issued under the EPA or the OWRA.

The Ontario *Environmental Assessment Act* (EAA) requires that public sector projects and those private sector undertakings that may be designated under the Act be clearly demonstrated to have considered potential environmental effects through an environmental assessment before proceeding. Public projects (e.g., municipal) in Ontario that are subject to the EAA include typical infrastructure such as roads, transit initiatives and waste management facilities. When assessing whether to designate private sector

projects under the EAA, the MOE assesses the merit of the designation request in terms of the public and agency consultation that has or is occurring, Ministry policy or practice to designate, the potential for significant environmental effects including the concerns or positions of affected ministries and agencies, whether the project is covered by another approval which can address any potential environmental effects, public comments and concerns, and any justification for non designation provided by the proponent. Projects initiated within the private sector that may be designated by regulation as subject to the EAA frequently include those involving waste management facilities of significance (e.g., landfills).

It is not necessary that all undertakings subject to EAA be evaluated as full individual EAs. In cases where projects are carried out routinely and have predictable and mitigable environmental effects, they may be considered within a Class Environmental Assessment (Class EA) framework. Currently, Ontario has approved a total of 10 Class EAs which cover routine activities related to such matters as highway construction and maintenance; forest management activities; conservation authorities works; and, other public-sector activities. There is no Class EA for waste management-related projects, therefore they remain subject to full EAs, where applicable (i.e., facilities below a defined threshold size or capacity are exempt from the EAA). The MOE has developed specific EA requirements under the EAA for electricity projects that apply equally to public and private sector proponents, and are intended to achieve consistency and predictability in the process.

The *Waste Diversion Act* addresses the Province's interest in waste minimization through establishment of waste reduction, recycling and stewardship programs. Industries, including waste management and energy producing industries must also comply with a wide variety of other provincial Acts and regulations affecting their operations, including, but not limited to the *Occupational Health and Safety Act*, the *Dangerous Goods Transportation Act*, and the *Technical Standards and Safety Act*.

The legislation and regulations that are generally relevant for protection of the environment at facilities subject to this study are summarized in Table 2.1

Table 2.1 – Summary of Relevant Acts and Regulations

Acts and Regulations	Application and Relevance
Planning Act, R.S.O. 1990, Chapter P.13	The *Planning Act* (Section 2.0) identifies: (e) the supply, efficient use and conservation of energy and water; and (f) the adequate provision and efficient use of waste management systems, as a provincial interest. As such, the Province has the authority to set the direction and provide a framework for dealing with the issues of energy and waste. Proposed amendment to the *Planning Act* (Bill 51, The Planning and Conservation Land Statute Law Amendment Act), provide new planning rules and planning tools, specifically related to energy. In order to strengthen the implementation of energy-related projects, as proposed, Section 23 of the Bill (Section 62.0.1 of the proposed Act) would allow the Lieutenant Governor in Council to exempt energy related projects from Planning Act approvals, if they have been approved or exempted under the Environmental Assessment Act. Increased Provincial support and guidance for alternative energy generation is also evident throughout the proposed Bill. Expanded site plan approval powers related to sustainable building design, for instance, would allow municipalities to require the use alternative energy sources.
Municipal Act, 2001, S.O. 2001, c.25 (S. 11, 74-77)	The *Municipal Act* identifies waste management as a sphere of jurisdiction (Section 11(2)), which provides the assigned municipalities the power to pass by-laws related to waste management. The Region of Peel has the responsibility for waste management systems, with the exception of waste collection. As discussed in Section 3.0 of this Report, the Region of Peel Official Plan indicates that the Region is responsible for the safe disposal of solid waste, generated by the area municipalities, while the lower-tier municipalities are responsible for the collection and transportation of non-residential waste to waste disposal sites operated by the Region. Section 6.4.2 of the Regional Official Plan provides broad guidance by requiring area municipal official plans to direct waste facilities, including processing and storage, to appropriate locations and ensuring that any new waste disposal facilities are consistent with the Regional and area municipal official plan policies. Section 74-77 permits municipalities to exercise its powers with respect to waste management and designate its waste management services or facilities for which it has the power to provide such services. Section 130 permits municipalities to regulate matters not specifically provided for by the Act or any other Act for fro purposes related to health, safety and well-being of the inhabitants.
Ontario Environmental Protection Act (EPA), R.S.O. 1990, Chapter E-19	The EPA provides for the protection and conservation of the natural environment. Section 9 of the Act requires a C of A before construction, alteration, extension or replacement of any equipment or structure that may emit or from which may be emitted a contaminant into the natural environment, other than water. Part V of the Act including Section 27 addresses waste management, and includes the prohibition of the disposal of waste on land without a C of A. Section 27 requires a C of A for the use, operation, establishment, alteration, enlargement or extension of a waste management system or a waste disposal site. Therefore under the Act, most industrial processes or modifications to industrial processes, including waste management

Acts and Regulations	Application and Relevance
	and power generation, require a C of A.
Ontario Environmental Assessment Act (EAA), R.S.O. 1990, Chapter E.18	The EAA provides for the protection, conservation and wise management of the environment, including the social, economic and cultural aspects of the environment. Major public and designated private undertakings must conduct an EA prior to obtaining permits. The Act does not apply to waste disposal facilities below defined threshold capacities (i.e., <40,000 m^3 landfill; <100 TPD incineration; <200 TPD processing; <300 TPD transfer (all quantities refer to residual waste for disposal). Regardless of the undertaking size, type and proponency (e.g., private sector), it may be designated as subject to the EAA by the Minister. It is typical for waste management-related undertakings of significance to be designated under the Act.
Ontario Water Resources Act (OWRA), R.S.O. 1990, Chapter 0.40	The OWRA governs the release of contaminants to waters, such that the water must not be impaired. Section 53 of the Act requires approval from the Director (i.e., C of A) for industrial sewage works that discharge directly to a watercourse. The approval process requires an application supported by technical information including specifications, plans and engineering reports. A C of A is not required for private sewage works that discharge to a sanitary sewer. In this case, the municipality responsible for the sanitary sewer would be responsible for permitting the industrial discharge.
Waste Diversion Act, 2002, S.O. 2002	The purpose of this Act is to promote the reduction, reuse and recycling of waste and to provide for the development, implementation and operation of waste diversion programs, through the establishment of Waste Diversion Ontario.
Canadian Environmental Protection Act (CEPA) 1999, c.33 (Federal Act)	CEPA addresses the trans-border shipment of hazardous and prescribed non-hazardous waste that may affect waste management businesses in Brampton. Other aspects of the legislation, such as pollution prevention and the management of toxic substances are general in nature and would apply equally to waste management and other industries.
Canadian Environmental Assessment Act (CEAA) 1992, c.37 (Federal Act)	The CEAA is the federal equivalent of the Ontario EAA. Its purpose is to ensure that the environmental effects of projects are carefully considered before the federal authorities take actions in connection with them. The Act requires that an EA of a project be carried out before the undertaking is initiated when any of the following conditions apply: i) the federal authority (FA) is the proponent of the project; ii) the FA funds or facilitates funds for the project; iii) the FA has control over the lands associated with the project and transfers control of the lands to enable the project; and iv) the FA issues an approval, license or otherwise permits the project to proceed.
Nuclear Safety and Control Act (NSCA) 1997, c.9 (Federal Act)	The purpose of the NSCA is to limit the risks to national security, the health and safety of persons and the environment associated with the development, production and use of nuclear energy, and the production, possession and use of nuclear substance, including radioactive waste. The Act also provides the means for facilitating Canada's commitments to the international control of development and use of nuclear energy and the non-proliferation of nuclear weapons. Primary among provisions of the Act are regulations, which prescribe for, among others, radiological protection; the establishment and management, including licensing, of facilities; the packaging and transport of nuclear substances; and nuclear security.

Acts and Regulations	Application and Relevance
O.Reg 232/98, Landfilling Sites, Amended by O.Reg. 483/98	This regulation controls the development of new landfills and the expansion of existing landfills, containing more than 40,000 m^3 of waste. The study area for a landfill is 500 m and buffers of 100 m are required between the waste disposal area and the property boundary. Reduced buffers (a minimum of 30 m) may be possible when supported by studies that confirm that no off-site effects will occur. Landfill approvals require hydrogeologic and geologic reports, surface water and groundwater protection, leachate and landfill gas contingency plans and financial assurance along with closure and post-closure plans.
O. Reg 347, General - Waste Management	This regulation addresses the management, handling and disposal of waste in Ontario. Under the regulation, waste generators and waste carriers are required to obtain identification numbers for any waste generation facility that is involved in the production, collection, handling or storage of subject waste. In 2005, the hazardous waste portion of O. Reg. 347 was amended (O. Reg. 461/05) to prohibit the land disposal of wastes that do not meet specific treatment standards to reduce the mobility and/or toxicity of its hazardous components. A C of A is required for continued storage lasting more than two years and mixing of wastes with other wastes or materials for the purpose of dilution is prohibited, unless allowed by a C of A.
O.Reg. 362, Waste Management - PCBs	This regulation prescribes requirements for the management of waste PCBs in Ontario. It requires records be maintained for PCB waste storage and for the movement of such waste. PCB waste disposal sites are classified as every site containing PCB waste and PCB related waste but not containing other waste.
O. Reg. 419/05, Air Pollution, Local Air Quality, Amended by O. Reg. 605/05	This regulation establishes standards for contaminants in air that are protective of local air quality and which emitters in Ontario must meet. Any industrial or commercial operations that may emit contaminants to the atmosphere are required to ensure that emissions are within the standards. The enforcement of the standards is made through Cs of A issued under the EPA.
O. Reg. 101/94, Recycling and Composting of Municipal Waste	Ontario regulates the recycling and composting of municipal solid waste. Blue box waste management systems and leaf and yard waste programs are required by municipalities with a population greater than 5,000.
O. Reg. 127/01, Airborne Contaminant Discharge Monitoring and Reporting.	This regulation requires that Ontario-based facilities emitting certain quantities of substances report to the government and also requires that the reports be available to the public. The regulation works in concert with federal legislation for the National Pollutant Release Inventory (NPRI).
O. Reg. 215/95, Effluent Monitoring and Effluent Limits - Electrical Power Generation Sector, Amended by O. Reg. 174/99	This regulation requires the designated power generating facilities to monitor and control the quality of effluent from their electrical power plants. It is likely any new power generating facility would also be designated and would have to meet similar requirements.

The MOE has developed policies and guidelines to assist in the preparation of applications for Cs of A. The application process involves the identification of site operations (i.e., process design) and demonstration of operational compliance with applicable legislation.

Individual sites may require more than one C of A (i.e., air/noise and waste management) depending on their operations. For example, an incineration facility must obtain a C of A for the acceptance of waste materials, as a waste disposal site, and must also demonstrate that effective controls are in place to manage air emissions and noise to acceptable levels as prescribed in the EPA and related regulations. Table 2.2 presents a summary of the policies and guidelines, that may apply to incineration, waste management and power generating operations (these are generally available at the MOE web site (www.ene.gov.on.ca). Other guidance documents not listed in Table 2.2 may also apply to the operations of these facilities. The documents, which include both recommendations and requirements, must be considered in the design of facilities and operations. Although the policies and guidelines are not enforceable by law, regulations (i.e., EPA, OWRA) provide for the denial of approval for operations that deviate from accepted practices without sufficient technical justification.

Table 2.2 – Summary of Relevant (Provincial) Policies and Guidelines

Policies and Guidelines	Application and Relevance
Guide for Applying for Approval (Air and Noise)	This guideline identifies the minimum information required to allow for the effective review and approval of applications for Cs of A. The guideline discusses the regulatory framework, the approval process, the application and required technical information in support of the application. Based on the MOE policy, is it the owner/operator's responsibility to prevent or mitigate environmental impacts and to demonstrate accordingly in the application.
Guide for Applying for Approval of Waste Disposal Sites	This guide outlines the approval requirements and process for landfill sites, incineration sites, waste transfer stations, waste processing sites, mobile waste processing facilities, composting, biomedical waste and PCBs. As with the document for air and noise, it provides guidance on the completion of the application and the necessary technical information to support the application.
Guide for Applying for Approval of Waste Management Systems	The guidance document provides information to support the preparation of an application for approval for a waste management system, which includes the transportation and processing of waste materials. It outlines the information required in the application, the technical information to support the application and specific direction on vehicle information, emergency procedures and operations for the transport of biomedical and PCB wastes. (Other supporting guidance documents not included in this table include specific guidance on the hearings associated with waste management and disposal sites, handling and management of asbestos waste and registration on title of landfills and waste management facilities).
Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites	The Landfill Standards describe the regulatory and approval requirements for the design, operation, closure and post-closure care of new and expanding municipal (i.e., non-hazardous) waste landfills. The regulatory requirements are contained in O.Reg 232/98 under the EPA.

Policies and Guidelines	Application and Relevance
Guideline A-1: Combustion, Air Pollution Control and Monitoring Requirements for Biomedical Waste Incinerators in Ontario	The purpose of this guideline is to control contaminant emissions from biomedical waste incineration systems by establishing emission limits for particulate matter, dioxins, furans, heavy metals, sulphur dioxide, nitrogen oxides and hydrogen chlorides. Compliance is required through the installation of pollution controls, operational controls and monitoring systems. Owners and operators are required to conduct performance testing and compliance assessments.
Guideline A-5: Atmospheric Emissions from Stationary Combustion Turbines	The primary purpose of this guideline is to control emissions of nitrogen oxide (NOx) compounds, from new and modified stationary combustion turbines, by specifying atmospheric emission limits for nitrogen oxides, sulphur dioxide and carbon dioxide. Combustion turbines are engines that burn fuel to produce power.
Guideline A-7. Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators	This guideline establishes minimum design and operating parameters, emission control systems and emission limits which will ensure control of emissions to the atmosphere from municipal waste incinerators. This guideline applies to all new, expanded or modified incinerators burning municipal waste except those which burn sewage sludge or wood waste either exclusively or in combination with conventional fossil fuels.
Guideline A-8: Guideline for the Implementation of Canada-wide Standards for Emissions of Mercury and of Dioxins and Furans and Monitoring and Reporting Requirements for Municipal Waste Incinerators, Biomedical Waste Incinerators, Sewage Sludge Incinerators, Hazardous Waste Incinerators, Steel Manufacturing Electric Arc Furnaces, Iron Sintering Plants	This guideline establishes the formal adoption by Ontario of the Canada-wide standards for emissions of mercury and of dioxins and furans from municipal waste, biomedical waste, sewage sludge, and hazardous waste incineration systems in Ontario. It defines the limits and establishes requirements for compliance testing and reporting.
Guideline A-9: NOx Emissions from Boilers and Heaters	The purpose of this policy guideline is to reduce smog in Ontario by reducing the emission of oxides of nitrogen by new (or modified), large, boilers and heaters. Incineration facilities may be affected by this guideline.

Policies and Guidelines	Application and Relevance
Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities	This guideline and the accompanying procedure (B-7-1) provides direction for determining what constitutes the reasonable use of groundwater on property adjacent to sources of contaminants and establishes limits on the discharge of contaminants from facilities that are used for the disposal of waste into the shallow subsurface. The impact a disposal facility may have on the reasonable use of neighbouring properties shall be limited to an amount that would not justify an award for damages in a civil law suit. It is intended that contaminants be attenuated naturally to levels compatible with the reasonable use of the adjacent property. The Ministry decides reasonable uses of groundwater (either existing or potential) on land associated with, or adjacent to, disposal sites on a case-by-case basis. A disposal facility may not be supported in a location where no appreciable attenuation can be provided in the subsurface and an excessive amount of the attenuation required for acceptable discharge must be provided by dilution in surface waters.
Guideline C-4: The Management of Biomedical Wastes in Ontario	This guideline defines biomedical waste and provides guidance for the management of this waste stream, including criteria for handling, packaging, transportation, treatment and final disposal.
Guideline C-7: Burning at Landfill Sites	The guideline documents operational requirements for the orderly burning of segregated clean wood and brush in a safe and environmentally acceptable manner at appropriate landfill sites.
Guideline C-13: Engineered Facilities at Landfills that Receive Municipal and/or Non-hazardous Wastes	This guideline sets forth the requirements for engineered facilities (i.e., liners and leachate collection systems) at new or expanded landfills during the "contaminating life span" of the landfill. It provides information to be used both by the proponent of a new or expanded landfill site and by the Ministry staff responsible for the review, evaluation and approval of such proposals. The guideline, in conjunction with the Reasonable Use Guideline (B-7) requires that engineered facilities be installed to protect against the off-site migration of contaminants at unacceptable concentrations.
Guideline D-1: Land Use Compatibility	This guideline and the accompanying procedures for implementation (D-1-1), specific applications (D-1-2) and definitions (D-1-3) apply when a sensitive land use (e.g., residential) is being proposed near an existing facility or when a new facility is being proposed near a sensitive land use. It would apply to industrial operations, including waste management facilities and landfills. The guidance document should be read jointly with either Guideline D-4 or Guideline D-6, depending on the type of facility being proposed. Guideline D-1 indicates there should be sufficient separation between incompatible land uses to permit the functioning of the two uses without 'adverse effect' occurring. The distance shall be based on a facility's potential influence area or actual influence area if it is known. The guidelines suggest the potential influence areas for industries in different classifications, as defined in Guideline D-6. Separation of incompatible land uses should not result in freezing or denying usage of the intervening land. Rather the MOE encourages the use of intervening lands for uses that are compatible with both the facility and the sensitive land use (i.e., light industrial or commercial uses).

Policies and Guidelines	Application and Relevance
	When development is proposed within a facility's potential influence area, the municipality may require additional studies prior to issuing approvals. When development is beyond a facility's potential influence area or actual influence area, the Ministry shall not normally object to development on the bases of land use compatibility.
Guideline D-4: Land Use On or Near Landfills and Dumps	This guideline establishes recommended set-backs and buffer distances for landfills and dumps. The MOE recommends that impacts to surrounding land uses be studied within 500 m of the landfill, unless it can be demonstrated that the area of influence is less than 500 m. Where there is evidence that impacts have occurred beyond 500 m, the study area would be increased accordingly. The studies must include geological, hydrogeological, and surface water studies, among others. For operating landfills an on-site operational/maintenance buffer area is identified on the Certificate of Approval. This buffer shall be no less than 30 metres; it is normally 60 to 100 metres. No use of the land may take place within 30 metres of the fill area. For non-operating landfills, no land use may take place within 30 metres of the fill area, where leachate and gas collection is required. Where only gas controls are necessary, the distance may be reduced to 20 metres.
Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses	The guideline is intended to prevent or minimize land use problems due to the encroachment of sensitive land uses or industrial land uses on one another. It provides recommended separation distances (D-6-3) for different categories of industrial uses, based on a categorization criteria (D-6-1) that considers noise, dust, vibration, outdoor operations, size and hours of operation.Most waste management and power generation facilities would be categorized as Class II or Class III industrial lands and the recommended separation distance from sensitive land uses would be 70 m to 300 m, respectively. The potential influence area would be 300 m to 1000 m, respectively.

3.0 BRAMPTON'S PLANNING POLICY CONTEXT

3.1 Region of Peel Official Plan

The Region of Peel was created as an upper-tier municipality to provide services which could best be provided over a larger geographic area. The Region encompasses the lower-tier municipalities of the City of Brampton, the City of Mississauga, and the Town of Caledon. From the municipal standpoint, the Region is responsible for the safe disposal of solid waste, generated by the area municipalities, while the lower-tier municipalities are responsible for the collection and transportation of non-residential waste to waste disposal sites operated by the Region

The Region of Peel Official Plan provides broad guidance with respect to waste management (Section 6.4). The Region recognizes that waste is disposed of by means of incineration, landfill, recycling and composting. The Region defines waste as "*ashes, garbage, refuse, domestic waste, industrial waste or municipal refuse, and other such wastes as may be designated under the Environmental Assessment Act."*

The Region promotes efforts to focus on reduction, reuse, and recycling programs (3Rs), examine waste disposal alternatives, explore the resource potential of waste, and strive for a cost-effective waste management system. Waste disposal will be managed so as to minimize environmental impacts and emphasize the responsibility of the waste producer to reduce the amount and type of waste produced and bear the costs of collection and disposal. Peel is also committed to preparing and maintaining a long-term waste management strategy which meets the needs of citizens and businesses, and is environmentally sound, socially acceptable, technically efficient and economically viable.

Section 6.4.2 of the Regional Official Plan provides broad guidance by requiring area municipal official plans to direct waste facilities, including processing and storage, to appropriate locations and ensuring that any new waste disposal facilities are consistent with the Regional and area municipal official plan policies. The policies outlined below demonstrate that the Regional Official Plan provides a policy framework for the consideration of energy from waste facilities as an option for the disposal of residual waste generated within the Region.

Excerpt from Peel Region Official Plan

6.4 Waste Management

6.4.2.1 Prepare, in cooperation with the area municipalities, a Waste Management Strategy to achieve the waste management objectives.

6.4.2.2 Actively encourage, promote and support efforts of government, the private

sector and the general public which reduce waste, or emphasize reuse, recycling (3Rs), composting and other minimization options.

6.4.2.3 Encourage the area municipalities to prepare and adopt guidelines for the design of communities and buildings that will facilitate source separation, collection, storage and transportation of waste.

6.4.2.4 Require the area municipal official plans to direct waste facilities, including processing and storage, to appropriate locations.

6.4.2.5 Ensure that the location of any new waste disposal facility is consistent with the objectives and policies in this Plan and the area municipal official plans.

6.4.2.6 Consider energy from waste facilities as an option for the disposal of post-recycled waste generated within Peel Region.

6.4.2.7 Recognize the Britannia and Caledon landfill sites, as shown on Figure 10 of the Appendix, as the only active landfill sites in Peel Region. The establishment and operation of a new landfill site at another location will require a Regional Official Plan Amendment. The expansion of an existing landfill site will require an amendment to a local official plan.

6.4.2.8 Require an amendment of the certificate of approval in force at the date of Council's adoption of this Plan or the issuance of a new certificate of approval by the Ministry of the Environment, for any changes to what is presently permitted in an existing landfill site.

6.4.2.9 Review any proposal to establish and operate a new landfill site in Peel for consistency with the objectives and policies in this Plan and the area municipal official plans.

6.4.2.10 Maintain operating landfill sites in a manner which protects the environment, public health and adjacent land uses.

6.4.2.11 View the use of land for landfill during the operational life of the site as an interim land use, until such time as the land is deemed by Regional Council to be suitable for other uses.

6.4.2.12 Support the after use of the Britannia Landfill site for Open Space purposes.

6.4.2.13 Permit development within 500 metres (1640 feet) of the active working face of the Britannia Landfill Site subject to agreements as required by the Province, Region and City of Mississauga.

6.4.2.14 Review proposed development in proximity to the Caledon landfill site for consistency with the objectives and policies in this Plan, the Town of Caledon Official Plan, the Niagara Escarpment Plan and the Ministry of the Environment guidelines.

6.4.2.15 Carefully manage those closed landfill sites which the Region owns and rehabilitate them to appropriate uses, determined jointly with the area municipalities.

The Plan does not provide any further guidance with respect to the generation of power from waste.

The Region of Peel Waste Management Strategy, 2004 Update, provides an update on the progress made towards achieving the Region's Long Term Waste Resource Management Strategy (LTWRMS), including waste management operations and diversion programs. The LTWRMS provides the conceptual and macro-scale direction for a wide range of Regional waste management programs and initiatives.

3.2 City of Brampton Official Plan

Section 4.6.5 of the City's Official Plan contains policies with respect to solid waste, sanitary landfills, transfer stations and waste processing plants and liquid waste.

The Official Plan provides policy guidance to minimize the amount of solid waste that is generated and for the establishment and operation of recycling and recovery initiatives. The Plan recognizes that the Region may establish waste disposal and transfer facilities in the Region to equitably serve the citizens in the most economical and environmentally friendly manner. Liquid waste is not to be disposed of or handled at any sanitary landfill, transfer station or waste processing facilities in Brampton.

The City's current policy framework has not been reviewed since 1996. Since the last review, however, the waste management context has evolved at the Provincial level, particularly in that there is an emerging market for private energy and waste facilities. Furthermore, waste management systems have broadened beyond landfilling, and waste diversion and recycling to more complex operations involving processing of wastes for incineration for electricity generation.

It is reasonable to conclude that the current policy framework does not envisage the waste-related uses that exist today and the emerging alternative means of waste disposal, or the extent to which the private sector would participate in waste services delivery and coordination.

Appendix "A1" provides Official Plan policy excerpts pertaining to solid waste, sanitary landfill sites, transfer stations and waste processing plants, liquid waste, and contaminated sites and waste disposal sites, which are summarized below.

Incineration

There are no Official Plan policies dealing with incineration.

Sanitary Landfill Site

The Official Plan provides locational constraints for the siting of future sanitary landfill sites (Section 4.6.5.6). These constraints include existing and proposed urban areas and buffers necessary for their protection, unsuitable hydrological and hydrogeological conditions, bird hazard zones, environmental features (valleylands, watercourse corridors, hazard lands, environmentally sensitive areas, and major recreational open space areas), agricultural use impacts, social impacts on existing and proposed residential development and impact on the City's transportation network. The Official Plan requires that prior to permitting development within 500 metres of an existing or former waste disposal site, the proponent must submit technical engineering studies related to residues, gas, leachate and hydrogeology and the implementation of any required mitigation or remedial measures, to the satisfaction of the City (Section 4.6.5.15).

The establishment of any new Sanitary Landfill Site or expansion requires and amendment to the Official Plan and subject to the regulations of the *Environmental Assessment Act* and the *Environmental Protection Act*. The Plan also provides policy guidance with respect to the provision of suitable truck routes that minimize adverse land use impacts, requirements for an after-use landscape plan and a landfill rehabilitation plan.

Sanitary Landfill Site is defined as *"a waste disposal site used for the disposal of waste by deposit, under controlled conditions, on land or on land covered by water, including compaction of the waste into a cell and covering the waste with cover materials at regular intervals."*

Waste Transfer and Waste Processing Facilities

The Official Plan does not provide development standards for the siting of transfer stations or waste processing plants. The Plan indicates that transfer stations and waste processing plants are, subject to the regulations of the *Environmental Protection Act,* are permitted on lands designated Business Industrial, provided that such lands are also designated General Industrial in the relevant Secondary Plan. Waste transfer and waste processing facilities are also permitted on approved Sanitary Landfill Sites (Section 4.6.5.11).

The Business Industrial designation may accommodate a variety of uses, including industrial, office, retail, service, and community service uses, subject to the policies of this Plan, and the relevant Secondary Plans.

The Industrial designation provides for the development of industrial, manufacturing, distribution, mixed industrial/commercial and limited office uses, and may also permit service and retail uses, and open space and community service uses as practical and appropriate subject to the appropriate sub-designations and policies in the relevant Secondary Plan. Appendix A2 includes provides excerpts of the Official Plan policies pertaining to the Business Industrial and Industrial land use designations.

The boundaries and range of permitted uses within the Business Industrial and Industrial land use designations are interpreted within the more detailed Secondary Plans, where these designations are broken down into various sub-designations with specific policies.

The Official Plan (Section 4.2.11) provides general guidance when considering development applications within industrial designations (full range of permitted uses) in proximity to residential or other sensitive land uses, including provisions for no outside storage; the potential to generate air pollution, odour or excessive noise, and the provision of a high standard of building design, yards and landscaping. The Plan provides policies to protect industrial areas from incompatible uses by limiting the range of permitted uses, such as residential or other sensitive land uses within and adjacent to industrial areas.

Excerpt from City of Brampton Official Plan

4.2.11 Industrial Dominant Sector

4.2.11.11 The City may, where existing residential uses are located in an area designated Industrial, refuse to permit lands abutting and adjacent to these residential uses to be developed for industrial uses until those lands can be developed in conjunction with the residential lands for such business or industrial purposes. As a condition of secondary plan, zoning or subdivision approval, the City may establish policies which encourage the assembly of residential properties.

4.2.11.12 The City shall, in considering development within Industrial designations abutting residential or other sensitive uses, have regard for the following criteria:

- *(i) no outside storage;*
- *(ii) not likely to generate air pollution, odour or excessive noise; and,*
- *(iii) will meet a high standard of building design, yards, and landscaping.*

4.2.11.13 The City shall consider the conversion or redevelopment of functionally obsolete industrial sites to suitable alternative uses and the relocation of incompatible uses to more appropriate locations. The City may request suitable market and economic studies to be submitted to support the proposal for conversion or redevelopment of industrial uses, which will require an amendment to the applicable Secondary Plan.

4.2.11.14 In areas containing existing heavy industrial uses or on lands in proximity to such areas, the range of permitted uses shall be limited to avoid the introduction of additional uses which are incompatible with heavy industrial use activities. The City shall deny applications for the development of residential and other sensitive land uses within and adjacent to designated industrial areas if such approval would result in these industrial uses ceasing to be in compliance with all pertinent standards or would inhibit development of designated industrial lands for the purposes permitted by the Plan.

4.2.11.16 The City shall, in assessing situations which would create an interface between industrial and residential or other sensitive land uses, give due regard to the minimization of environmental, noise, pollution and visual impacts in accordance with the Urban Form and Environmental Management sections of this Plan.

Definitions:

"Sensitive Land Use" means a use which may be subject to adverse impacts (such as odours, contamination, noise, and vibration), generated by a nearby facility or feature and typically includes residential, institutional or outdoor recreational uses.

"Transfer Station" means a waste disposal site used for the purpose of transferring waste from a collection vehicle to another carrier for transportation to another waste disposal site.

"Waste Processing Plant" means a waste disposal site used for the purpose of receiving, storing, processing, treating and transferring waste.

Power Generation

The Official Plan (Section 4.6.4.5) permits electric power generation and supply facilities within any land use designation, provided the planning of such facilities is carried out having regard to the policies of the Plan and satisfying the provisions of the *Environmental Assessment Act*, including regulations made under the Act, and any other relevant statutes. Furthermore, the Plan indicated that Ontario Hydro (in contemporary terms, Ontario Power Generation (OPG) in this context) "shall" consult with the City on the location of all new electric power facilities. The Official Plan policy cannot compel OPG to

consult with the City; however, as a matter of procedure they do consult with municipalities in these matters. However, it is reasonable to note that not all power generation in the Province is provided by OPG anymore.

Appendix "A3" provides excerpts of the policies pertaining to hydro-electric power generation.

Industrial / Business Industrial Related Secondary Plans

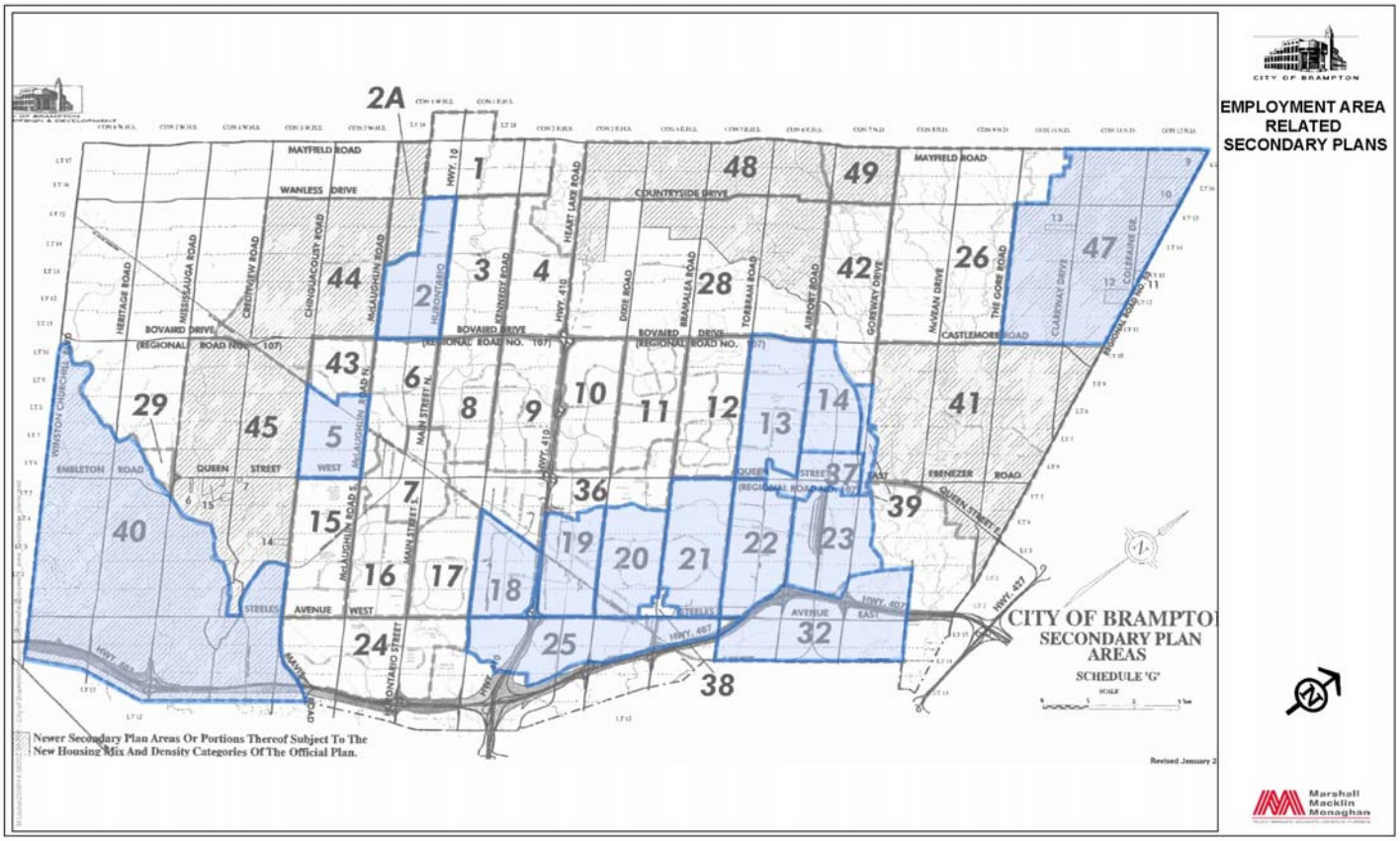
The Secondary Plans implement in greater detail the policies of the Official Plan. The following Table 2.3 and Figure 2.1 identifies the Secondary Plan Areas which accommodate industrial and business industrial uses.

Table 2.3 – Industrial / Business Industrial Related Secondary Plans

Area	Secondary Plan
2	Sandalwood Industrial East
5	Northwood Park
13	Brampton North Industrial
14	Goreway Industrial North
18	Brampton East Industrial
19	Brampton West Industrial
20	Avondale
21	Southgate
22	Bramalea South Industrial
23	Gore Industrial South
25	Steeles Industrial
32	Parkway Belt Industrial Area
37	Airport road / Highway 7 Business Centre
39	Goreway Drive Corridor
40	Bram West
47	Highway 427 Industrial

The Secondary Plans provide greater clarity with respect to land use. The Secondary Plans generally provide for the establishment of classes of industrial areas or the delineation of Special Policy Areas, which may be based on access requirements, inter-relationship between industrial uses, the need to minimize adjacent land use conflicts and servicing requirements. The Secondary Plans generally provide polices to ensure that industrial uses are compatible with adjacent uses through appropriate buffering, development standards such as setbacks, landscaping, berming, screening and access restrictions to Major Arterials.

Figure 2.1 – City of Brampton Employment Secondary Plan Areas



3.3 Zoning By-law

The Zoning By-law provides some general regulations for waste transfer and waste processing stations, which are permitted uses within Industrial Zones subject to certain development criteria. The Zoning By-law does not have regulations that specifically regulate the use of land for waste disposal and or incineration. Sites for power generation uses must be rezoned to permit a Utility Installation, however, no specific regulations apply to power generation uses. The Public Use provisions of the Zoning By-law permit Public Uses in any zone subject to certain regulations.

Appendix "B" contains Zoning By-law excerpts relating to General Provisions for Industrial Zones and Industrial Zones.

Waste Transfer and Waste Processing Facilities

The Zoning By-law provides regulations for waste transfer or waste processing stations. Waste transfer stations or waste processing plants are permitted within Industrial zones and their Special Sections where outside storage is permitted provided: (a) no outdoor

storage associated with a waste transfer station or waste processing station is permitted unless such storage is located within enclosed bins or containers and conforms to all the provisions of the zone respecting outdoor storage, and (b) no waste processing station or waste transfer station is located within 120 metres from a property in a non-industrial zone (30.9 Waste Transfer or Processing Station).

Section 30.10 (General Provisions of Industrial Zones) requires that where outdoor storage is permitted, no storage shall be permitted on any portion of a lot required for parking, loading, driveway, or landscaped open space.

Outdoor storage is only permitted in the following Industrial Zones:

- ***Industrial Two – M2*** – Outside storage is permitted in the rear or interior side yard and such storage shall be screened from view by a solid fence from a street, open space, and properties zoned in a Residential or Institutional category.

- ***Industrial Three – M3*** – Outside storage is permitted in the rear or interior side yard and such storage shall be screened from view by a solid fence not less than 1.8 metres in height from a street, open space, and properties zoned in a Residential or Institutional category. No storage shall exceed the top of the solid fence.

- ***Industrial Three A– M3A*** – Outside storage is permitted in a rear yard and 1.2 metres from a lot line. Such storage shall be screened from view by a solid fence having a minimum height of 1.8 metres and a maximum height of 3 metres and from a street, open space, and properties zoned in a Residential or Institutional category as well as an Industrial zone where outside storage is not permitted. No storage shall exceed the top of the solid fence.

The General Provisions of Industrial Zones (30.2 Environmental Concerns) states that: obnoxious industrial uses shall not be permitted. An Obnoxious Industrial Use is defined as a *"use which, from its nature of operation, creates a nuisance or is liable to become a nuisance or offensive by the creation of noise or vibration, or by reason of the emission of gas, fumes, dust, glare, or objectionable odour, or by reason of the unsightly storage of goods, wares, merchandise, salvage, refuse matter, waste or other materials, and, without limiting the generality of the foregoing, shall include any uses which, under the Public Health Act and regulations made there under, are declared by the Peel Regional Health Unit to be an obnoxious or offensive trade, business or manufacture."*

The Zoning By-law defines "Waste Processing Station" and "Waste Transfer Station" as follows:

Waste Processing Station "shall mean a facility that receives, stores and/or processes waste materials for the purpose of creating new products or materials within an enclosed

building unless it is owned or operated by the Regional Municipality of Peel on lands where outside storage is permitted."

Waste Transfer Station "shall mean a facility where waste materials are collected for shipment and may be sorted and/or prepared for transportation within a storage bin or enclosed building."

Waste Disposal Sites

The City does not have zoning provisions that specifically regulate the use of land for waste disposal, nor does it define waste disposal.

The zoning by-law does not permit a composting facility, other than those accessory to a principal residential, institutional, open space, or agricultural use, on any site unless it is specifically expressed as a permitted purpose (6.30 Composting Facility). The Zoning By-law defines a Composting Facility as *"a facility whose primary purpose is the composting of food waste and organic materials".*

Incineration

The City does not have zoning provisions that specifically regulate the use of land for incinerators for the burning of waste, or the use of incinerators generally in the City of Brampton. The Zoning By-law does not have a definition for incinerators. For the purposes of this Study the ICB has defined incinerator as *"a furnace or other arrangement for burning waste, garbage, trash, etc. to ashes for the purposes of power generation or waste disposal".*

Power Generation

Brampton requires that sites for power plants be rezoned to permit a Utility Installation, which is defined as: *"any building, structure, plant or equipment essential to the provision and operation of electricity, water, storm water, sewage disposal, pipeline, railway, telecommunications or cable television".* The zoning-by-law does not provide regulations specifically related to power generation uses, although Section 6.10 provides regulations for utility uses, it specifically excludes power generation uses.

Excerpt from Zoning By-law

6.10 Utility Uses Permitted

The provisions of this by-law shall not apply to prevent the use of any land or the erection or use of any building, structure, plant, or equipment by a public authority or a private electric utility company or other private utility company regulated by the Government of Ontario or a Crown agency thereof for a utility installation other than power generation, and

such use or erection may be permitted subject to the following requirements and restrictions:

(a) other than an electric power transmission line, the size, height, coverage and yard regulations required for the zone in which such land, building, structure, plant, or equipment is located shall be complied with except for a facility less than 1 square metre in area and 2 metres in height, which may be located not less than 3 metres from a public road right-of-way and 1.5 metres from any other property line;

(b) no goods, material or equipment may be stored in the open in a Residential Zone or in a lot abutting a Residential Zone;

(c) any parking and loading regulations prescribed for these uses shall be complied with;

(d) areas not used for parking, driveways or storage shall be landscaped; and,

(e) all electric power facilities of Hydro One Inc. and Brampton Hydro Networks Inc. existing on the date of enactment of this by-law shall be deemed to conform with the requirements and restrictions pertaining to the particular zone in which it is located.

Public Use Provisions

The zoning by-law permits (6.33 City of Brampton Public Uses Permitted) permits Public Uses owned and or leased by the Corporation of the City of Brampton in all zoning categories provided that yard, outside storage, parking, and coverage regulations required for the zone where the lands are located are complied with and the accessory uses to any permitted use does not exceed 15% of the total gross floor area on the site. The zoning by-law defines a Public Use as *"uses that are owned or leased by a public authority for community, recreational, administrative, educational, health care, protection, utility or other governmental purposes, and includes accessory uses to public use."*

4.0 MUNICIPAL POLICY APPROACHES

We have reviewed the policy and regulatory frameworks (Official Plan policies and Zoning By-law requirements) related to incineration, power generating, waste processing, transfer and disposal sites/uses (locational criteria (buffering), evaluation criteria, use definitions etc.) within other comparable municipalities within the GTA, as well as municipalities outside the GTA.

The following municipalities within the GTA were reviewed as they exhibit comparable characteristics to the City of Brampton, including size, land use patterns, and proximity to provincial highways etc.:

- City of Mississauga;
- City of Oshawa;
- City of Vaughan; and
- City of Pickering.

The policy and regulatory framework of these municipalities related to incineration and waste processing, transfer and disposal is summarized in Section 4.1 and is presented in greater detail in Appendix "C1".

The following municipalities outside the GTA were also reviewed:

- City of Ottawa;
- City of Guelph;
- Regional Municipality of Halifax; and
- City of Calgary.

The policy and regulatory framework of these municipalities related to incineration and waste processing, transfer and disposal is summarized in Section 4.2 and is presented in greater detail in Appendix "C2".

4.1 Comparable GTA Municipal Policy Approaches

City of Mississauga

Broad Guidance – The Official Plan provides protection between incompatible land uses (Section 3.12.4.4) and may require a feasibility study to address potential negative impacts of development.

Waste Processing Stations / Waste Transfer Stations – Waste processing and transfer stations are permitted within the Business Employment and Industrial designation subject to development criteria (Section 3.12.4.6), which include criteria related to compliance with

government requirements, land use compatibility, environmental impacts and mitigation of effects. These uses are permitted in the M1 and M2 Industrial zones provided the use is not located within 800 metres of a residential zone; outside storage is only permitted in containers and appropriate MOE approvals must be obtained.

Waste Disposal Sites – Waste Disposal Sites are not expressly permitted in the Official Plan and restrictions are placed on the development of lands adjacent to landfill sites (3.12.4.6).

Incineration / Power Generating Facilities – The Official Plan permits power generating uses in the Industrial designation. The City has undertaken a review of power generating facilities and recommended a number of amendments. Power Generating Facilities are to be exempt from the M1 and M2 zone and be rezoned to M2 – Special Section. The evaluation process for such uses has been expanded as contained in the Report. Additional work is to be undertaken with respect to cogeneration uses. The Report introduces new definitions relating to cogeneration, combined cycle and renewable energy.

City of Oshawa

Broad Guidance – The Official Plan provides broad protection from environmental and human hazards and the compatibility with adjacent land uses. Industrial uses are subject to MOE approval and any applicable standards.

The Official Plan provides for a Special Industrial designation which includes such uses as: recycling depots, recycling operations, salvage yards, automotive wrecking yards and incinerating plants. The locational criteria specifies that such uses are generally located on lands east and northeast of Oshawa Harbour and on lands at 1050 and 1123 Farewell Street and the interior of the industrial area north of Harbour Road.

The Zoning By-law's General Industrial Zone (GI) permits any industrial use not mentioned under the permitted uses which are not obnoxious. The Special Industrial Zone (SPI) specifically permits a recycling depot or operation, salvage yard or automotive wrecking yard.

Waste processing and transfer stations, incinerators, and power generating facilities are not specifically mentioned or defined. Such uses are likely permitted within the SPI zone through a site specific amendment.

City of Vaughan

Broad Guidance – The Official Plan policies provide general compatibility criteria related to employment uses. Although not specified, the Plan refers to the application of MOE guidelines with respect to distance separations and alternative mitigation measures.

Waste Processing Stations / Waste Transfer Stations – OPA 400 provides regulations for Waste Recycling Establishments which include waste transfer stations, material recovery and composting facilities. The regulations (Section 2.2.7.2) apply to design, outdoor storage, management operations, transportation and distance separation (to be established in the zoning by-law). Regulations pertaining to waster transfer and material recovery facilities were to be provided in By-law 255-93, which was appealed to the OMB and never approved. As a result, there are no zoning regulations addressing such facilities and only those uses existing prior to the by-law are permitted.

Waste Disposal Sites – The Official Plan prohibits waste disposal sites in the Agricultural Area. The Zoning By-law provides for an M5-Disposal Industrial Zone which permits a sanitary landfill operated in accordance with the *Environmental Protection Act*, but excluding liquid and hazardous waste.

Incineration / Power Generating Facilities – While not specifically defined, incineration and power generating facilities are likely permitted in the "Employment Area–General" designation and the EM1 and EM2 zones provided the use in not obnoxious.

City of Pickering

Broad Guidance – The Official Plan supports waste management initiatives with an emphasis on the reduction and elimination of waste. The Official Plan recognizes the adverse impacts of incompatible land uses and may require a study to address issues related to noise, vibration, dust or odour.

Waste Processing Stations / Waste Transfer and Recycling Stations – Waste processing, transfer and recycling stations are permitted within the General Employment designation, subject to restrictions on permissible which are to be detailed in the implementing zoning by-law. Such uses are not specifically defined in the Zoning By-law, therefore a site specific amendment would be required to the M2S – Yard Storage and Heavy Manufacturing Zone to permit the use subject to appropriate regulations.

Waste Disposal Sites – The Official Plan opposes the establishment of any new landfill sites and new or expanded waste disposal sites. Such uses would only be permitted by amendment to the Plan. An Environmental Report is required for proponents of development within 500 metres of a waste disposal site. The Zoning By-law does not specifically address waste disposal sites.

Incineration / Power Generating Facilities – The Official Plan permits Power Generating uses within the Potential Multi-Use Areas (Freeways and Major Utilities) designation provided the use is compatible with adjacent uses. Incineration uses are not specifically addressed in the Official Plan. Power Generating and Incineration uses are not specifically defined in the Zoning By-law.

4.2 Outside GTA Municipal Policy Approaches

City of Ottawa

Broad Guidance – The Official Plan provides policies which restricts industrial uses that are likely to negatively impact adjacent residential uses (by noise, fumes, heavy equipment movement or external storage) from urban areas.

Waste Processing Stations / Waste Transfer – Permitted in General and Heavy Industrial zones. Such uses are prohibited where they have the potential to cause contamination in a wellhead protection area.

Waste Disposal Sites / Incinerators – The Official Plan considers landfills and incinerators and any other facility providing for the long-term storage of waste as a Waste Disposal Site. The Plan recognizes the City's jurisdiction of consents for private waste management and waste disposal facilities. In granting consents the City's criteria include an assessment of the impact on landfill capacity and consistency with the recycling plan. A new Waste Disposal Site requires an Official Plan amendment and an evaluation of the application based on the preparation of a terms of reference under the EAA, and the compliance therein. Development within 500 meters of an active Waste Disposal Site must demonstrate that the site will not have an impact on the proposed use.

City of Guelph

Broad Guidance – The Official Plan provides policies to support the provision of solid waste management facilities to meet the City's existing and future needs. Policies provide for the protection of public health and safety and minimize environmental impacts to prevent nuisances from waste management facilities.

Waste Processing Stations / Waste Transfer and Recycling Stations and *Waste Disposal Sites* – The Official Plan provides for a "Waste Management" land use designation that permits landfills sites, waste transfer stations, waste reuse facilities, recycling, reclamation, recovery, composting and anaerobic digestion. The facility must be operated by the Municipality of in agreement with the Municipality. Separation distances must be maintained as per MOE Guidelines.

Incineration / Power Generating Facilities – The Official Plan does not provide policies with respect to incineration / power generating facilities.

Regional Municipality of Halifax

Broad Guidance – The Regional Municipal Planning Strategy provides for the preparation of an Emissions Reduction Plan to work towards reducing air pollution. Amendments to

the Zoning By-law are required to establish zone standards where new waste recovery and diversion facilities are proposed.

Waste Transfer – CD-1: C&D Materials Transfer Station Zone permits construction and demolition materials transfer stations and accessory uses. No operations are permitted that results in, causes, or produces negative effects such as noise or sound, dissemination of smoke, fumes, gas, dust, odour or any atmospheric pollutant, and discharge of any waste into a watercourse or water resource except in accordance with the applicable government requirements.

Waste Processing Stations - CD-2: C&D Materials Processing Facilities Zone permits uses in CD-1 Zones, construction and demolition materials processing facilities, accessory uses, and accessory dwelling units.

Waste Disposal Sites – CD-3: C&D Materials Disposal Sites Zone permits uses in CD-1 and CD-2 Zones, construction and demolition materials disposal sites, and accessory uses.

Incineration / Power Generating Facilities – The Official Plan does not provide policies with respect to incineration / power generating facilities.

City of Calgary

Broad Guidance – The Municipal Development Plan policies provide for the protection of public health and safety through the safe disposal of solid wastes.

Waste Processing Stations / Waste Transfer, Waste Disposal Sites and Recycling Stations – Waste Management uses are considered a utility which provides a public benefit and are permitted in zones that permit Utilities or Utility Buildings as a discretionary use. The Zoning By-law permits utility buildings as a discretionary use in a number of zones subject to satisfying certain development criteria.

Incineration / Power Generating Facilities – The Zoning By-law provides for a range of power generating facilities as a permitted or discretionary use ranging from small-scale generating uses in Residential and Commercial designations to large-scale power generating facilities in Heavy Industrial zones. The Zoning By-law permits power generating as a discretionary use in a number of zones subject to satisfying certain development criteria which vary by zone but may include restrictions on: yard setbacks; lot coverage and lot area; landscaping; parking and loading regulations; outside storage; performance standards; interface treatments and outside display areas.

Incineration uses are not specifically contemplated.

5.0 EMERGING TECHNOLOGIES AND THEIR RELEVANCE

Over the recent past, technological development associated with waste management, including energy-from-waste, has experienced a period of rapid evolution and growth. New (i.e., emerging) technologies for treating, processing and disposing of municipal solid waste are being developed and promoted at all levels of the public and private sectors. This has been precipitated largely by continued and growing resistance to the long-established conventional means of waste disposal (primarily being in landfills); an increased environmental awareness which is further heightened by global initiatives (e.g., Kyoto Protocol); and the more recent local phenomenon of rising electricity generation costs and diminishing capacity in Ontario.

While it can also be said that the state-of–the-art in power generation technology is also evolving, the evolution is primarily as incremental improvements to existing technologies with a view to improving efficiencies rather than the development of new technologies (e.g., traditional single phase gas combustion facilities have been replaced with combined cycle systems that effectively utilize the gas exhaust that was previously vented). Accordingly, the focus of this chapter is on the emerging science and practice as it relates only to waste management technologies since, in some cases, these may represent real departure from traditional approaches.

The City of Brampton and adjacent municipalities within the Region of Peel have been at the forefront of both change and evolution in waste management in Ontario. As evidence, the only operating energy-from-waste facility in the province, Algonquin Power, operates within the City, and during the past year, the Region commissioned a modern, high-volume integrated waste management facility (IWMF) also in Brampton, for the receipt, transfer and processing (including separation and recovery) of municipal solid waste in the Region. In 2006, a centralized compost facility will be added to the IWMF. Also during the past decade, the Region has taken out of service one of the largest landfills in the province and initiated a program of solid waste export to a "willing host" in the U.S.

While the transition and evolution of waste management strategies and programs within the Region of Peel have been particularly significant compared to other municipalities in the GTA and Ontario, they are likely to be transcended by more dramatic change as the push for new and emerging technologies in waste management gathers momentum. Evolving trends in waste management will bring increased potential for the establishment of new-technology processes within urban areas and with them, added potential interface and conflict with residents and businesses. Accordingly, it will be important that these emerging technologies be considered in the City's land use planning regime.

In simple terms, "new and emerging technologies" are those processes that are not currently in widespread use (in the subject jurisdiction), or that may have only recently become commercially operational. Generally, in terms of waste management, new and emerging technologies can be categorized within the following broad groups:

- Physical processes;
- Biological processes;
- Thermal processes;
- Chemical processes.

Each category is further discussed below including its possible relevance in the City of Brampton land use planning context. The contextual relevance is important because as noted above, the City of Brampton and the Region of Peel are already at the leading edge of waste management practice and technology and at least some degree of "new technology" applications are already resident in the City. For example, although biological processes also include various other forms of biological treatment yet to be proven, they are represented by the soon-to-be-operational centralized compost facility at the Peel IWMF. Similarly, while thermal processes may include techniques that have not been demonstrated at a commercial scale, they also include the Algonquin Power EFW facility.

1) **Physical processes** involve the mechanical separation of materials within the waste stream. These systems can be used as the "front end" process to remove recyclables leaving a product that can be used in another system; however, the innovative aspect of this technology is its application as an integrated solution. Typical physical processes as an integrated management approach would involve stages of separation and recovery (i.e., of recyclables) with a subsequent focus on the conversion of fibre, organics and other materials (including textiles, rubber, plastics) for the manufacture of **refuse derived fuel (**RDF). The RDF may then be used as a combustion source for the likes of cement kilns, thermal power plants, paper mills and district heating. A "less innovative" physical process would be similar to the existing Peel IWMF which provides for management of source-separated wastes by on-site composting, separation and recovery of recyclables, and transfer of residuals to off-site disposal.

   Relevance to current study
   Physical waste management processes as a new and emerging technology are unlikely to occur in the City of Brampton in the foreseeable future in a form or of a magnitude significantly different than as they already exist at the Peel IWMF. The Peel facility includes the range of physical characteristics that can reasonably be expected as typical of emerging technologies in the physical process category. As such, the Peel IWMF forms an appropriate basis for considering this category for current purposes.

2) **Biological Processes** involve the reduction of organic waste materials through decomposition by microbes. The process may be aerobic or anaerobic. Biological treatment of waste has traditionally occurred as "composting". Although composting is a well-established and proven technique, biological waste treatment as a new and emerging technology is a consideration of the sophistication of the

treatment process and its integration into an overall management system. **Aerobic digestion** occurs in the presence of oxygen. Innovative techniques of aerobic digestion typically involve the placement of organics (previously separated from the total waste stream) into a vessel through which air is drawn at a controlled rate and moisture and agitation of the material are regulated to promote is degradation. The in-vessel period, typically of 5-10 days, is followed by an extended period of outside pad curing to achieve accepted compost standards. Odours are generated by the process and are usually treated in a biofilter before discharge to the atmosphere. **Anaerobic digestion** occurs in the absence of air and may be either "wet" or "dry". It too takes place within a vessel where conditions are regulated to optimize the process. A by-product of this technique is biogas (primarily methane) which may be collected and processed as a useable fuel or combusted directly to generate power.

Relevance to current study

Biological waste management processes as a new and emerging technology are already present at the Peel IWMF in the City of Brampton where a series of aerobic composting vessels (or tunnels) will be commissioned in spring 2006. It is to be noted, however, that while the in-vessel stage of the biological process will take place at the Peel IWMF, upon removal of the material from the vessels after 7-10 days, it will be transported off-site (and out of the City of Brampton) for continued curing at an outdoor curing facility. The Peel IWMF compost operation includes a biofilter and discharge stack subject to approval by the MOE to treat odours from the vessels. It is reasonable to expect that a typical biological waste management treatment process could provide for the full-cycle operations on the subject site, including final curing, and this should be a consideration for the current study, especially in terms of the aesthetic effects of odour and visual nuisance.

3) **Thermal processes** encompass a variety of technologies that use or produce a significant quantity of heat during the waste treatment. The traditional thermal treatment process involves the direct incineration of waste (usually source-separated for removal of recyclables). At modern facilities, this form of incineration is usually accompanied by some form of heat utilization such as for electrical generation of district heating. Typically described as **energy-from-waste** (EFW) facilities, the Algonquin Power facility is a relevant example. At this facility, waste is combusted in a controlled air environment and off-gases from this first-stage combustion are incinerated in a second stage oxygen-rich environment from which the heat is recovered and used for power generation. Emissions from the facility are exhausted through an air pollution control system approved by the MOE. Emerging thermal waste treatment technologies include **gasification, pyrolysis, cracking and plasma**. These techniques are generally similar in that they involve a chemical reaction at high temperature that alter the organic fraction of the waste. A typical by-product of these evolving techniques is a form of

synthetic gas (syngas) that may be combusted to produce energy or further processed to produce other chemicals such as methanol.

Relevance to current study

Thermal processes as a new and emerging technology are unlikely to occur in the City of Brampton in the foreseeable future in a form or of a magnitude significantly different than as they already exist at the Algonquin Power EFW facility. The existing EFW facility includes the range of physical characteristics that can reasonably be expected as typical of emerging technologies in the thermal process category. As such, the Algonquin Power EFW facility forms an appropriate basis for considering this category for current purposes.

4) **Chemical processes** generally represent a generic category of technologies that apply chemical means to convert waste into useable products. They are often combined with one or more specific processes such as biological digestion, hydrolysis, and thermal. With some exceptions, the processes also usually target very specific waste streams (e.g., demolition waste for conversion to synthetic building materials). One such process currently being promoted is based on the process of depolymerization and associated refining process. Depolymerization is the permanent breakdown of large molecular compounds into smaller, simpler compounds. The process, which includes a thermal stage, produces a recoverable gas which can be converted to a hydrocarbon fuel and carbon solids. Of all categories of new and emerging technologies, the chemical processes are probably the least proven for broad-based application to municipal solid waste.

Relevance to current study

Chemical processes as a new and emerging technology remain well-removed from commercialization for municipal solid waste and are unlikely to occur in the City of Brampton in the foreseeable future in a form or of at a scale that would suggest they be considered in a stand-alone context for land use planning purposes. Because existing waste treatment facilities in the City, notably the Peel IWMF and the Algonquin Power EFW are large-scale, modern sites typically representing the current state-of-the-art in waste processing and disposal, it is reasonable to assume that the potential on-site and off-site effects associated with them would bound the potential effects associated with new and emerging chemical processes. As such, for the purposes of this study, the Peel IWMF and the Algonquin Power facilities are considered suitable surrogates for emerging chemical treatment technologies that cannot be defined with confidence.

6.0 INVENTORY OF EXISTING FACILITIES

To consider the potential for waste management and power generation facilities to result in environmental effects in off-site areas, the types of existing waste management facilities existing within the City of Brampton were identified through a facility inventory. The inventory considers on-site operations, off-site effects potential and the environmental management legislation relevant to the operations. The locations of facilities were mapped, to consider potential conflicting land uses and to identify potential transportation routes. This section describes the process of identification of facilities and presents our inventory of facilities relevant to the City of Brampton.

6.1 Facility Inventory and Mapping

The inventory began with a review of the City of Brampton's Business Directory, however, it also considered environmental database information (i.e., EcoLog ERIS databases) and professional knowledge of typical and innovative industries within the areas of interest. The databases were reviewed to identify facilities within the scope of the study that may not have been included in the business directory.

The City of Brampton's Business Directory identifies approximately 8,000 records for businesses registered within the City in 2006. Typical information in the directory includes name and location and the North American Industry Classification System (NAICS) number. The NAICS number categorizes an industry based on business types as diversified as agriculture, manufacturing, mining, finance, retail and administration. Based on the NAICS number and the company name, many of the companies were excluded from further consideration including commercial and retail operations, wholesale retailers, financial institutions, accommodation and food services, manufacturers, transportation operations, public administration and entertainment facilities.

The remaining businesses were assessed against the EcoLog ERIS databases. These databases include information dating from the mid-1980s assembled from federal, provincial and private sources. It was searched for information relating to waste disposal sites (current and historical), automobile wrecking, environmental permitting, PCB storage, and waste receivers in the City of Brampton.

The business operations were further researched on the internet, through telephone interviews and by site visits, to identify those that represented potential incineration, waste management or power generation facilities. Where the facilities were identified as such, they were further screened to exclude:

- **Cremation of humans and animals.** A form of incineration, cremation can produce air emissions including nitrogen oxides, carbon monoxide, sulphur dioxide, particulate matter, mercury, hydrogen fluoride, hydrogen chloride and heavy metals. However,

cremation was not included as part of this study since human and animal remains are not generally considered as waste.

- **PCB storage sites.** PCB storage is generally limited to the PCBs that had been inherent in the operational aspects of a site or facility, and waste was not received or processed at these facilities. Long-term storage is generally terminated upon transfer of the PCB waste to an off-site destruction facility, such as a hazardous waste incinerator.

- **Waste transport operations.** Waste transport was not included as part of the study since any waste involved in the transport operation is ultimately associated with a fixed waste management facility (e.g., waste transfer station, processing facility, landfill) which is considered in this study in its own right.

- **Nuclear and coal-fired power generating plants.** These forms of power generation were not considered since nuclear energy is derived through a chemical reaction rather than combustion and requires a large body of water; and coal-fired plants are currently being phased out in Ontario and were therefore not considered relevant to this forward-looking study.

The remaining facilities were classified into seven categories. Six categories were established based on the type of waste management conducted at the facility, and the seventh category represents power generation through combustion of a fuel. The categories encompass the actual and potential industries established within the City of Brampton. They are described as follows:

Non-hazardous, solid waste transfer stations: Waste transfer stations generally receive mixed waste streams, although there may have been some separation at source (i.e., to remove recyclables and compostable material). Hazardous waste receipt at such a facility would be precluded under the terms of the facility C of A. In the case of municipal solid waste, a transfer station is typically a staging depot where incoming waste, usually delivered by local collection vehicles, is re-packaged (e.g., compacted, shredded) and placed into long-haul vehicles for transport to ultimate disposal. In the case of industrial, commercial and institutional (ICI) waste, a transfer station typically includes a significant separation activity for the purpose of recycling and recovery of received materials. A transfer station would require an amendment to their C of A if operations were enhanced to include more extensive processing or the management of hazardous waste streams.

Non-hazardous, solid waste processing facilities (including composting): Waste processing facilities generally are intended to divert materials from the ultimate disposal stream. These facilities range from limited processing prior to transfer to an end user to highly mechanized sorting and separating of marketable materials (e.g., sorted fibres, glass, metals, compost). Generally, materials received at processing facilities have been separated at source to some degree, however, are further segregated to isolate and recover reusable materials, which may be processed on-site to an intermediate product.

Processing may include: shredding, grinding, screening, chipping, filtering, composting and physical separation. Waste materials that cannot be diverted (i.e., residual waste) are transferred to an off-site disposal site.

Solid waste disposal sites: With the exception of limited-scale incineration (see below) solid waste disposal as it is typically practiced in Ontario involves placement of the waste in a landfill. Landfills accept solid non-hazardous wastes, which are placed in excavated cells and covered daily to reduce odours and litter. Under recent changes to O. Reg. 347, landfilling of untreated hazardous waste has been banned, and therefore new hazardous waste disposal sites are not likely to be established. No operating landfills were identified in the City of Brampton.

Hazardous waste transfer and processing: Hazardous waste, as defined in O. Reg. 347 includes but is not limited to corrosive waste, liquid industrial waste, pathological waste, leachate toxic waste, reactive waste, ignitable waste, radioactive waste and PCB waste. Hazardous waste transfer and processing facilities may include the management of: waste oils, low-level radioactive waste, PCBs or industrial liquids and sludge. The processing would reduce the hazards of the waste and may result in the production of a marketable product or a material that is suitable for land disposal (i.e., ash after incineration). A non-hazardous waste processing facility would require an amendment to its C of A to accept hazardous waste.

Incineration (non-energy producing facilities): Non-energy producing incineration facilities generally accept specialized waste in smaller quantities that make energy production less feasible. An existing facility in Brampton accepts medical waste, which is thermally treated to remove pathogens and reduced in volume through incineration. The solid residue after incineration and air emission controls is disposed at landfill.

Incineration (energy-from-waste (EFW) facilities): Incineration facilities that produce energy (typically in the form of electricity or steam or both) accept mixed waste that is combusted in a controlled environment. The heat from the combustion process is directed to heat recovery boilers where it produces steam which in turn may be used to drive turbine generators or directed to other uses, such as district heating. Hazardous and otherwise unsuitable wastes are sorted from the incineration stream for off-site management or disposal. Modern incinerators include sophisticated pollution control equipment to prevent unacceptable emissions to the atmosphere. The solid residues (i.e., ash) remaining after incineration (bottom ash) and collected in the air emission control system (fly ash) are disposed of off-site. The bottom ash is directed to conventional landfills (sometimes also used for daily cover) and the fly ash is usually managed as a hazardous waste.

Power generation: Fuels are burned to create steam in boilers, which is used to drive turbine generators for the production of electricity. Co-generation facilities would also recover heat lost through the process for use in building heating systems or industrial operations.

The inter-connections and relationships among the various waste management facilities as they are represented in the above categories are illustrated on Figure 6.1.

Figure 6.1 – Inter-Relationship Among Waste Management Facilities

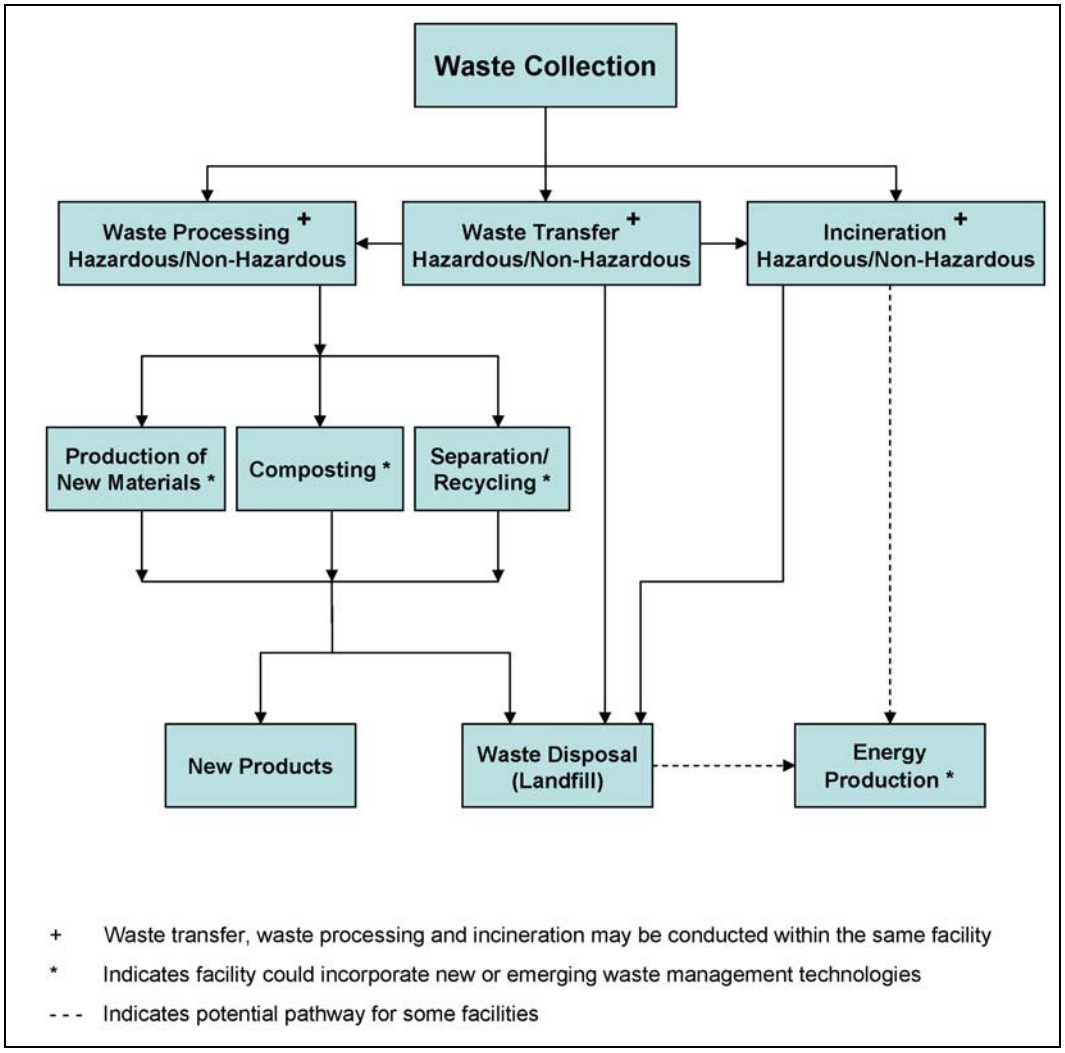


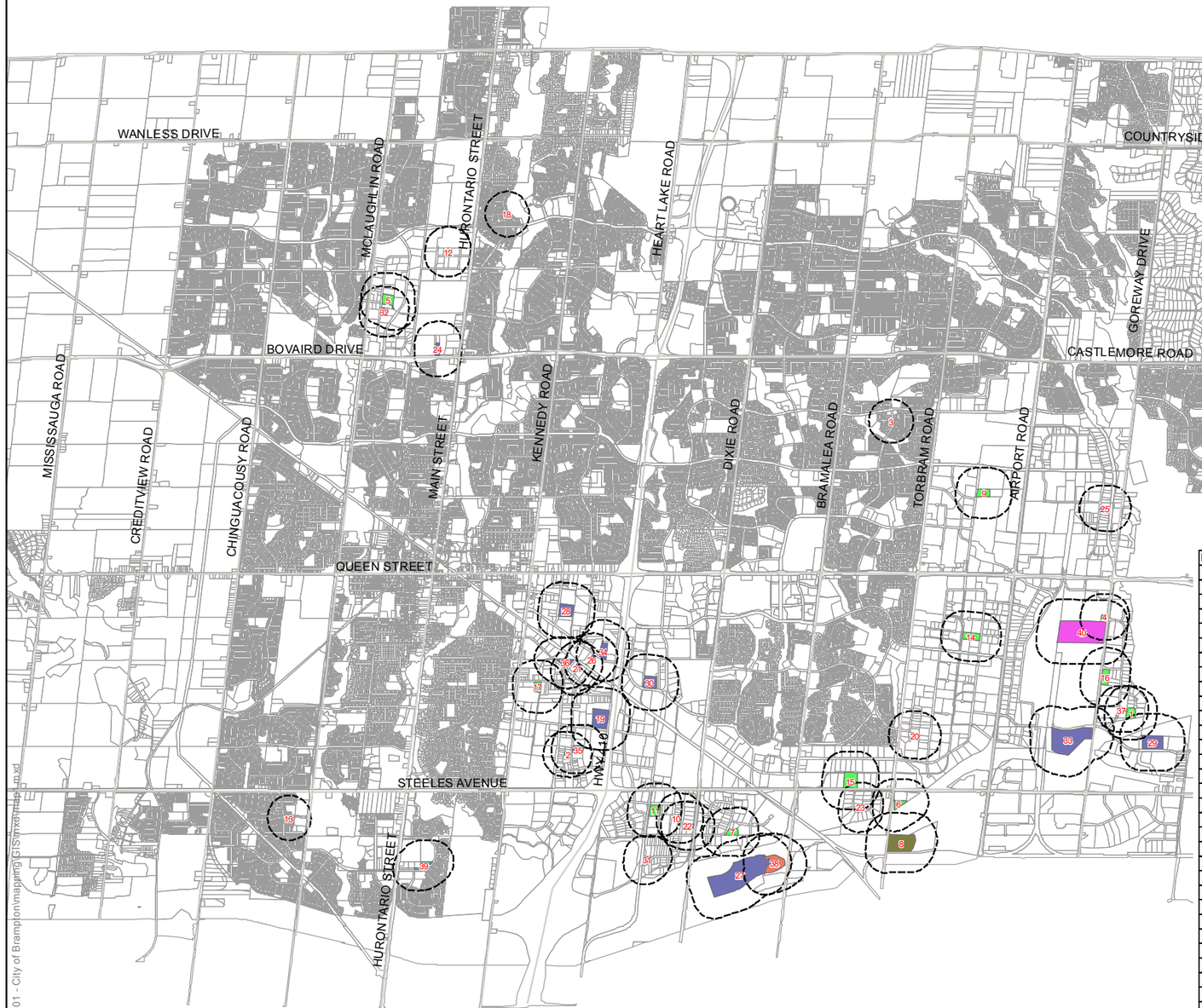
Table 6.1 presents the inventory of waste management and relevant power generation facilities identified in the City of Brampton, classified within six of the seven categories noted above. The available data do not differentiate between management of hazardous and non-hazardous wastes, therefore the inventory does not include this category.

Table 6.1 – Facility Inventory

MMM_ID	Facility Grouping	Address
	Waste Transfer	
1	Conwaste Div. of Cdn. Waste Services and Waste Management of Canada	117 Wentworth Court
2	Kermecho Co Ltd. (Wood Transfer Station)	29 Hale Road
3	Rin Enterprises Ltd. (Multi material recycling)	32 Jaffa Drive
4	Tor Can Waste Management Inc. (Potential transfer station)	8812 Goreway Drive
5	Safety-Kleen Canada Inc. (possible to become transfer station)	25 Regan Road
6	Alnor Industries	7955 Torbram Road
7	WSI Waste Services Inc (Compaction & waste check, transfer station)	117 Advance Blvd.
8	Integrated Waste Management Facility (includes Composting)	7795 Torbram Road
9	Brampton Recycling Depot	395 Chrysler Drive
10	Henry Scrap Metal	159 Wilkinson Road
11	Noranda Recycling	275 Steelwell Road
12	Heart Lake Used Auto Parts	20 Fisherman Drive
13	Re-N-Re Auto Wreck	59 Kingknoll Drive
14	Aadco Automotive Inc.	220 Walker Drive
15	AGA Plastics Recycling	2074 Steeles Avenue East
16	Plast-Ex International Inc.	15 Armthorpe Road
17	Express Pallet Services	55 Stafford Drive
18	Wood Disposal Services	14 Elderbank Court
	Waste Processing	
19	Johnson Matthey Ltd. (Reclamation Service - metal refine from scrap)	130 Glidden Road
20	Canadian Eco Rubber Inc. (processing - tires to pellets) (potential)	8 Bramwin Court
21	Capital Iron & Metal	310 Clarence Street
22	Monserco Limited (LLRW Management)	190 Wilkinson Road
23	Med-tech Environmental Limited (Transfer and Processing)	17 Melanie Drive
24	Product Management Canada Inc. (Transfer and Processing)	170 Highway #7 West
25	Mississauga Metals & Alloys Inc. (Transfer and Processing)	75 Sun Pac Blvd.
26	Achievor Recycling Services Limited (Transfer and Processing)	145 Orenda Road
27	Brampton Bio Conversion Inc. (Organic)	7660 Bramalea Road
28	Finoll Recycling Limited (Waste Disposal & Processing)	38 Hansen Road South
29	Matalco (Aluminum Remelt/processing)	850 Intermodal Drive
30	NexCycle (Recycling beer and products & Processing)	268 Orenda Road
31	NPI (recycle plastic to resin)	235 Wilkinson Road
32	Pharma Processing (Transfer and Processing)	21 Regan Road
33	Triple M Metal (metal shredding/processing)	471 and 331 Intermodal Drive
34	Wasteco (transfer station, processing, depackaging, destruction)	150 Orenda Road
35	Octagon Medical Services (Waste reduction and disposal)	30 Hale Road

MMM_ID	Facility Grouping	Address
36	Graham Brothers Construction	290 Clarence Street
39	Thermo Tech Technologies	101-195 County Court Blvd.
8	Integrated Waste Management Facility (includes Transfer)	7795 Torbram Road
	Solid Waste Disposal Sites	
	None	
	Incineration (Non-Energy) Facilities	
37	Medical Waste Management Inc.	95 Deerhurst Drive
	Incineration (Energy from Waste) Facilities	
38	Algonquin Power (Formerly KMS Peel)	7656 Bramalea Road
	Power Generation	
40	Sithe Energies	Part Lot 4 Conc. 7, Goreway Drive

The locations of these facilities are shown on Figure 6.2



MMM_ID	Company	Address
1	Conwaste Div. of Cdn. Waste Services and Waste Management of Canada	117 WENTWORTH CRT
2	Kermecho Co Ltd. (Wood Transfer Station)	29 HALE RD
3	Rin Enterprises Ltd. (Multi material recycling)	32 JAFFA DR
4	Tor Can Waste Management Inc. (Potential transfer staion)	8812 GOREWAY DR
5	SAFETY-KLEEN CANADA INC. (possible to become transfer station)	25 REGAN RD
6	Alnor Industries	7955 TORBRAM RD
7	WSI Waste Services Inc (Compaction & waste check, transfer station)	117 ADVANCE BLVD
8	Integrated Waste Management Facility	7795 TORBRAM RD
9	Brampton Recycling Depot	395 CHRYSLER DR
10	Henry Scrap Metal	159 WILKINSON RD
11	Noranda Recycling	275 STEELWELL RD
12	Heart Lake Used Auto Parts	20 FISHERMAN DR
13	Re-N-Re Auto Wreck	59 KINGKNOLL DR
14	Aadco Automotive Inc.	220 WALKER DR
15	AGA Plastics Recycling	2074 STEELES AVE E
16	Plast-Ex International Inc.	15 ARMTHORPE RD
17	Express Pallet Services	55 STAFFORD DR
18	Wood Disposal Services	14 ELDERBANK CRT
19	Johnson Matthey Ltd. (Reclamation Service - metal refine from scrap)	130 GLIDDEN RD
20	Canadian Eco Rubber Inc. (processing - tires to pellets) (potential)	8 BRAMWIN CRT
21	Capital Iron & Metal	310 CLARENCE ST
22	Monserco Limited (LLRW Management)	190 WILKINSON RD
23	Med-tech Environmental Limited (Transfer and Processing)	17 MELANIE DR
24	PRODUCT MANAGEMENT CANADA INC. (Transfer and Processing)	170 HIGHWAY #7 W
25	Mississauga Metals & Alloys Inc. (Transfer and Processing)	75 SUN PAC BLVD
26	Achievor Recyclng Services Limited (Transfer and Processing)	145 ORENDA RD
27	Brampton Bio Conversion Inc. (Organic)	7660 BRAMALEA RD
28	Finoll Recycling Limited (Waste Disposal & Processing)	38 HANSEN RD S
29	Matalco (Aluminum Remelt/processing)	850 INTERMODAL DR
30	NexCycle (Recyling beer and products & Processing)	268 ORENDA RD
31	NPI (recycle plastic to resin)	235 WILKINSON RD
32	Pharma Processing (Transfer and Processing)	21 REGAN RD
33	Triple M Metal (metal shredding/processing)	471 AND 331 INTERMODAL DR
34	Wasteco (transfer station, processing, depackaging, destruction)	150 ORENDA RD
35	Octagon Medical Services (Waste reduction and disposal)	30 HALE RD
36	Graham Brothers Construction	290 CLARENCE ST
37	Medical Waste Management Inc.	95 DEERHURST DR
38	Algonquin Peel (Formerly KMS Peel)	7656 BRAMALEA RD
39	Thermo Tech Technologies	101 - 195 COUNTY COURT BLVD
40	Sithe Energies	PART LOT 4 CONC. 7, GOREWAY DR

CITY OF BRAMPTON

FIGURE 6.2
FACILITY TYPES

Legend

- Evaluation Area (300m)
- Composting Facilties
- Energy Producing Plants
- Incineration (Energy from Waste) Facilities
- Incineration (Non-Energy) Facilities
- Waste Receivers and Processing
- Waste Transfer Stations
- Waste Transfer Stations/ Composting Facilities

Marshall Macklin Monaghan

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Table 6.2 summarizes the on-site and off-site effects potentially associated with the seven facility categories and the environmental regulations and guidelines relevant to each. The information in Table 6.2 was derived from site visits to representative facilities within each of the categories noted and considering the professional experience and expertise of the environmental practitioners forming the project team. Observations were made during each facility visit to identify the waste types and quantities received, and the potential for on-site and off-site effects. If available, regulatory compliance files were reviewed for information related to complaints, inspection reports and control orders, and Cs of A were reviewed to identify specific operational requirements.

Based on the guidance provided in Guidelines D-1 and D-6, waste management and power generating facilities would be categorized as Class II or Class III industries. The potential for fugitive emissions, heavy truck traffic, dust, odour and noise, would likely prohibit the categorization as a Class I industry for nearly all waste management and power generating facilities.

Class II industries include larger operations that have the potential to produce noise, dust, odour and typically have outdoor storage permitted. These may include waste transfer stations that operate only during business hours, waste processing facilities that are contained within a building and specialized, non-hazardous processing. Class III industries would include operations with persistent noise or dust issues, extended operating hours and a high probability of fugitive emissions. Based on the potential for serious harm to result from any emissions, these would likely include hazardous waste management facilities.

Based on the MOE guidelines, minimum separation distances between sensitive land uses, such as residences, and Class II or Class III industries should be 70 metres to 300 metres, respectively. The potential influence areas have been identified by the MOE as 300 m for Class II industries and 1000 m for Class III industries.

Table 6.2 – Summary of Effects Associated with Waste Management and Power Generating Facilities

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Non-hazardous Waste Transfer			
Waste Transfer stations may specialize in commercially generated waste (i.e. construction and demolition, plastics, metals, paper and cardboard, etc.), general waste from commercial/industrial/institutional operations (i.e. operations generating mixed waste) or municipal solid waste. Most waste transfer stations are prohibited from accepting hazardous waste. Any hazardous waste that is received inadvertently would be diverted to a hazardous waste processing facility. On-site operations are relatively consistent regardless of the type of waste. Waste materials are typically sorted/separated, compacted or shredded to reduce volume and sent off-site for processing or disposal. Trucks are weighed as they enter the facility and waste is unloaded on the tipping floor (storage area). Trucks are then weighed as they exit the facility. Materials that are potentially recyclable are separated and volume reduced (if possible) and sent off-site to various processing facilities. Remaining wastes are sent off-site for disposal. Approximately 20 waste transfer stations were identified to be operating in the City of Brampton in 2006.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size is typically limited through the C of A process. Typically, waste is received in smaller trucks and transported off-site in larger trucks. **Noise**: Potential noise issues may be associated with various types of equipment (i.e. crushers, grinders, waste moving equipment). A noise assessment is required as part of the C of A process. On-site impacts can be mitigated through protective measures for employees (i.e., ear plugs, exposure limits etc.). **Air Emissions**: The amount and types of air emissions, including odour, are dependent on facility specific operations. Management of air emissions would be prescribed through both legislation (i.e., O. Reg. 419/05) and the C of A process and can be mitigated through protective measures for employees (i.e. respirators, fans, ventilation). **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically required as part of the C of A process. Dust can be mitigated using dust suppressants, road cleaning, and road paving. **Liquid Spills**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Liquid storage requirements are prescribed through the C of A process. The potential for liquid spills can be mitigated through appropriate containment and employee training. **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. On-site impacts such as litter and debris can be mitigated through appropriate storage and management techniques and employee training. No long-term storage of waste is permitted at these facilities. **Potential Fire Hazards**: The presence of combustible material in the waste stream presents a fire hazard, particularly for sites with large processing capacities. Fire Safety Plans typically require fire protection in all buildings and storage areas.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size is typically limited through the C of A process. Operation of the facility may be limited in rainfall or adverse weather conditions. This would help mitigate potential impacts due to mud and debris tracking onto adjacent roadways. **Noise**: Potential noise issues may be associated with various types of equipment (i.e. crushers, grinders, waste moving equipment). A noise assessment is required as part of the C of A process. The applicant must demonstrate that noise is mitigated (i.e. barriers, limits to operation etc.) at points of impingement. **Aesthetics**: On-site operations may cause adverse aesthetic impacts. These impacts may increase if waste storage or processing occurs outside. The C of A process would identify the maximum amount of outdoor storage and processing and implement mitigation measures (i.e. fencing, trees etc.) to offset these impacts. **Air Emissions**: Air emissions, including odour are dependent on facility specific operations. Management of air emissions would be prescribed through legislation (i.e., O. Reg. 419/05) and the C of A process. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are required as part of the C of A process. Dust can be mitigated using physical barriers including woven strips in chain link fences, vegetation, road paving and road cleaning. **Liquid Spills**: The potential for liquid and/or chemical spills may be dependent on the amount and types of waste received at a facility (i.e. paint, solvents, etc.). Liquid storage requirements would be prescribed through the C of A process and include limitations which mitigate the potential for spills (i.e. secondary containment, waste separation, etc.). **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A.	Environmental Protection Act, R.S.O. 1990, Chapter E-19. Waste Diversion Act, 2002, S.O. 2002. Ontario Water Resources Act, R.S.O. 1990. O. Reg 347, General Waste Management, including the amendment of O.Reg. 461/05. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. O. Reg. 101/94, Recycling and Composting of Municipal Waste. Guide for Applying for Approval (Air and Noise). Guide for Applying for Approval Waste Disposal Sites. Guide for Applying for Approval Waste Management Systems. Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline D-1: Land Use Compatibility. Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses.

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Non-hazardous Solid Waste Processing			
Waste receiving and processing plants may specialize in segregated waste (i.e., construction and demolition, plastics, metals, organics, paper and cardboard, etc.), or mixed waste. These facilities typically manage the waste materials to either reduce the quantity or enhance the value (i.e., recover recyclables or produce a marketable product). Most waste processing facilities are prohibited from accepting hazardous waste. Any hazardous waste that is received inadvertently would be diverted to a hazardous waste processing facility. Trucks are weighed as they enter the facility and waste is unloaded. Trucks are then weighed as they exit the facility. Waste materials are typically altered through various techniques (i.e., hammermills, shredders, grinders, chippers etc.) to reduce the size of waste. Recoverable material can then be separated using vibrating screens. Magnetic separation is used to separate ferrous materials. The added processing at these facilities, in comparison to waste transfer stations) may increase the potential for air emissions, fire hazards and noise generation. The MOE considers these differenced in the approvals process. The recovered or sorted materials are typically sent off-site for recycling or used in on-site operations. Depending on the waste type, water may be removed prior to or during processing. Approximately 20 waste receivers and processing facilities were identified to be operating in the City of Brampton in 2006.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received and processed and the type of product that may be generated. Truck volume would be controlled through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e., crushers, grinders, waste moving equipment). A noise study is required as part of the C of A process. On-site impacts can be mitigated through protective measures for employees (i.e., ear plugs, exposure limits etc.). **Air Emissions**: Air emissions, including odour, are dependent on facility specific operations and are often associated with odours and methane, particularly at composting facilities. Management of air emissions would be prescribed through legislative (i.e., O. Reg. 419/05) and the C of A process and can be mitigated through employee protective measures (i.e. respirators, fans, ventilation). **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically required as part of the C of A process. Dust can be mitigated using dust suppressants, road cleaning, and road paving. **Liquid Waste**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Requirements for liquid storage (including leachate from composting) are prescribed through the C of A process. The potential for liquid spills can be mitigated through appropriate containment and employee training. **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. On-site impacts such as litter and debris can be mitigated through appropriate containment and management techniques and employee training. No long-term storage of waste is permitted at these facilities. **Rodents**: Rodent and vermin nuisances may be an issue at composting facilities. Enclosed facilities may mitigate against the potential nuisance. **Potential Fire Hazards**: The presence of combustible material in the waste stream presents a fire hazard, particularly for sites with large processing capacities. Fire Safety Plans typically require fire protection in all buildings and storage areas.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received and processed at the facility. Truck volume and size would be controlled through the C of A process. Operation of the facility may be limited in rainfall or adverse weather conditions. This would help mitigate potential impacts due to mud and debris tracking onto adjacent roadways. **Noise**: Potential noise issues may be associated with various types of equipment (i.e., crushers, grinders, waste moving equipment). A noise study is required as part of the C of A process. The applicant must demonstrate that noise is mitigated (i.e., barriers, limits to operation etc.) at points of impingement. **Aesthetics**: Operations may cause adverse aesthetic impacts to neighbouring properties. These impacts may increase if waste storage or processing occurs outside. The C of A process would identify the maximum amount of outdoor storage and processing and implement mitigation measures (i.e. fencing, trees etc.) to offset these impacts. **Air Emissions**: Air emissions, including odour, are dependent on facility specific operations. Management of air emissions would be prescribed through legislative requirements (i.e., O. Reg. 419/05) and the C of A process. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically required as part of the C of A process. Dust can be mitigated using physical barriers (i.e. woven strips in chain link fences, vegetation), road paving and road cleaning. **Liquid Waste**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Surface water generated at a compost facility may require on-site treatment. Liquid storage is controlled through the C of A process. **Solid Waste/Litter**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. Potential impacts from litter and debris can be mitigated through physical barriers (i.e. woven strips in chain link fence, vegetation). **Rodents**: Rodent and vermin nuisances may be an issue at composting facilities. Enclosed facilities may mitigate against the potential nuisance.	Environmental Protection Act, R.S.O. 1990, Chapter E-19. Waste Diversion Act, 2002, S.O. 2002. Ontario Water Resources Act, R.S.O. 1990. O. Reg 347, General Waste Management, including the amendment of O.Reg. 461/05. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. O. Reg. 101/94, Recycling and Composting of Municipal Waste. Guide for Applying for Approval (Air and Noise). Guide for Applying for Approval Waste Disposal Sites. Guide for Applying for Approval Waste Management Systems. Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline D-1: Land Use Compatibility. Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses.

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Waste Disposal Sites/Landfills			
During landfill operations the waste collection vehicles or garbage trucks are weighed on arrival and their load is inspected for wastes that contravene the landfill's waste acceptance criteria. The waste collection vehicles use the existing road network to the tipping face or working front where they unload. After waste is deposited, compactors or dozers are used to spread and compact the waste on the working face. Before leaving the landfill boundaries, the waste collection vehicles may pass through the wheel cleaning facility. If necessary, they return to the weigh scale in order to be weighed without their load. Through the weighing process, the daily incoming waste tonnage can be calculated and listed in databases for comparison to C of A limitations. No operating waste disposal facilities were identified in the City of Brampton, and given the urbanization of the municipality, new waste disposal sites (either hazardous or non-hazardous) are unlikely.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size are typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e., heavy equipment, trucks). A noise assessment is required as part of the C of A process. On-site impacts can be mitigated through protective measures for employees (i.e., ear plugs, exposure limits etc.). **Landfill Gas**: Landfill gas typically consists of methane, carbon dioxide, water vapour and other trace components. A gas collection system can be used to collect the landfill gas from where it may be directed to controlled discharge. Where volumes are at a significant level, the gas may be incinerated (e.g., flared) during discharge and in some gases, the gas may be collected and used as fuel in energy production. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically required as part of the C of A process. Dust can be mitigated using dust suppressants, road cleaning, and road paving. **Leachate**: Leachate forms when rainwater or melting snow seeps through the landfill and mixes with the waste. A clay liner and monitoring equipment can be used to prevent leachate from seeping into the underlying soil. In addition, coarse stone surrounding perforated pipes can be used to drain leachate from the top of the liner. **Solid Waste/Litter**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. On-site impacts from litter can be mitigated through employee training and litter collection. **Odour:** Gas collection pipes are used to control landfill gas, the primary source of landfill odour. In addition, landfill cover and odour suppressing spray can be used to mitigate these impacts. **Rodents**: Rodent and vermin nuisances may be an issue at landfills and open windrows may increase the likelihood of rodent issues. Daily landfill cover and limited waste exposure would mitigate these impacts. **Potential Fire Hazards**: The presence of combustible material in the waste stream presents a fire potential at landfills, however, fires at closed landfills are rare.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size are typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e. heavy equipment, trucks). A noise assessment is required as part of the C of A process and the applicant must demonstrate that noise is mitigated (i.e. barriers, limits to operation etc.) at points of impingement. **Aesthetics**: On-site operations may cause adverse visual impacts. The C of A requirements typically include provisions to mitigate impacts to neighbouring properties through barriers, fencing etc. **Landfill Gas**: Air emissions are dependent on facility specific operations. Management of air emissions are prescribed through the C of A process. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are required as part of the C of A. Dust can be mitigated using physical barriers (i.e. woven strips in chain link fences, vegetation), road paving and road cleaning. **Leachate**: Leachate forms when rainwater or melting snow seeps through the landfill and mixes with the waste. A clay liner and monitoring equipment can be used to prevent leachate from seeping into the underlying soil. In addition, coarse stone surrounding perforated pipes can be used to drain leachate from the top of the liner. The C of A typically requires landfill operators to monitor groundwater quality adjacent to landfills. **Solid Waste/Litter**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. Off-site impacts from litter can be mitigated through fencing, litter collection and trucks coverings their waste load and being restricted to certain access roads. **Odour:** Gas collection pipes are used to control landfill gas, the primary source of landfill odour. In addition, landfill cover and odour suppressing spray can be used to mitigate these impacts. **Rodents**: Rodent and vermin nuisances may be an issue at landfills. Daily landfill cover and limited waste exposure would mitigate these impacts.	Environmental Protection Act (EPA), R.S.O. 1990, Chapter E-19. Environmental Assessment Act, 1990, Chapter E-18. Ontario Water Resources Act, R.S.O. 1990. O. Reg 347, General Waste Management, including the amendment of O.Reg. 461/05. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. O. Reg. 101/94, Recycling and Composting of Municipal Waste. O.Reg. 232/98, Landfilling Sites, Amended to O.Reg. 483/98. O. Reg. 461/05, Land Disposal Restrictions. Guide for Applying for Approval (Air and Noise). Guide for Applying for Approval Waste Disposal Sites. Guide for Applying for Approval Waste Management Systems. Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites. Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline C-7: Burning at Landfill Sites. Guideline c-13: Engineered Facilities at Landfills that Receive Municipal and/or Non-hazardous Wastes. Guideline D-1. Land Use Compatibility. Guideline D-4. Land Use On or Near Landfills and Dumps.

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Hazardous Waste Transfer and Processing			
Hazardous waste transfer and processing facilities receive segregated hazardous waste, where it may be consolidated (i.e., volume reduced) and repackaged for transfer to a larger processing or disposal facility or processed to reduce the associated hazards. Processed hazardous waste may result in a marketable product, a material that is used in on-site operations, or a material that can be disposed of safely at a landfill or incinerator. Depending on the waste type, water may be removed prior to or during processing. Waste materials are processed and altered through standard techniques used at non-hazardous waste facilities and through specialized processes related to the type of waste. The hazardous nature of the waste may increase the potential for air emissions, and fire hazards. The MOE considers these differences in the approvals process. Some of the identified waste transfer and processing facilities identified to be operating in the City of Brampton in 2006 would be hazardous waste management facilities.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received and processed and the type of product that may be generated. Truck volume and size is typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e., crushers, grinders, waste moving equipment). A noise assessment is required as part of the C of A process. On-site impacts can be mitigated through protective measures for employees (i.e., ear plugs, exposure limits etc.). **Air Emissions**: Air emissions are dependent on facility specific operations. Management of air emissions would be prescribed through legislative requirements (i.e., O. Reg. 419/05) and the C of A process and can be mitigated through employee protective measures (i.e. respirators, fans, ventilation). **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are required as part of the C of A process. Dust can be mitigated using dust suppressants, road cleaning, and road paving. **Liquid Waste**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Requirements for liquid storage are prescribed through the C of A process. The potential for liquid spills can be mitigated through appropriate containment and employee training. **Potential Fire Hazards**: The presence of combustible material in the waste stream may present a fire hazard, particularly for sites with large processing capacities or ignitable waste. Fire Safety Plans typically require fire protection in all buildings and storage areas.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received and processed at the facility. Truck volume and size is typically limited through the C of A process. Operation of the facility may be limited in rainfall or adverse weather conditions. This would help mitigate potential impacts due to mud and debris tracking onto adjacent roadways. **Noise**: Potential noise issues may be associated with various types of equipment (i.e., crushers, grinders, waste moving equipment). A noise assessment is required as part of the C of A process. The applicant must demonstrate that noise is mitigated (i.e., barriers, limits to operation etc.) at points of impingement. **Air Emissions**: Air emissions are dependent on facility specific operations. Management of air emissions would be prescribed through legislative requirements (i.e., O. Reg. 419/05) and the C of A process. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are required as part of the C of A process. Dust can be mitigated using physical barriers (i.e. woven strips in chain link fences, vegetation), road paving and road cleaning. **Liquid Waste**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Surface water generated at a compost facility may require on-site treatment. Requirements for liquid storage are prescribed through the C of A process.	Environmental Protection Act, R.S.O. 1990, Chapter E-19. Waste Diversion Act, 2002, S.O. 2002. Ontario Water Resources Act, R.S.O. 1990. O. Reg 347, General Waste Management, including the amendment of O.Reg. 461/05. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. O. Reg. 101/94, Recycling and Composting of Municipal Waste. Guide for Applying for Approval (Air and Noise). Guide for Applying for Approval Waste Disposal Sites. Guide for Applying for Approval Waste Management Systems. Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline D-1: Land Use Compatibility. Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses.

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Incineration (Non-Energy Producing)			
Incineration is generally seen as a form of waste volume reduction since approximately 15-20% (by volume) remains as ash. Incinerators that do not produce energy tend to accept smaller quantities of waste and may accept only specialized types of hazardous waste (i.e., pathogenic, radioactive, PCB). Waste is received at the facility by truck. Generally, trucks are weighed as they enter the facility and waste is unloaded on the tipping floor or storage area. Trucks are then weighed as they exit the facility. Waste is sorted and unacceptable waste is removed and disposed of appropriately. Transfer rams feed the primary chamber of the incinerators where the waste is combusted in a controlled air environment. The ash remaining from the incineration process in the first stage (bottom ash) is moved into a quench tank to cool before it is de-watered and sent for final disposal at approved landfills or as landfill cover. Air emissions are directed into an air pollution control (APC) system for treatment. The APC system is required to ensure emissions from the facility are below provincial air emission standards. Fly ash collected from the bag house filtering system may be hazardous, and if so, is disposed of at a secure hazardous waste landfill site. One incineration facility, a biomedical waste processing facility is currently located in the City of Brampton. A low-level radioactive waste incinerator has been proposed at another location in Brampton.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume entering and exiting specialized incineration facilities (i.e. biomedical) are expected to be considerably less than MSW incineration facilities. Truck volume and size are typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e. heavy equipment, trucks). A noise assessment is required as part of the C of A process. On-site impacts can be mitigated through protective measures for employees (i.e., ear plugs, exposure limits etc.). **Air Emissions**: Air emissions, including odour, are dependent on facility specific operations. Management of air emissions is prescribed through legislation (i.e., O. Reg. 419/05) and the C of A process. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically prescribed through the C of A process. Dust can be mitigated using dust suppressants, road cleaning, and road paving. **Liquid Spills**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Requirements for liquid storage are prescribed through the C of A process. Liquid waste is generally managed at specific (i.e., waste oil) incinerators. **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. No long-term storage of waste is permitted at these facilities. **Potential Fire Hazards**: There is a limited potential for fire at a biomedical waste incineration facility. Fire Safety Plans would address the potential on a site-by-site basis.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size are typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e. heavy equipment, trucks). A noise assessment is required as part of the C of A. The applicant must demonstrate that noise is mitigated (i.e. barriers, limits to operation etc.)at points of impingement. **Aesthetics**: On-site operations may cause adverse aesthetic impacts. These impacts may increase if waste storage or processing occurs outside. The C of A process would identify the maximum amount of outdoor storage and processing and implement mitigation measures (i.e. fencing, trees etc.) to offset these impacts. **Air Emissions**: Air emissions, including odour, are dependent on the amount and types of waste received at the facility. Management of air emissions is prescribed through legislation (i.e., O. Reg. 419/05) and the C of A process. Air emissions from incinerator processes are of particular concern, given the potential for releases of dioxins and furans, very toxic by-products of combustion. For this reason, incinerators must adhere to stringent air pollution control requirements (Guideline A7). **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically prescribed through the C of A process. Dust can be mitigated using physical barriers (i.e. woven strips in chain link fences, vegetation), road paving and road cleaning. **Liquid Spills**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Requirements for liquid storage are typically prescribed through the C of A process. **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A.	Environmental Protection Act, R.S.O. 1990, Chapter E-19. Environmental Assessment Act, 1990, Chapter E-18. Ontario Water Resources Act, R.S.O. 1990. O. Reg 347, General Waste Management, including the amendment of O.Reg. 461/05. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. O.Reg. 127/01, Airborne Contaminant Discharge Monitoring Reporting. Guide for Applying for Approval (Air and Noise). Guide for Applying for Approval Waste Disposal Sites. Guide for Applying for Approval Waste Management Systems. Guideline A-1: Combustion, Air Pollution Control and Monitoring Requirements for Biomedical Waste Incinerators in Ontario. Guideline A-7. Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators. Guideline A-8: Guideline for the implementation of Canada-wide standards for emissions of mercury and of dioxans and furans and monitoring and reporting requirements for municipal waste incinerators, biomedical waste incinerators, sewage sludge incinerators, hazardous waste incinerators, steel manufacturing electric arc furnaces, iron sintering plants. Guideline A-9: NOx Emissions from Boilers and Heaters. Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline C-4: The Management of Biomedical Wastes in Ontario. Guideline D-1: Land Use Compatibility. Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses.

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Incineration (Energy from Waste)			
Energy from waste (EFW) facilities combust non-hazardous municipal solid waste to produce energy. Waste is received at the facility by truck. Trucks are weighed as they enter the facility and waste is unloaded on the tipping floor (storage area). Trucks are then weighed as they exit the facility. Waste is sorted and unacceptable waste is trucked off-site for disposal. Transfer rams feed the primary chamber of the incinerators where the waste is combusted in a controlled air environment (first stage). Off gases are moved into a second chamber where they are combusted in an oxygen-rich environment (second stage). The heat generated in the second stage is fed into a heat recovery boiler creating steam used to run a turbine and generate electricity. The ash remaining from the incineration process in the first stage (bottom ash) is moved into a quench tank to cool. The bottom ash generated is processed to remove ferrous material and then screened into two size groups. The majority of the processed bottom ash is less than one inch in diameter and may be used as landfill daily cover. Air emissions are directed into an air pollution control (APC) system for treatment. The APC system ensures that emissions from the facility are below provincial air emission standards. Fly ash collected from the bag house filtering system may be hazardous, and if so, is disposed of at a secure hazardous waste landfill site. One energy-from-waste facility is currently operating in the City of Brampton.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size are typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e., crushers, grinders, waste moving equipment). A noise assessment is required as part of the C of A process. On-site impacts can be mitigated through protective measures for employees (i.e., ear plugs, exposure limits etc.). **Air Emissions**: Air emissions, including odour, are dependent on facility specific operations. Air emissions would be controlled through both legislative requirements (i.e., O. Reg. 419/05) and the C of A process. **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are typically prescribed through the C of A process. Dust can be mitigated using dust suppressants, road cleaning, and road paving. **Liquid Spills**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at a facility. Liquid waste is generally managed at specialty (i.e., waste oil) incinerators. Requirements for liquid storage are typically prescribed through the C of A process. **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A. **Potential Fire Hazards**: There is a limited potential for fire at an incineration facility. Fire Safety Plans would address the potential on a site-by-site basis.	**Trucks**: The number and size of trucks entering and exiting a facility is dependant on the capacity and types of waste received at the facility. Truck volume and size are typically limited through the C of A process. **Noise**: Potential noise issues may be associated with various types of equipment (i.e. heavy equipment, trucks). A noise assessment is required as part of the C of A process and the applicant must demonstrate that noise is mitigated (i.e. barriers, limits to operation etc.) at points of impingement. **Aesthetics**: On-site operations may cause adverse aesthetic impacts. These impacts may increase if waste storage or processing occurs outside. The C of A process would identify the maximum amount of outdoor storage and processing and implement mitigation measures (i.e. fencing, trees etc.) to offset these impacts. **Air Emissions**: The amount and types of air emissions, including odour, are dependent on the amount and types of waste received at the facility. Management of air emissions is typically prescribed through legislation (i.e., O. Reg. 419/05) and the C of A process. Air emissions from incinerator processes are of particular concern, given the potential for releases of dioxins and furans, very toxic by-products of combustion. For this reason, incinerators must adhere to stringent air pollution control requirements (Guideline A7). **Dust**: The amount of dust generated at a facility is dependent on the type of road cover, material handling and truck volume. Dust controls are required as part of the C of A process. Dust can be mitigated using physical barriers (i.e. woven strips in chain link fences, vegetation), road paving and road cleaning. **Liquid Spills**: The potential for liquid and/or chemical spills is dependent on the amount and types of waste received at the facility. Requirements for liquid storage are prescribed through the C of A process. **Solid Waste**: The capacity and types of solid waste received at a facility is dependant on the type of facility and limitations set forth in the C of A.	Environmental Protection Act, R.S.O. 1990, Chapter E-19. Environmental Assessment Act, 1990, Chapter E-18. Ontario Water Resources Act, R.S.O. 1990. O. Reg 347, General Waste Management, including the amendment of O.Reg. 461/05. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. Guide for Applying for Approval (Air and Noise). Guide for Applying for Approval Waste Disposal Sites. Guide for Applying for Approval Waste Management Systems. Guideline A-5: Atmospheric Emissions from Stationary Combustion Turbines Guideline A-7. Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators. Guideline A-8: Guideline for the implementation of Canada-wide standards for emissions of mercury and of dioxans and furans and monitoring and reporting requirements for municipal waste incinerators, biomedical waste incinerators, sewage sludge incinerators, hazardous waste incinerators, steel manufacturing electric arc furnaces, iron sintering plants. Guideline A-9: NOx Emissions from Boilers and Heaters Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline D-1: Land Use Compatibility. Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses.

General Operations	Potential On-site Effects	Potential Off-site Effects	Applicable Environmental Legislation and Guidelines
Power Generation			
Turbines can be driven directly by the combustion of fuel. With the phase-out of coal-fired plants in Ontario, natural gas is the only fuel that is viable for the large-scale production of energy. Combined-cycle gas turbine plants generate power by burning natural gas in a gas turbine and use residual heat to generate additional electricity from steam. In a thermal power plant, high-temperature heat as input to the power plant, usually from burning of fuel, is converted to electricity as one of the outputs and low-temperature heat as another output. As a rule, in order to achieve high efficiency, the temperature of the input heat should be as high as possible and the temperature of the output heat as low as possible. This is achieved by combining steam and gas thermodynamic cycles. One power generating facility has been approved for operation in the City of Brampton.	**Air Emissions**: The primary air emissions of concern include nitrogen oxides and carbon monoxide. Air emissions would be managed through an Air Pollution Control System and limits prescribed through the C of A process. **Potential Fire Hazards**: Comprehensive Fire Safety Plans would address the potential for fire hazards on a site-by-site basis.	**Air Emissions**: The primary air emissions of concern include nitrogen oxides and carbon monoxide. Air emissions would be managed through an Air Pollution Control System and limits prescribed through the C of A process.	Environmental Protection Act, R.S.O. 1990, Chapter E-19. Environmental Assessment Act, 1990, Chapter E-18. Ontario Water Resources Act, R.S.O. 1990. O. Reg. 419/05, Air Pollution, Local Air Quality, Amended to O. Reg. 605/05. O. Reg. 127/01, Airborne Contaminant Discharge Monitoring and Reporting. O. Reg. 215/95, Effluent Monitoring and Effluent Limits – Electrical Power Generation Sector, Amended to O. Reg. 174/99. Guide for Applying for Approval (Air and Noise). Guideline A-5: Atmospheric Emissions from Stationary Combustion Turbines. Guideline A-9: NOx Emissions from Boilers and Heaters. Guideline B-7. Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities. Guideline D-1: Land Use Compatibility. Guideline D-6: Compatibility between Industrial Facilities and Sensitive Land Uses.

6.2 Facility Land Use Mapping

For our purposes, we have assumed a 300 metre area of study for all the facility types. While this is not a recommended standard, it is intended to identify the general land use structure and facility proximity to potentially incompatible or sensitive land uses, and the range of land use permitted in these land use designations.

6.2.1 General Official Plan Land Use Structure

Figure 6.3 illustrates the location of the facilities within the City's general land use structure as identified in the Official Plan. It is evident that the facilities are generally clustered in four distinct areas, including:

- Goreway Drive and Highway 407;
- Torbram Road and Highway 407;
- Highway 410 and Steeles Avenue/Highway 407; and
- Bovaird Drive (north side) between Hurontario Street and McLaughlin Road.

From a City-wide perspective, the general clustering of facilities is focused within the Industrial and Business Industrial land use designations. Furthermore, the facilities are generally located interior to the Industrial and Business Industrial land use designations. The 300-metre area of study largely falls within the Industrial and the Business Industrial areas. However, there are a few exceptions where the area of study extends into sensitive land uses (Residential and Open Space land use designations). There are also four instances where facilities are located within a predominately Residential area, and include:

- #3 – Rin Enterprises Ltd. (Multi material recycling), 32 Jaffa Drive (Category – Waste Transfer Facility);
- #13 – Re-N-Re Auto Wreck, 59 Kingknoll Drive (Category – Waste Transfer Facility);
- #18 – Wood Disposal Services, 14 Elderbank Court (Category – Waste Transfer Facility); and
- #39 – Thermo Tech Technologies, 101-195 County Court Blvd (Category – Waste Processing Facility).

The Industrial/Business Industrial Areas provide good accessibility to Major Arterial Roads and Provincial Highways including Highway 410 and Highway 407, with the exception of the Bovaird Drive and Hurontario Street/McLaughlin Road facility cluster, which is entirely surrounded by Residential areas and access to Major Arterials and Highways is not directly available.

CITY OF BRAMPTON

FIGURE 6.3
OFFICIAL PLAN
LAND USE SCHEDULE
FACILITY LOCATIONS

Legend

- Facilities
- Evaluation Area (300m)
- RESIDENTIAL
- ESTATE RESIDENTIAL
- VILLAGE RESIDENTIAL
- REGIONAL RETAIL
- PRIMARY OFFICE NODE
- OFFICE NODE
- INDUSTRIAL
- BUSINESS INDUSTRIAL
- INDUSTRIAL / SPECIAL STUDY AREA
- COMMUNITY SERVICES
- OPEN SPACE
- CENTRAL AREA
- PRIVATE COMMERCIAL RECREATION
- AGRICULTURAL
- PARKWAY BELT WEST / UTILITY *
- PROVINCIAL FREEWAYS (407 / 410)
- SPECIAL STUDY AREA
- SPECIAL POLICY AREA
- TRANSPORTATION CORRIDOR CONCEPTUAL ALIGNMENT
- URBAN BOUNDARY
- L.B.P.I.A. OPERATING AREA
- REFERRALS (R)
- DEFERRALS (D)

MMM_ID	Company	Address
1	Conwaste Div. of Cdn. Waste Services and Waste Management of Canada	117 WENTWORTH CRT
2	Kermecho Co Ltd. (Wood Transfer Station)	29 HALE RD
3	Rin Enterprises Ltd. (Multi material recycling)	32 JAFFA DR
4	Tor Can Waste Management Inc. (Potential transfer staion)	8812 GOREWAY DR
5	SAFETY-KLEEN CANADA INC. (possible to become transfer station)	25 REGAN RD
6	Alnor Industries	7955 TORBRAM RD
7	WSI Waste Services Inc (Compaction & waste check, transfer station)	117 ADVANCE BLVD
8	Integrated Waste Management Facility	7795 TORBRAM RD
9	Brampton Recycling Depot	395 CHRYSLER DR
10	Henry Scrap Metal	159 WILKINSON RD
11	Noranda Recycling	275 STEELWELL RD
12	Heart Lake Used Auto Parts	20 FISHERMAN DR
13	Re-N-Re Auto Wreck	59 KINGKNOLL DR
14	Aadco Automotive Inc.	220 WALKER DR
15	AGA Plastics Recycling	2074 STEELES AVE E
16	Plast-Ex International Inc.	15 ARMTHORPE RD
17	Express Pallet Services	55 STAFFORD DR
18	Wood Disposal Services	14 ELDERBANK CRT
19	Johnson Matthey Ltd. (Reclamation Service - metal refine from scrap)	130 GLIDDEN RD
20	Canadian Eco Rubber Inc. (processing - tires to pellets) (potential)	8 BRAMWIN CRT
21	Capital Iron & Metal	310 CLARENCE ST
22	Monserco Limited (LLRW Management)	190 WILKINSON RD
23	Med-tech Environmental Limited (Transfer and Processing)	17 MELANIE DR
24	PRODUCT MANAGEMENT CANADA INC. (Transfer and Processing)	170 HIGHWAY #7 W
25	Mississauga Metals & Alloys Inc. (Transfer and Processing)	75 SUN PAC BLVD
26	Achievor Recyclng Services Limited (Transfer and Processing)	145 ORENDA RD
27	Brampton Bio Conversion Inc. (Organic)	7660 BRAMALEA RD
28	Finoll Recycling Limited (Waste Disposal & Processing)	38 HANSEN RD S
29	Matalco (Aluminum Remelt/processing)	850 INTERMODAL DR
30	NexCycle (Recyling beer and products & Processing)	268 ORENDA RD
31	NPI (recycle plastic to resin)	235 WILKINSON RD
32	Pharma Processing (Transfer and Processing)	21 REGAN RD
33	Triple M Metal (metal shredding/processing)	471 AND 331 INTERMODAL DR
34	Wasteco (transfer station, processing, depackaging, destruction)	150 ORENDA RD
35	Octagon Medical Services (Waste reduction and disposal)	30 HALE RD
36	Graham Brothers Construction	290 CLARENCE ST
37	Medical Waste Management Inc.	95 DEERHURST DR
38	Algonquin Peel (Formerly KMS Peel)	7656 BRAMALEA RD
39	Thermo Tech Technologies	101 - 195 COUNTY COURT BLVD
40	Sithe Energies	PART LOT 4 CONC. 7, GOREWAY DR

Marshall Macklin Monaghan

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Sensitive land use designations that fall within the area of influence include Residential and Open Space designations.

Residential

The Residential land use designation permits predominantly residential land uses including the full range of dwelling types from single detached houses to high rise apartments. Complementary uses to be permitted, subject to specific Secondary Plan policies or designations, may include the community services required to support residential communities such as schools, churches, libraries, parks, community and recreation centres, health centres, day care centres, local retail centres or service uses, and selected Business Industrial uses as prescribed in subsection 4.2.10. Quasi-institutional uses including social service agencies, union halls, as well as firehalls, police stations and utility installations may also be permitted (Section 4.1.1.1).

Selected Business Industrial uses with Residential Areas are defined in the Secondary Plan, which may not permit the full range of uses. The Official Plan provides for development criteria to regulate which Business Industrial uses may be appropriate within a Residential Area.

Excerpt of Official Plan Business Industrial Dominant Sector Policies

4.2.10 Business Industrial Dominant Sector

4.2.10.1 The boundaries of the Business Industrial designations are to be interpreted flexibly at the Secondary Plan level as deemed appropriate in accordance with studies undertaken as part of a new secondary plan or secondary plan review process. Accordingly, the presence of a Business Industrial designation coincident with a particular property or area does not imply that such a property or area will be assigned a designation in the applicable Secondary Plan that permits the full range of uses permitted by the Business Industrial designation. For any particular such area, it may be interpreted at the more detailed Secondary Plan stage of the process that there is a gap or discontinuity in the Business Industrial designation coincident with that location, in accordance with the policies and objectives of this Plan.

4.2.10.2 Through the secondary plan process, the Business Industrial designation will be broken down as appropriate into various sub-designations (such as mixed commercial/ industrial, highway commercial, service commercial, highway and service commercial, business, and prestige industrial) and specific policies will be set out with respect to office, retail and service uses, restaurants, hotels and motels, and entertainment uses along with the appropriate requirements and restrictions as follows: *(Refer to Official Plan for development criteria).*

Open Space

The Open Space designation indicates lands which are to be maintained as park space or in a natural state. These lands include public and private open space, flood plain lands, and lands containing natural areas which have been recognized as having city-wide, regional or provincial significance (Section 4.5).

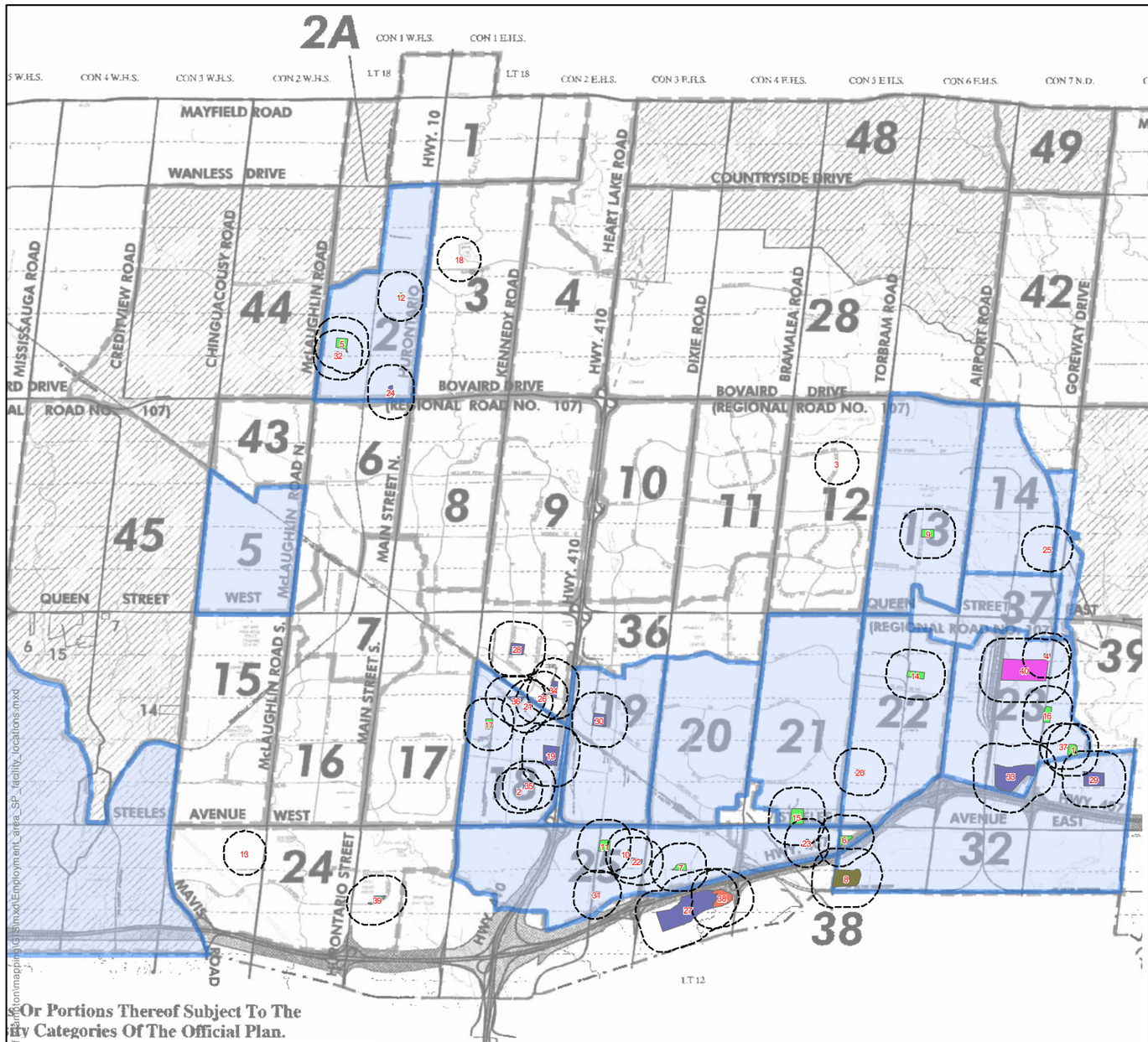
The broad Open Space designation is sub-divided into the following four detailed designations, as illustrated on Schedule "E" to the Official Plan. :

(i) Tableland Parks (buildable land);
(ii) Environmental Features / Environmental (non-buildable land);
(iii) Conservation Areas; and,
(iv) Cemeteries.

6.2.2 Secondary Plan Land Use Structure

Figure 6.4 identifies the facility location in relation to the Secondary Planning Areas. Secondary Plan land use schedules identifying the facility locations is included in Appendix "D". Facilities have been identified in the following Secondary Planning Areas.

Area	Secondary Plan
2	Sandalwood Industrial East
3	Heart Lake West
12	Northgate
13	Brampton North Industrial
14	Goreway Industrial North
18	Brampton East Industrial
19	Brampton West Industrial
21	Southgate
22	Bramalea South Industrial
23	Gore Industrial South
24	Fletchers Creek South
25	Steeles Industrial
32	Parkway Belt Industrial Area
36	Queen Street Corridor



MMM_ID	Company	Address
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7	WSI Waste Services Inc (Compaction & waste check, transfer station)	117 ADVANCE BLVD
8	Integrated Waste Management Facility	7795 TORBRAM RD
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10	Henry Scrap Metal	159 WILKINSON RD
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15	AGA Plastics Recycling	2074 STEELES AVE E
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23	Med-tech Environmental Limited (Transfer and Processing)	17 MELANIE DR
24	PRODUCT MANAGEMENT CANADA INC. (Transfer and Processing)	170 HIGHWAY #7 W
25	Mississauga Metals & Alloys Inc. (Transfer and Processing)	75 SUN PAC BLVD
26	Achievor Recyclng Services Limited (Transfer and Processing)	145 ORENDA RD
27	Brampton Bio Conversion Inc. (Organic)	7660 BRAMALEA RD
28	Finoll Recycling Limited (Waste Disposal & Processing)	38 HANSEN RD S
29	Matalco (Aluminum Remelt/processing)	850 INTERMODAL DR
30	NexCycle (Recyling beer and products & Processing)	268 ORENDA RD
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38	Algonquin Peel (Formerly KMS Peel)	7656 BRAMALEA RD
39	Thermo Tech Technologies	101 - 195 COUNTY COURT BLVD
40	Sithe Energies	PART LOT 4 CONC. 7, GOREWAY DR

CITY OF BRAMPTON

FIGURE 6.4
INDUSTRIAL/ BUSINESS INDUSTRIAL RELATED SECONDARY PLANS FACILITY LOCATIONS

Legend

- Evaluation Area (300m)
- Composting Facilties
- Energy Producing Plants
- Incineration (Energy from Waste) Facilities
- Incineration (Non-Energy) Facilities
- Waste Receivers and Processing
- Waste Transfer Stations
- Waste Transfer Stations/ Composting Facilities

Marshall Macklin Monaghan

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Industrial Related Secondary Plans

The majority of facilities are located within predominately industrial and business/industrial related Secondary Planning Areas and designated Industrial in their respective Secondary Plans. A small number of the facilities have a General Industrial, Service Commercial, Prestige Industrial, Specialty Office-Service Commercial or Central Area Mixed Use designation.

The Secondary Plans generally provide for the establishment of classes of industrial areas or the delineation of Special Policy Areas, which may be based on access requirements, inter-relationship between industrial uses, the need to minimize adjacent land use conflicts and servicing requirements. The Secondary Plans generally provide polices to ensure that industrial uses are compatible with adjacent uses through appropriate buffering, development standards such as setbacks, landscaping, berming, screening and access restrictions to Major Arterial Roads.

For example, Secondary Plan 23 – Gore Industrial South, Section 3.2.11 states *"Only those industries with little or no air pollution or noise pollution will be permitted to locate adjacent to or in close proximity to Residential, Open Space, Flood and Hazard lands and Special Use Areas."*

Some of the Secondary Plans provide for the delineation of Special Policy Areas, which provide site specific land use guidance. Only a few of the facilities are within Special Policy Areas, such as: Matalco (Facility #29) which is designated as Prestige Industrial and is located within Special Policy Area Number 10 (includes adjacent lands), which permits outside storage provided the use is compatible with the surrounding prestige industrial area and is adequately screened. Furthermore, the development of the lands may be subject to adequate restrictions in the implementing zoning by-law to address such matters as the location of waste disposal facilities and outside storage areas, and landscaping and design treatments.

The Secondary Plans do not appear to provide specific land use guidance related to waste and energy facilities.

Neighbourhood Related Secondary Plans

A few of the facilities are located within neighbourhood related Secondary Plans as identified below:

SP 24 – Fletchers Creek South

- #13 – Re-N-Re Auto Wreck, 59 Kingknoll Drive (Category – Waste Transfer Facility). The facility is designated Low and Medium Density Residential.

- #39 – Thermo Tech Technologies, 101-195 County Court Blvd. (Category – Processing Facility). The facility is designated Specialty Office – Service Commercial.

SP 12 - Northgate

- #3 – Rin Enterprises Ltd. (Multi material recycling), 32 Jaffa Drive (Category – Waste Transfer Facility). The facility is designated High Density Residential.

SP 3 - Heart Lake West

- #18 – Wood Disposal Services, 14 Elderbank Court (Category – Waste Transfer Facility). The facility is designated Low Density Residential.

Neighbourhood Secondary Plans adjacent to industrial uses should be evaluated to ensure land use compatibility.

Not Within a Secondary Planning Area

Facilities #27 - Brampton Bio Conversion Inc. (Organic) 7660 Bramalea Road (Category – Waste Processing Facility) and Facility #38 - Algonquin Peel (Formerly KMS Peel), 7656 Bramalea Road (Category – Waste Processing Facility) are not located within a Secondary Planning Area. The Official Plan policies and implementing zoning must provide for appropriate policies and regulations to address these uses. Both sites are designated Industrial in the Official Plan.

6.2.3 Zoning By-law

The land use designations are implemented in the Zoning By-law through various Industrial zones, the majority of facilities are located within:

- M1 (Industrial One)
- M1A (Industrial One A)
- M2 (Industrial Two)
- M3 (Industrial Three)
- M3A (Industrial Three A)
- M4 (Industrial Four A)
- M4A (Industrial Four A)

A few of the facilities are zoned:

- A (Agricultural)

- R1C-Section 245
- R1D-Section 2592
- R1D-Section 298
- SC (Service-Commercial)
- SC-Section 3389 (Service-Commercial)
- SC1-Section 2650 (Service-Commercial)

Special Sections to these zones provide for additional uses permissions, landscaping requirements and other restrictions.

For example the Region of Peel Integrated Waste Management Facility, (Facility #8) located at 7795 Torbram Road is zoned M3-Section 2719, which permits the M3 zone uses and a waste transfer station, composting facility, waste processing station, an education centre and a reusable goods sales depot; and accessory uses. A minimum landscaping strip of 9 metres is required in the front yard, 10 metres from Floodplain lands, and 6 metres around the boundary where in conjunction with a waste transfer, processing or composting facility. Composting must occur within a fully enclosed building. The minimum separation distance of 120 metres for a Waste Processing or Transfer Station from a property in a non-industrial zone shall not apply (adjacent lands are zoned A (Agricultural) and F (Flooplain)).

6.3 Transportation Routes

The Official Plan provides guidance with respect to the use of heavy trucks on municipal roads with the intent of minimizing adverse impacts on residential areas and the environment.

Section 4.3.7.1 states that the *"City will encourage the minimization of the adverse noise and pollution impacts associated with truck traffic particularly in residential areas through the following measures: (i) through truck movements will be prohibited on collector and local roads within residential neighbourhoods; and (ii) activities generating substantial truck traffic will be encouraged to locate near arterials and provincial highways."* Furthermore, the Plan encourages the concentration of truck traffic on Major Arterials and Provincial Highways most suited to truck traffic because of their separation from residential areas.

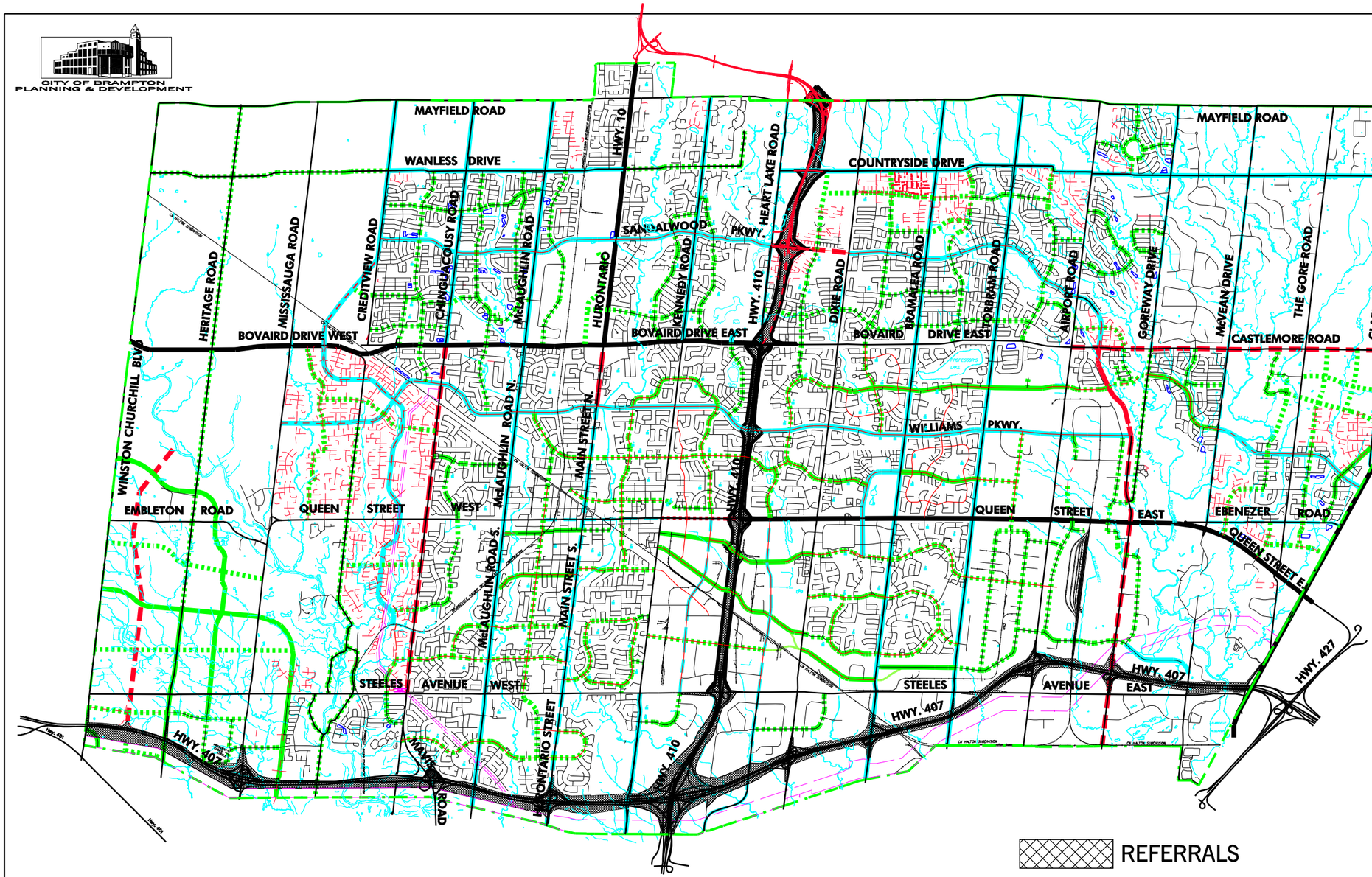
Schedule "B" of the Official Plan identifies the City's major road network. Heavy truck traffic is prohibited on residential collector and local streets.

The movement of heavy trucks is regulated through the Traffic By-law (93-93), Schedule X1 identifies the highways and sections of highways and times of day when heavy truck traffic is permitted. Schedule X1 is included as Appendix "E".

Appendix "A4" provides Official Plan Policy excerpts relating to the movement of trucks and the road classifications.

Figure 6.5

CITY OF BRAMPTON
PLANNING & DEVELOPMENT



City of Brampton

MAJOR ROAD NETWORK RIGHT-OF-WAY WIDTHS SCHEDULE 'B'

- FREEWAY
- HIGHWAY
- TRANSPORTATION CORRIDOR CONCEPTUAL ALIGNMENT

MAJOR ARTERIAL
- 40 - 45 Metres (130 / 150 Feet)
- 36 Metres (120 Feet)

MINOR ARTERIAL
- 36 Metres (120 Feet)
- 30 Metres (100 Feet)
- 26 Metres (86 Feet)

COLLECTOR
- 30 Metres (100 Feet)
- 23 - 26 Metres (76 - 86 Feet)
- Alternative Alignment

- REFERRALS
- DEFERRALS

Scale 0 1 2 3 km

- RIGHT-OF WAY IN EXCESS OF THAT SHOWN ON THIS SCHEDULE MAY BE REQUIRED IN CERTAIN LOCATIONS IN ACCORDANCE WITH THE POLICIES OF THIS PLAN.
- THE BOUNDARIES AND ALIGNMENTS ARE APPROXIMATE AND NOT INTENDED TO BE SCALED, AND ARE SUBJECT TO AN APPROVAL PROCESS AS APPROPRIATE.
- THIS MAP FORMS PART OF THE OFFICIAL PLAN OF THE CITY OF BRAMPTON, AND MUST BE READ IN CONJUNCTION WITH THE TEXT, OTHER SCHEDULES AND SECONDARY PLANS.
- INFORMATION REGARDING REGIONAL ROAD RIGHT-OF-WAY REQUIREMENTS IS INCLUDED AS APPENDIX N TO THIS PLAN.

B.dgn
March 28, 2000
Last Update - May 09, 2005
OP93#159

7.0 NEXT STEPS

7.1 Summary

There are numerous municipal responsibilities associated with the consideration of waste and energy infrastructure including land use compatibility and the consideration for public health and safety as identified through the *Planning Act*, Provincial Policy Statement (PPS) and the *Municipal Act*.

Since the City's last policy review, the waste management context has evolved at the Provincial level, particularly in that there is an emerging market for private energy and waste facilities, which is anticipated to increase. Furthermore, waste management systems have broadened beyond landfilling, waste diversion and recycling, to more complex operations and processes involving processing of wastes for incineration and electricity generation.

As a result, the current policy framework and zoning standards did not contemplate the many of the modern and evolving incineration, including processes involving energy recovery, and waste processing, transfer and disposal technologies. In recent years, there has been increased public interest and awareness surrounding waste management and energy. The City aims to position itself to address these issues properly through the administration of its obligations and responsibilities, as well as it's commenting role in the Provincial regulatory approvals process.

The Report identifies seven categories of facilities which exist in the City and/or may be anticipated through emerging technologies. The existing facilities have been mapped in relation to their relevant Official Plan and Secondary Plan land use designations, and the potential effects associated with the Facility categories have been summarized.

From a City-wide perspective, the general clustering of facilities is focused within four distinct areas generally within the Industrial and Business Industrial land use designations. Furthermore, the facilities are generally located interior to the Industrial and Business Industrial land use designations. The 300-metre area of study largely falls within the Industrial and the Business Industrial areas. However, there are a few exceptions where the area of study extends into sensitive land uses (Residential and Open Space land use designations), or are located wholly within a predominately Residential area.

7.2 Next Steps

Phase 2 (Evaluation and Analysis) of our work program will result in the identification of strategies to manage the uses referenced in this report. While the control of on-site operations with a view to mitigating potential off-sight effects is generally the responsibility of the Provincial or Federal regulatory agencies, municipalities can include policies that

relate to on-site activity management through the site plan approval process, and policies that direct City staff on the nature of municipal comments on the C of A circulations.

Measures to address potential land use compatibility issues can be implemented under the City's jurisdiction. Based on our review of the legal and regulatory requirements for facility siting and facility inspection and compliance enforcement responsibilities, we will recommend a city strategy to address these types of uses in planning policy. We will identify any policy and development deficiencies and make recommendations to improve the existing policy framework.

Phase 3 – Implementation of our work program will implement the findings of the Study through suggested amendments to the Official Plan policies and Zoning By-law regulations governing waste management and energy facilities.