LONG TERM WASTE STRATEGY

Technical Memorandum No. 1

Current System Summary

August 25, 2015

TORONTO

HDR

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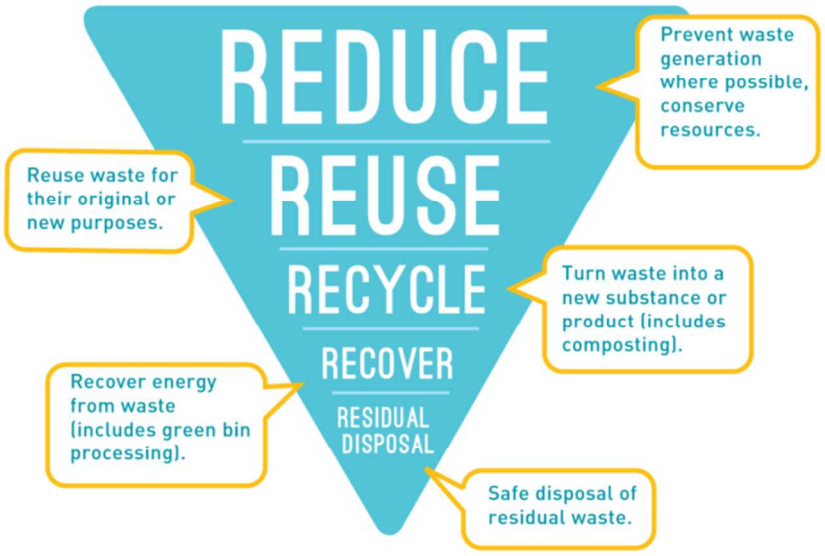
1 Introduction and Background

Recognizing the need for an updated comprehensive long term waste management plan that would set the foundation for future planning and coordinated decision making, the City of Toronto commissioned the development of a Long Term Waste Management Strategy in 2013.

The Long Term Waste Management Strategy (the Waste Strategy) will recommend waste reduction, reuse, recycling, recovery and residual disposal (see Figure 1-1 below for a more complete description of the 5Rs) policies and programs that are cost-effective, socially acceptable and environmentally sustainable for the long term. This is a 'triple bottom line' approach and due consideration will be given to each component during the development of the Waste Strategy. The Waste Strategy will need to anticipate future needs of the City and identify options to meet the needs for all of the City's customers. The project is anticipated to be completed by mid-2016.

Figure 1-1: 5Rs Waste Management Hierarchy



1.1 Current Waste Management System Overview

The City of Toronto is the capital of the Province of Ontario and Canada's largest city with a population of 2,615,060 (2011 census). Toronto is one of the world's most diverse cities with approximately half of the population born outside Canada[1].

The City is at the centre of the Greater Toronto Area (GTA), bordered by the Regions of Peel, York and Durham. Geographically, the City spans an area of 630 square kilometers, approximately 21 kilometers from north to south and 43 kilometers from east to west. The City is bordered by Lake Ontario to the south, Etobicoke Creek and Highway 427 to the west, Steeles Avenue to the north and the Rouge River/Scarborough-Pickering Townline to the east. Figure 1-2 provides an overview of the geographic boundaries of the City of Toronto.

Figure 1-2: City of Toronto Geographic Boundaries and Neighbouring Municipalities[2]

The City of Toronto provides a comprehensive waste management system that includes providing support and services from the initial generation of waste (or avoidance of generation) through to the monitoring of closed landfill sites, long after the final residual waste has been disposed and the site has been closed. This system is a comprehensive network of programs,

[1] City of Toronto Website - Toronto Facts - Diversity
[2] http://commons.wikimedia.org/wiki/File:Greater_toronto_area_map.svg

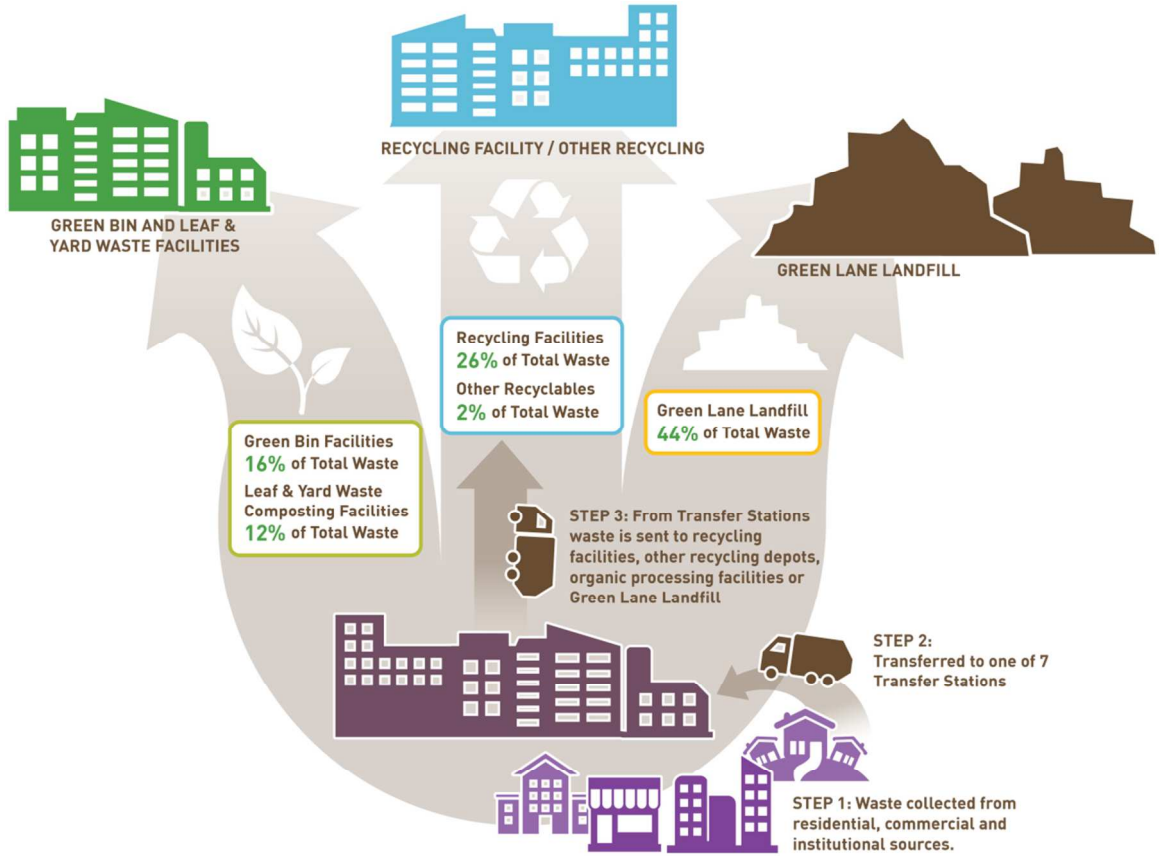
services, truck fleets, transfer and drop-off facilities, processing facilities, and residual management facilities. The system provides services to a wide range of customers and is financially supported through a number of funding and revenue sources.

The City of Toronto Solid Waste Management Services (SWMS) Division is one of the largest municipal solid waste management operations in North America.

> The City's Solid Waste Management Services (SWMS) vision is to be a leader in providing safe and innovative waste management services to residents, businesses and visitors within the City of Toronto in an efficient, effective and courteous manner, creating environmental sustainability, promoting diversion and maintaining a clean city.

Figure 1-3 provides a high-level graphic overview of the operational components of the solid waste management system.

Figure 1-3: Solid Waste Management System Overview [3]



The following provides some quick facts on the City's SWMS and the services either supported or delivered in 2014:

Customers Served[4]

- Residential
  - Single family residences (approximately 450,000);
  - Residential units above commercial (RUAC) establishments (approximately 12,000); and,
  - Multi-residential buildings (approximately 425,000 units).
- Non-Residential
  - Small commercial establishments (approximately 14,500);
  - Agencies and Corporations;
  - Non-profits (Charities, Institutions and Religious Organizations);
  - Schools (Elementary and Secondary);

[3] Percentages presented are based on 2014 data.
[4] All numbers presented on based on 2014 data.

- Private Industrial, Commercial and Institutional (IC&I) waste accepted at transfer stations and landfill;
- Specific service sharing arrangements with other municipalities; and,
- Drop and load tolling service.

Quantities of Waste and Materials Managed (2014)

- Collection of:
  - 463,0000 tonnes/year of Blue Bin recycling and Green Bin organics for diversion including:
    - Over 215,000 tonnes of Blue Bin recycling;
    - Over 138,000 tonnes of Green Bin organics; and,
    - Over 130,000 tonnes of yard waste.
  - over 900 tonnes of Waste Electronics and Electrical Equipment (WEEE);
  - almost 2,200 tonnes of Municipal Hazardous or Special Waste (HHW);
  - over 11,000 tonnes of oversized and metal items (such as mattresses and appliances), porcelain (e.g. toilets) and other materials (e.g. plastic outdoor furniture, drywall and old corrugated cardboard); and,
  - over 77,000 tonnes/year of waste (predominantly garbage) received at transfer stations from residents and small businesses (requires payment of a tipping fee).
- Disposal of approximately 524,000 tonnes of municipal solid waste (MSW).

Public Space Bins

- Collection of approximately 8,500 street litter/recycling bins; and,
- Maintenance and collection of 10,000 park bins and collection of litter from public right-of-ways.

Trucks, Bin Delivery, and Maintenance Operation

- Operation and management of over 600 vehicles and pieces of equipment; and,
- Delivery, maintenance and tracking of approximately 1.6 million Garbage, Blue Bins, and Green Bins.

Waste Management Facilities

- The City owns and operates:
  - Seven transfer stations (six with Household Hazardous Waste (HHW) depots);

  - A maintenance facility;
  - Four collection yards; and,
  - One litter collection yard.
- The City owns the following facilities which are operated by private contractors:
  - Green Lane landfill; and,
  - Disco Road Organics Processing Facility.
- The City owns the following facilities which are currently not in operation:
  - Dufferin Material Recovery Facility (MRF[5]); and
  - Dufferin Organics Processing Facility[6].
- SWMS leases the facility in which the Durable Goods Processing Facility is operated.

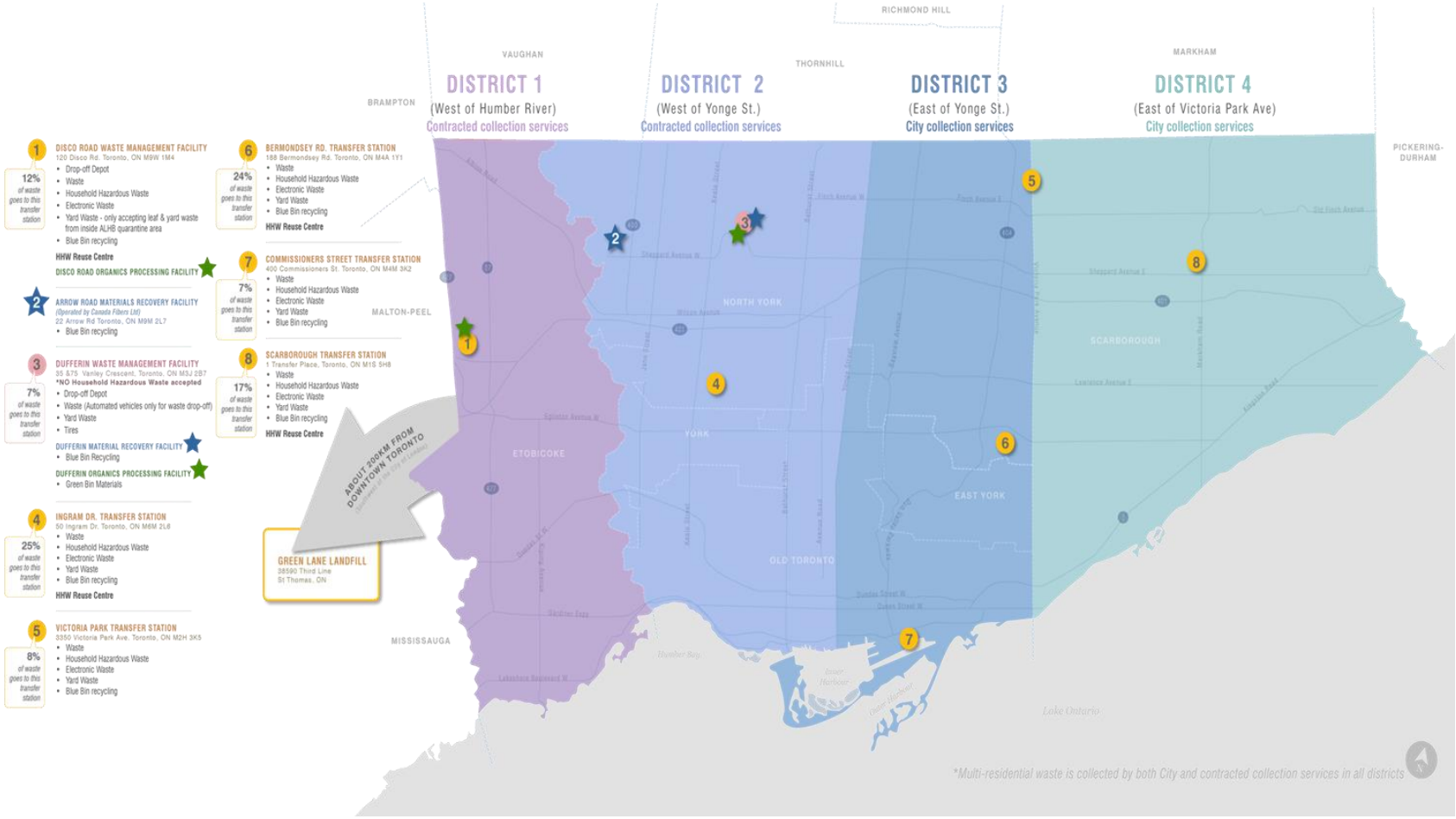
Closed Landfills Monitoring

- Provision of perpetual care for 160 closed landfill sites.

Figure 1-4 presents a map of the waste management facilities in the City of Toronto and provides a brief description of materials accepted at each facility.

[5] This facility is closed as of November 2014. Blue Bin materials are processed at a City contracted service provider facility. The future of this facility is currently being assessed.
[6] Currently shut down in preparation for an expansion.

Figure 1-4: Map of Waste Management Facilities and Collection Districts



1.2 Why a Long Term Waste Management Strategy is Required

Waste management programs in the City of Toronto have evolved from simple garbage collection to a complex system of collecting source separated materials including Blue Bin recycling, Green Bin organics, Garbage, bulky goods, waste electronics and household hazardous waste as well as a range of other specific items. Many committees and working groups have been formed over the years to guide the City's waste management policies and programs (which are further described in in Section 3.3 of this document).

The most recent diversion plan approved by Toronto City Council in 2007, Target 70, outlined a ten year strategy to achieve the goal of 70% diversion by 2010. The plan outlined a number of programs and initiatives including:

- source reduction initiatives;
- development of reuse centres;
- replacement of blue boxes with blue bins;
- addition of new recycling materials;
- implementation of Green Bin organics programs for Multi-residential buildings;
- education and enforcement of the City's diversion By-law;
- introduction of a volume-based rate structure;
- investigation of emerging source separation techniques; and,
- development of a residual waste processing facility to recover resources from mixed residual waste.

In 2013, SWMS completed a follow-up report for Public Works and Infrastructure Committee (PWIC) which provided a status update of the 70% plan initiatives; an explanation of why 70% diversion was not achieved; and, described the plans for moving forward on diversion initiatives in 2013 including the development of a Long Term Waste Management Strategy.

The report concluded that the 70% diversion target was not reached for four major reasons:

- **Optimistic targets fell short** - Some of the initiatives, specifically the switch to automated Blue Bins, the volume-based rate structure and curbside townhouse collection were fully and successfully implemented; however, they did not achieve the diversion results originally anticipated. For example, even with the implementation of these initiatives, the tonnes of Blue Bin recycling collected only increased by 3% from 2007 to 2011. Although waste diversion targets were not specifically reached based

solely on tonnage reductions, if the rise of online vs. print media and more efficient and light-weighted consumer packaging are factored in, overall diversion rates increased significantly due to the various actions taken by SWMS.

- Light weighting of packaging and reduction in overall waste produced - Light weighting of packaging, plastics replacing heavier containers such as glass, and the significant decline in newspapers due to the increased online activity have resulted in less tonnes (by which diversion is measured) than anticipated. The report stated that if packaging weights and the volume of paper had remained the same, the diversion rate would be much higher. Single family diversion rates would be over 70% and multi-residential diversion rates would be closer to 30 or 35%. The report suggested that a new performance metric to measure waste diversion was needed to acknowledge the first 2Rs in the waste hierarchy, reduction and reuse.
- Delays in various program initiatives – Some Target 70 programs were delayed or only partially implemented including the following:
    - Implementation of Green Bin organics collection in apartments and condominiums was delayed due to insufficient Source Separated Organics (SSO) processing capacity.
    - Indoor bins for collection of recycling materials were not as widely introduced by multi-residential property managers in convenient capture areas of the building such as laundry rooms, different parking levels, the mailroom, and other common areas.
    - Proposals for source reduction initiatives for hot drink cups and take-out food packaging were on hold or were delayed pending an anticipated Waste Diversion Act review process (Note: mixed rigid plastics were added to the Blue Bin program in 2012).
    - The disassembly of certain items such as durable padded furniture proved to be labour intensive and cost prohibitive to recycle. A pilot was undertaken in 2007 where charities involved in reuse could cull through durable goods that were collected. Pilot results found that the majority of collected items were not in an acceptable condition for their reuse operations. Also, a reliable market for materials such as unclean wood could not be found.
    - Plastic film such as rinsed milk pouches and outer bags, bread, sandwich and bulk food bags and overwrap for toilet tissues and paper towels were not added to the Blue Bin program as there were issues related to long term, stable recycling markets for this material prior to 2013.

- **Mechanical Biological Treatment (MBT) facility was not constructed** - An MBT Facility to recover resources from mixed residential waste was not constructed, due to a number of factors described below that have yet to be resolved:

    - The primary feedstock for any potential MBT is multi-residential waste; primarily because diversion is poor in this sector and the waste stream contains higher amounts of organic and recyclable material. In 2011, the multi-residential diversion rate for buildings managed by the City was 20%. If a multi-residential diversion rate of 65% or 70% could have been achieved through various diversion initiatives, then the MBT Facility would be redundant and inefficient.
    - An important consideration and criteria in proceeding with MBT was that it would qualify as diversion as defined by the Ministry of Environment and Climate Change. Due to the variability of the mixed waste feedstock and the quality of the materials produced from MBT processing, the finished compost is of poorer quality than, for example, compost made from yard waste or Green Bin organics, and would be classified as Class B compost. Class B compost was recently approved by the Ministry of the Environment and Climate Change but can only be land applied for restricted beneficial use. The viability of MBT is subject to being able to find beneficial use markets for the Class B compost. Without markets, the compost produced would have to be landfilled.

In 2013, City Council approved[7] the development of a new Long Term Waste Management Strategy that will build upon the experience of the past and will recommend waste management policies and programs which are environmentally sustainable, socially acceptable and economically viable.

1.3 How is the Waste Strategy Being Developed?

The development of the Waste Strategy will be governed by five guiding principles that have been set by City Council:

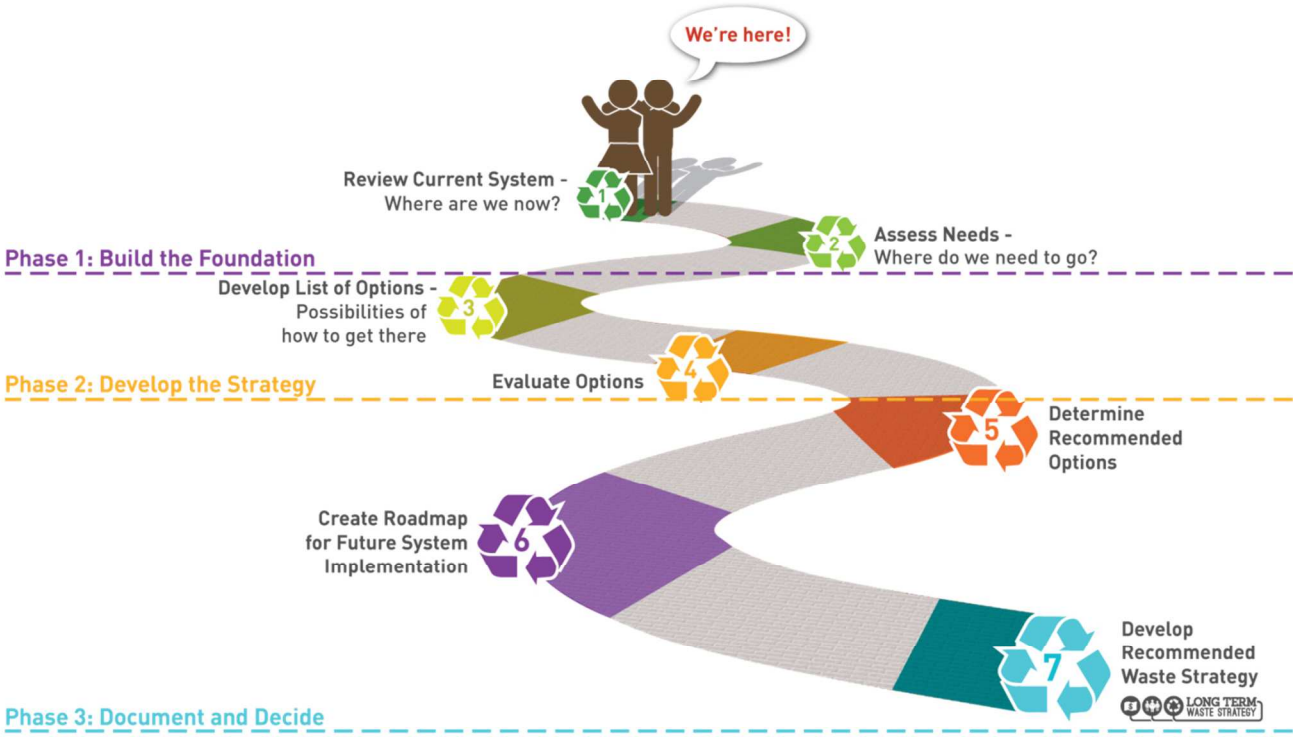
1. Consideration of options which support waste reduction, reuse, recycling and recovery before final disposal;

[7] http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PW24.3

2. Consideration of all other environmentally approved disposal options to extend the life of the Green Lane Landfill;
3. An open and transparent review of the options;
4. Innovation and flexibility to adapt to emerging technologies and changes to the regulatory environment; and,
5. Development of policies and opportunities for collaboration.

The Waste Strategy is being prepared in three phases with each phase being supported by comprehensive consultation with the public, input from a stakeholder advisory group and key stakeholders including members of Council. The overall Waste Strategy development process is presented in Figure 1-5, and a brief description of each phase of the Waste Strategy development process follows below.

Figure 1-5: Strategy Development Process



Phase 1 - BUILDING THE FOUNDATION

Building the foundation will include establishing a comprehensive baseline to identify the current state of all aspects of the City's waste management system and will also identify the long-term need of the system in the future.

Deliverable 1 –"Where are we? Establishing a Comprehensive Baseline"

The purpose of this phase is to document the existing waste reduction, reuse, collection, transfer, processing, disposal and financial systems used to manage waste in the City. This baseline will be used as the foundation upon which to base future programs, policies and facilities. As part of the baseline, previous strategies that have been developed will be taken into consideration, including outstanding recommendations for change. Phase 1 will set the baseline from which future options and recommendations will be assessed in the Waste Strategy. The baseline has been documented in this Technical Memorandum #1.

Deliverable 2 – "Where do we need to go? Identifying the Long-Term Needs"

Once a baseline has been established, projections for the future can be developed in order to determine the requirements for waste management for the next 30 to 50 years. Variables that could impact the system including population growth, housing trends, economic growth, product design, packaging changes, City planning initiatives, and potential changes to legislation will be reviewed in this phase. Technical Memorandum #2 will document the gaps and challenges in Toronto's waste management system, the projections for the future quantities of waste requiring management and the vision and guiding principles that will guide the implementation of the Waste Strategy in the future.

Phase 2 - DEVELOP THE WASTE STRATEGY

In order to develop the Waste Strategy, a critical review of the current system will be completed to identify areas where there is opportunity for improvement, as well as consider policies, programs, and technologies that may help to improve the current system and provide for a stable long-term outlook. Where options are identified, they will be critically evaluated and where appropriate, recommended for implementation in the future.

Deliverable 3 – "How do we get there? Consideration of Options"

A range of policies, programs, and facility/technology options will be reviewed to identify options the City could consider in the future. Options will include additional waste reduction and reuse programs and services, other waste diversion techniques and practices, renewable energy

projects, waste technologies (e.g. MBT), EFW, alternative disposal options (e.g. redirecting waste to other landfills), and long-term opportunities for the Green Lane Landfill. Where appropriate, separate options will be identified to manage waste from the single family and multi-residential sectors since these two sectors have different waste management needs and in some cases may require different programs and infrastructure. The Waste Strategy will also include and take into account waste generation from the non-residential sector. Technical Memorandum #3 will identify and discuss a list of options available to the City and describe the evaluation methodology and criteria to be used to evaluate each option.

Deliverable 4 – "Evaluate the possibilities. Identifying the best Options for the City"

During this phase, a detailed evaluation of the options identified in Phase 3 will be conducted from an environmental, social and financial perspective to identify a series of recommended long-term options for the City. Technical Memorandum #4 will document the evaluation process and resultant recommended options for the City.

Phase 3 – DOCUMENT AND DECIDE

Once the recommendations for change are complete, the Waste Strategy document will be prepared to identify what the new system will look like, the timing for any proposed changes, the financing requirements to support the new system and the roles and responsibilities of all those involved.

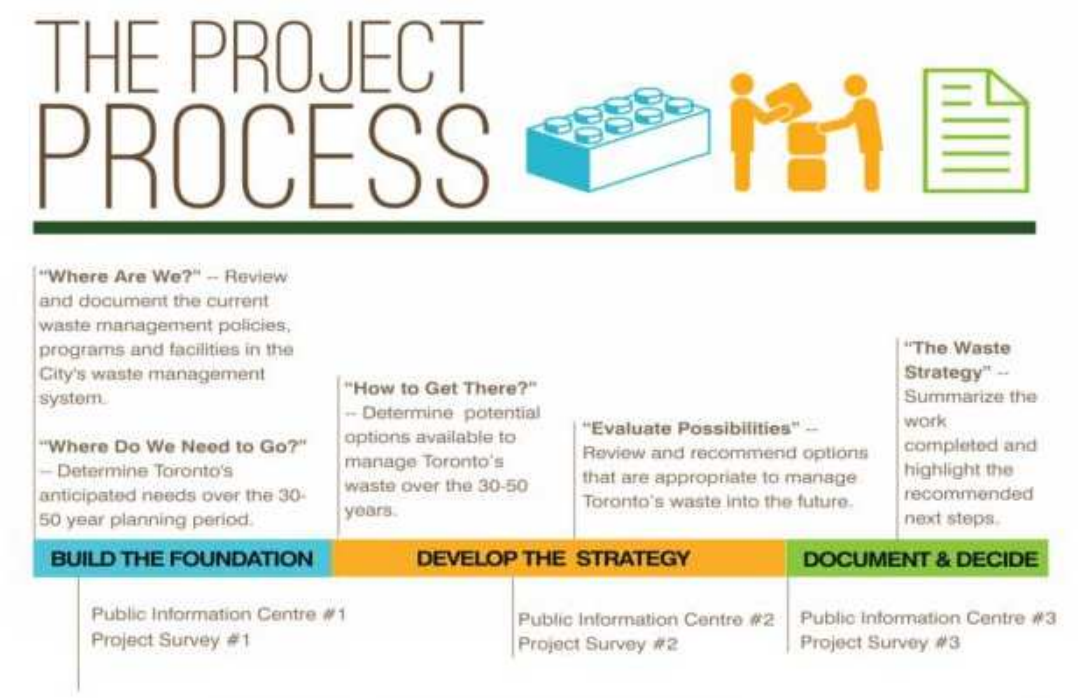
Deliverable 5 – "Prepare and draft the Long Term Waste Strategy document"

The Waste Strategy will be developed using the results of the evaluation process and will include an implementation "roadmap" to help guide the City's waste management system for the next 30 to 50 years. The final Waste Strategy will also include a consultation report which documents the consultation activities conducted over the course of the development of the Waste Strategy.

In parallel to the completion of the three phases, a comprehensive consultation program is being implemented to present information, solicit feedback, and provide an opportunity for the community to help guide the development of their future waste management system. Throughout the process, Staff will provide regular updates to Public Works and Infrastructure Committee (PWIC) on the development of the Waste Strategy. Ultimately, staff will bring forward to City Council a draft and final report on the findings once the Waste Strategy has been completed for approval.

The following Figure 1-6 shows how the consultation plan developed for the Waste Strategy has incorporated the three phases described above.

Figure 1-6: The Project Process



1.4 Purpose of this Technical Memorandum

This technical memorandum provides the background on all aspects of the City's current waste management system. It will be utilized as the foundation from which future project phases will be developed.

It is important to note that the information contained herein is accurate only up to the completion of this technical memorandum. New information is continually being generated, systems change, contracts expire, etc.; as such, this document should be regarded as a snapshot in time, current as of December, 2014, reflecting information available at that time.

It is also important to note that this baseline document does not include waste generated within the City of Toronto that is managed privately (i.e. outside of the City responsibilities).

2 History of Waste Management in Toronto

For over 200 years, Metro Toronto and local municipalities have operated their own landfills. When Metro Toronto was formed in the 1950s, there was an agreement with Metro Toronto's neighbours that resulted in Toronto landfills being located in either York or Durham Regions, because there was not sufficient space within Metro Toronto borders for a large landfill. In turn, the host region received free landfill disposal and Metro Toronto was responsible for operating the landfill site. Until the late 1990s, all of Toronto's waste was landfilled in either the Keele Valley Landfill in York Region or the Brock West landfill in Durham Region.

Prior to amalgamation, each of the local municipalities was responsible for all waste collection activities (in separate contracts or with their own collection employees). The Municipality of Metropolitan Toronto (Metro Toronto) was responsible for transfer, processing, disposal and long term waste management planning. With the amalgamation of the six local municipalities (North York, East York, York, Scarborough, Etobicoke and the former Municipality of Metropolitan Toronto) in 1998, management of all collection activities was consolidated into the responsibilities of the City of Toronto[8]. This led to an integrated waste management system where collection and post-collection activities were managed by one entity, with the intent of providing system optimization and efficiency.

Until the mid 1980s, solid waste management services largely consisted of collecting, transferring and disposing of garbage from single family residences and multi-residential buildings as well as from Agencies and Corporations and some commercial waste. In the mid-1980s (following the success of the first Blue Box program in Kitchener, Ontario) Metro Toronto area municipalities became some of the first to implement the Blue Box system with funding from OMMRI[9] (Ontario Multi-Materials Recycling Inc.) and the soft drink industry. The early Blue Box programs generally collected newspapers, cans and bottles. Recyclables were collected in two separate streams (Grey Box for paper fibres and Blue Box for cans and bottles) and were processed in separate Material Recovery Facilities (MRFs).

[8] See Appendix B for further details on amalgamation and the City of Toronto Act.

[9] OMMRI was a provincial body founded by the soft drink industry, then expanded to a broader range of printed paper and packaging. They provided start-up and early operational share of Blue Box funding.

In 1994, under the 3Rs Regulations (Ontario Regulations 101/94, promulgated in 1994 under the *Environmental Protection Act*) additional requirements for the management of waste were placed on municipalities by the Province of Ontario, including:

- Municipalities with a population of over 5,000 were required to provide:
  - recycling services at a minimum of half the frequency of garbage collection service (for instance, if garbage was collected weekly, recyclables must be collected at least every other week). Recycling programs were required to include five core materials (paper, glass, aluminum, steel and PET[10]) and a minimum of two materials from a supplemental list.
  - backyard composter programs.
- Communities with a population of over 50,000 people (which applied to all Metro Toronto area municipalities) were required to provide convenient yard waste collection service.

By the time the 3Rs Regulations were promulgated, all Toronto area municipalities were already providing service equivalent to that required under the new 3Rs Regulations. In particular, Metro Toronto already had an existing comprehensive backyard composting program since the late 1980s. All Toronto area municipalities were already providing curbside collection of yard waste which was composted at an open windrow facility at the Avondale composting facility located at the Keele Valley Landfill in York Region.

When it comes to managing garbage, securing long-term waste disposal capacity has historically been a challenge for Toronto. In 1983, Toronto acquired the Keele Valley Landfill which was estimated to have a 20-year lifespan. As early as 1986, projections indicated that the site would reach capacity earlier than predicted, and that a new site search process was needed. Various landfill site searches (all ultimately unsuccessful) were undertaken through the 1990s and 2000s; until 2007 when the City purchased the Green Lane Landfill. This purchase was in part due to an agreement between the State of Michigan and Province of Ontario that committed to eliminating the shipment of municipal waste to Michigan by 2010 which forced the City to secure alternate disposal capacity. Additional details on the City's participation in long term disposal capacity efforts can be found in **Appendix A.**

The following provides a brief overview of some of the significant milestones in the history of the City's waste management programs.

[10] Polyethylene terephthalate

Table 2-1: Key Milestones in the History of Toronto's Waste Management System

Year	Milestone
1980s	• The Blue Box Program was first introduced. • The Yard Waste Program was first introduced. • The Backyard Composting Program was first introduced. • HHW Depots opened in 1988 at the Ingram and Scarborough transfer stations and at the Keele Valley and Brock West landfills.
1990	• The Toxic Taxi was introduced as part of the overall implementation of the HHW program.
1991	• Community Environment Days were first introduced.
1997	• The Dufferin MRF commenced two stream processing operations.
1998	• Metro Toronto and the six area municipalities (North York, East York, York, Scarborough, Etobicoke and Toronto) were amalgamated into one entity through the City of Toronto Act (1998). Over time the six separate collection systems and programs were re-structured and re-organized into four collection districts.
2001	• Drop-off depots opened in Toronto. • Task Force 2010 was created to design a made-in-Toronto solution for made-in-Toronto Waste. Among the many recommendations in the Task Force 2010 Report was the implementation of a Green Bin organics program.
2002	• The Keele Valley Landfill was closed resulting in the need to find new waste disposal capacity. • The Yellow Bag program for small commercial businesses was implemented. • The Dufferin Anaerobic Digestion (AD) organics processing facility was commissioned, making Toronto the only city in North America to use AD technology (with the potential to produce biogas and green energy) for processing of collected Green Bin organics. Originally designed as a pilot project, with a capacity of 25,000 tonnes/year, the Dufferin facility has seen a number of improvements over the years and is currently (2014) closed for expansion. • Green Bin organics collection was rolled out to 70,000 single family households in Etobicoke, the first of the former area municipalities to change to a 3-stream collection system. With the new system, organics (including the ability to place organic materials in plastic bags) were collected weekly in the 45 litre Green Bin. Recyclables were collected every two weeks in Blue Boxes (changed from Grey Box and Blue Box 2-stream program in place prior to the 3-stream system) and garbage collection moved to every other week collection, alternating with

Year	Milestone
	collection of recyclables. Yard waste continued to be collected as a separate stream, seasonally. In parallel and as part of the rollout of the Green Bin organics program, Toronto also endeavoured to harmonize the level of service across the entire City. • The Provincial Waste Diversion Act (WDA) was introduced in June, 2002, with a commitment to a review after 5 years. The concept of producer responsibility was enshrined in the Act. Of particular relevance to Toronto was the immediate formation of Stewardship Ontario (SO). SO was formed to collect fees from Blue Box "stewards" of printed paper and packaging to pay municipalities up to 50% of Blue Box system net costs. This has resulted in millions of dollars of funding to the City of Toronto since 2003 to support the delivery of its Blue Box programs and services.
2003/4	• The New & Emerging Technologies, Policies & Practices Advisory Group was created by Council to assist in guiding the review of new and emerging technologies, policies and best practices. The group provided recommendations on a number of strategies to increase diversion and develop waste management programs. The group also analyzed whether 100% diversion from landfill was an achievable objective. • Green Bin organics collection for single family residences was rolled out in Scarborough in June, 2003; Toronto, York and East York followed in 2004.
2005	• All single family residences were converted to three stream curbside collection (Blue Box, Green Bin, Garbage). • With all recyclables collected "single stream" (papers and packaging mixed together), single stream processing commenced with the establishment of single stream processing technology at the Dufferin MRF, and contracting of single stream processing to private sector operators. • Green Bin organics collection was rolled out to single family residences in North York.
2006	• Toronto City Council directed the formation of the Community Environmental Assessment Team (CEAT) to assist the City in managing its waste; advising and assisting with the substance and process needed to complete the provincial Environmental Assessment (EA) requirements, particularly with developing the EA Terms of Reference (ToR). With the purchase of Green Lane Landfill in 2007, the ToR was no longer required and CEAT was split into two groups; the 3Rs Working Group and a Residual Waste Working Group. • Multi-residential building development guidelines were revised to accommodate organics collection.

Year	Milestone
2007	• Council approved the plan (Target 70) which outlined the proposed initiatives and financing model to get to 70% waste diversion by 2010. Target 70 laid the foundation of many significant waste management system changes, including the volume based rate program discussed in Section 13.1. • The Green Lane Landfill near London, Ontario was purchased by the City, thereby securing disposal capacity within Ontario borders, to meet the requirements of the Ontario-Michigan Agreement.
2008	• The volume based rate structure was rolled out for single family and multi-residential waste in conjunction with the rollout of automated bins. This rate structure was designed to move financing of solid waste management into a separate utility (discussed in Section 13.1) and to set rates to encourage waste diversion and discourage waste disposal. • The Waste Diversion Act (WDA) was reviewed which eventually led to Bill 91 (the Waste Reduction Act) which was introduced into the Ontario legislature in June, 2013. • The 3Rs Working Group was established at the direction of City Council to provide input and advice to staff and the PWIC on the design and implementation of policies and practices to help achieve the goal of 70% diversion from landfill. • The Residual Waste Working Group was established at the direction of Council to provide input and advice to the City on the management of waste remaining after diversion, particularly with the development of the Mixed Waste Processing Study. • Implementation of the Provincial Municipal Hazardous and Special Waste (2008) Program.
2009	• A Green Bin organics pilot program was rolled out to multi-residential buildings (as of early 2015, this rollout is near completion). • The Durable Goods Processing Facility opened to warehouse and process durable goods (e.g. mattresses). • Implementation of the Provincial Waste Electronics and Electrical Equipment (2009) Program. • Implementation of the Provincial Waste Tires (2009) Recycling Program.
2010	• The export of waste from the City of Toronto to Michigan ceased in order to meet the commitments of the Ontario-Michigan Agreement. • The 3Rs Working Group and Residual Waste Working Group was dissolved.
2011	• Construction began on the anaerobic digester for organics processing at the Disco Road Waste Management Facility. The organics processing facility has a capacity of 75,000 tonnes/year and together with the soon to be fully expanded Dufferin Digester will provide all of the organics

Year	Milestone
	processing capacity for Toronto Green Bin organics within Toronto boundaries.
2012	• Collection of curbside single family waste by City-contracted service providers began in District 2 (west of Yonge Street and east of Humber River) servicing approximately 165,407 households. • The first stage of Dufferin Organics Processing Facility expansion was completed with the addition of a second digester.
2013	• The Waste Reduction Act (Bill 91) was introduced for first reading in the Ontario Legislature in June, 2013. The Bill was based on the principle of full extended producer responsibility (EPR); potentially resulting in stewards of printed paper and packaging paying 100% of the Blue Bin system for City of Toronto (i.e. lifting the funding cap of 50%). The Bill failed on the order paper with the calling of a provincial election in May, 2014. • Canada Fibers Ltd.'s new Material Recovery Facility (MRF) on Arrow Road opened. Canada Fibers, a private contractor, was awarded a contract to process up to 140,000 tonnes of Toronto's Blue Bin recycling for a period of 7 years. • The City started approaching all multi-residential buildings to participate in the Green Bin organics program.
2014	• The Long Term Waste Management Strategy commenced. • The Dufferin Organic Processing Facility (DOPF) discontinued operations in March 2014 to allow decommissioning/ shutdown activities in preparation for the DOPF expansion to 55,000 tonnes/ year, beginning in 2015. • The Disco Road Organic Processing Facility (DROPF) underwent commissioning efforts (January – June 2014) at full processing rate (75,000 tonnes/ year equivalent), and substantial performance was granted July 1, 2014 to allow the operations contract (2014-2017) to commence. • The Dufferin MRF was closed. • A renewable energy approval (REA) process was initiated for a combined heat and power (CHP) biogas utilization facility (up to 2.8 MW) for 120/ 150 Disco Road properties, immediately adjacent to the DROPF. It is anticipated that a REA could be granted in early 2015, to allow the DROPF biogas facility implementation at the end of 2015/early 2016 to allow offsetting electricity/ heat requirements of 120/150 Disco Road properties (the City yard used by Facilities and Fleet).

3 Solid Waste Policy Review

The City of Toronto's solid waste management services and programs are strongly influenced by a number policies and legislative requirements. The following sections provide an overview of the major legislation and policies of governmental organizations (Federal, Provincial and Municipal) as well as other key initiatives, stakeholders and organizations influencing the City's solid waste management activities. More information on the policies and organizations relevant to Toronto's solid waste management can be found in Appendix B.

3.1 Relevant Federal Policy

The following lists relevant Federal policies that impact how solid waste is managed by SWMS.

- The Canadian Environmental Assessment Act;
- The Canadian Environmental Protection Act;
- Canadian Council of Ministers of the Environment:
  - Compostability Standard and Certification Protocol, 2010;
  - Canada-wide Action Plan for Extended Producer Responsibility, 2009;
  - Canada-wide Strategy for Sustainable Packaging, 2009;
  - Extended Producer Responsibility Product Evaluation Tool, 2008;
  - Canada-wide Principles for Extended Producer Responsibility, 2007;
  - Guidelines for Compost Quality, 2005;
  - Recommended E-waste Products, 2005;
  - Canada-wide Principles for Electronics Product Stewardship, 2004; and,
  - National Packaging Protocol, 2000.
- Federal Climate Change Policy; and,
- Canadian Food Inspection Agency Act.

3.2 Relevant Provincial Policy

The following lists relevant Provincial policies that impact how solid waste is managed by SMWS.

- Ontario Environmental Assessment Act which apply to the following:
  - Major projects with significant potential for environmental effects, which require terms of reference and an individual environmental assessment (e.g. new landfill);

  - Projects with predictable environmental effects that can be readily mitigated, which require an environmental screening process (e.g. a thermal treatment facility, transfer station); and,
  - Projects which are exempt from approval under the *Ontario Environmental Assessment Act* (e.g. certain changes to landfills or waste disposal sites).
- *Ontario Environmental Protection Act* – the following are a few key regulations that most strongly influence solid waste management:
  - 225/11: Applications for Environmental Compliance Approvals;
  - 452/09: Greenhouse Gas Emissions Reporting;
  - 232/98: Landfilling Sites;
  - 101/94: Recycling and Composting of Municipal Waste;
  - 102/94: Waste Audits and Waste Reduction Work Plans;
  - 103/94: Industrial, Commercial and Institutional Source Separation Programs;
  - 104/94: Packaging Audits and Packaging Reduction Work Plans;
  - 342/90: Designation of Waste; and,
  - 347/90: General – Waste Management.
- Waste Diversion Act;
- Blue Box Program and Blue Box Plan (including the Municipal Datacall Process);
- Municipal Hazardous or Special Waste Program;
- Electronics Stewardship Program;
- Used Tire Program;
- Proposed Waste Reduction Act (Bill 91);
- City of Toronto Amalgamation;
- City of Toronto Act, 2006;
- Ontario Building Code Act;
- Places to Grow Growth Act and Plan; and,
- Ontario Green Energy Act and the Feed in Tariff Program.

3.3 Relevant Municipal Policy and Plans

In addition to policy and legislation at the Federal and Provincial levels, the City has also developed policy frameworks and plans to support and guide the provision of waste management services including the following:

- Official Plan;
- Waste By-laws;
- Planning By-laws;
- Council's Strategic Plan;
- SWMS Strategic Plan;

- Solid Waste Management Services Information Technology Strategy;
- Target 70; and,
- Toronto Green Standard.

3.4 Other Key Policy Influencers

The following lists several programs and organizations related to solid waste management policies and programs. Several of these organizations provide funding for waste management projects and/or help shape waste management policy at all various levels of government.

- Ontario Ministry of the Environment and Climate Change (MOECC);
- Ontario Deposit Return Program;
- Regional Public Works Commissioners of Ontario (RWPCO);
- Municipal Waste Association (MWA);
- Solid Waste Association of North America (SWANA);
- Ontario Waste Management Association (OWMA);
- Association of Municipalities Ontario (AMO);
- Federation of Municipalities (FCM); and,
- FCM Green Municipal Fund (GMF).

4 Waste Generation, Composition, and Diversion

The following sections provide information on waste generated by the City's customers, the composition of the waste, and how much waste is diverted from landfill.

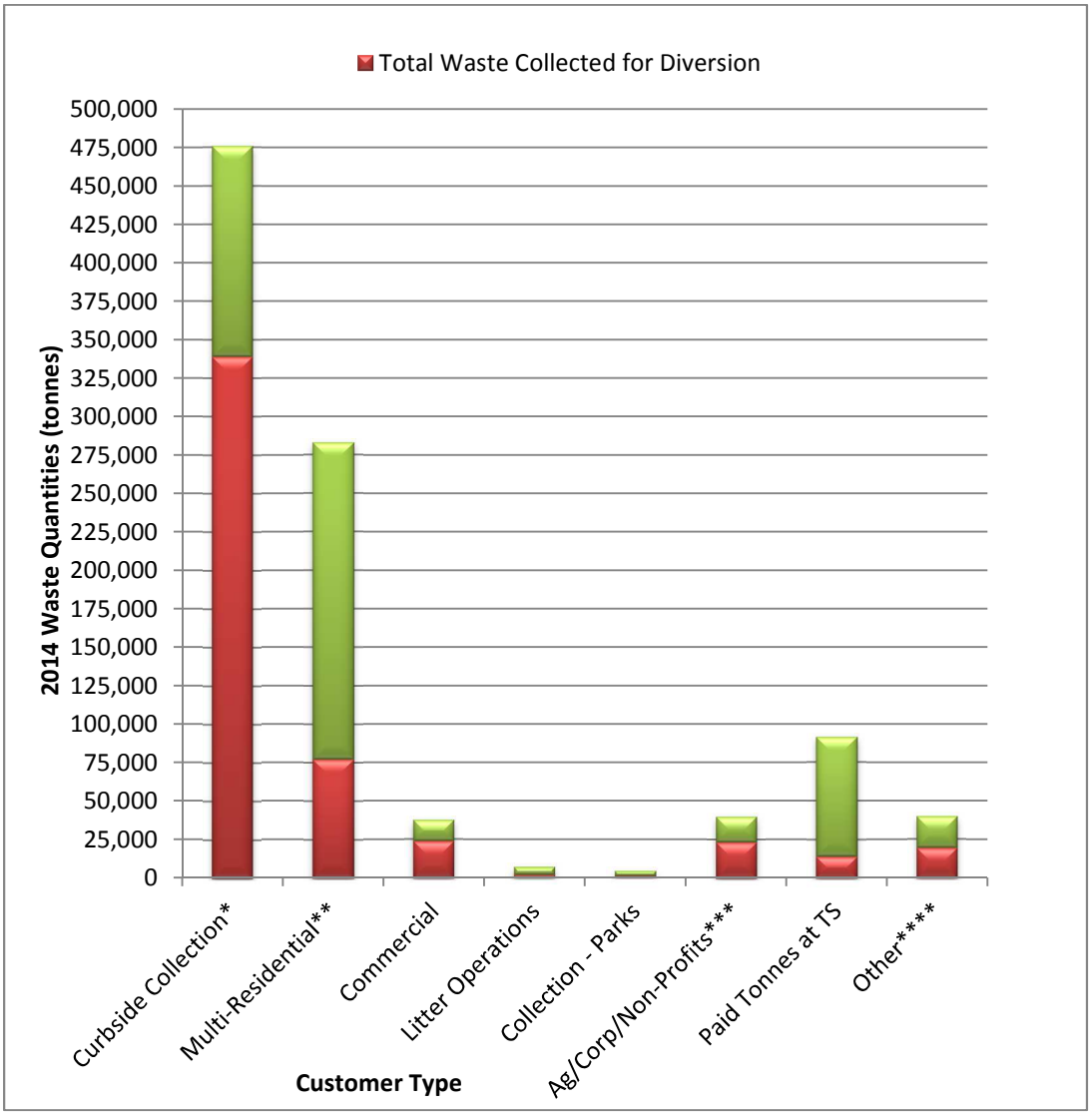
4.1 Waste Generation

In 2014, SWMS managed 1,024,425 tonnes of waste from residential and a portion of the non-residential sector (not including waste from other sources disposed of at Green Lane). Of that, 499,976 tonnes of waste was collected for diversion through waste diversion programs and the remaining 524,449 tonnes of waste was sent to landfill for disposal[11].

Figure 4-1 illustrates the relative proportion of wastes generated by the City's customers which was collected for diversion or disposal.

[11] Note that the City's diversion rate includes allowances for diversion of material not collected by the City (e.g. deposit return programs, grasscycling, per capita allowance for tire recycling, backyard composting etc.)

Figure 4-1: Waste Collected for Diversion or Disposal (2014)[12]

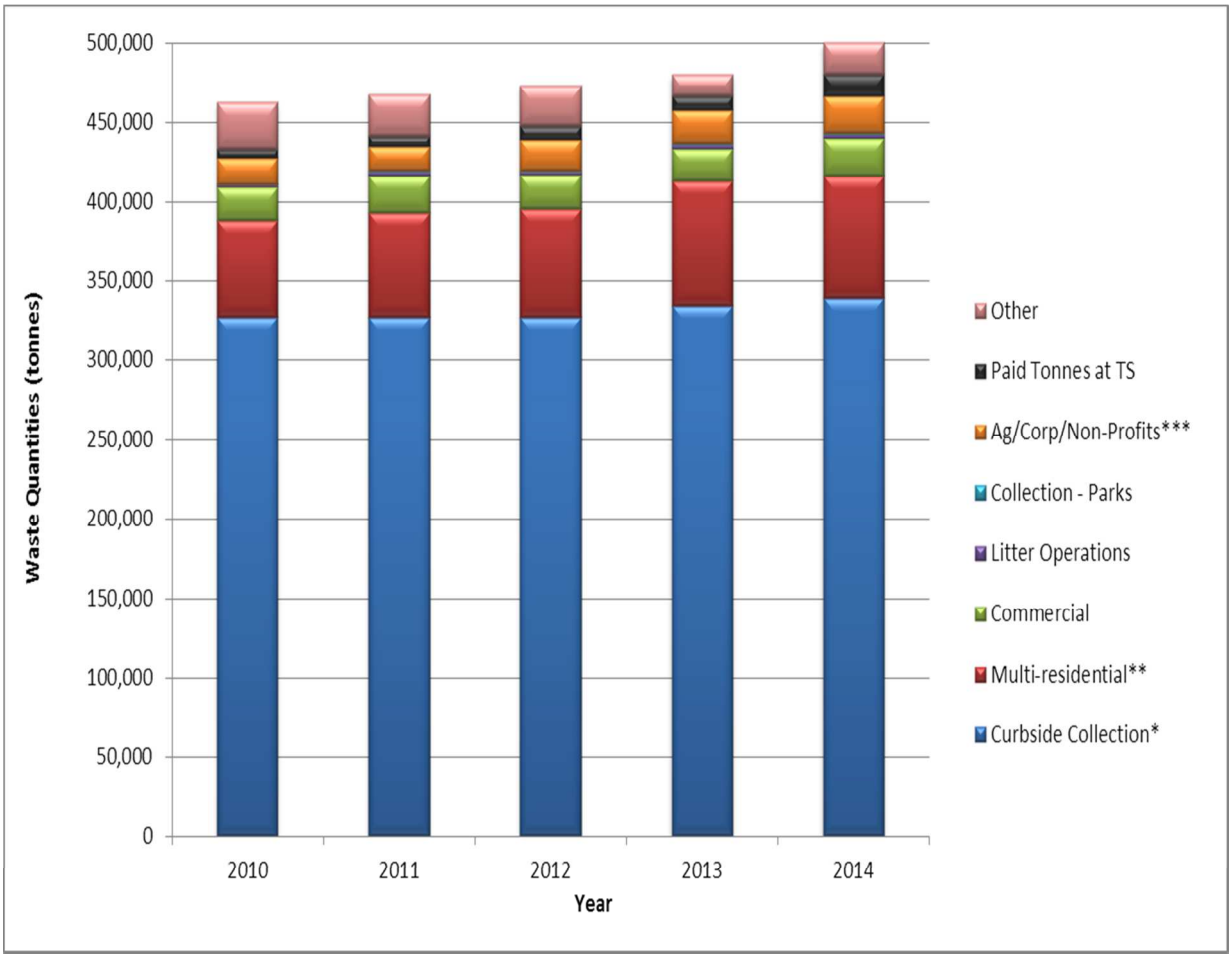


***Source**: Appendix C – Tonnage Map*
***** Primarily Single family, schools, non-residential, non-profits*
*** Multi-residential includes front-end and curbside bin customers*
**** The ABCDs/non-profits amount only refers to tip customers*
*****"Other" customer type refers to yard waste related to Asian Longhorn Beetle, street sweepings, durable goods and electronics collected from depots and Environment Days.*

Figure 4-2 and Figure 4-3 illustrate the amount of waste generated by the City's customers which was collected for diversion and the amount of waste disposed by the City from 2010 to 2014.

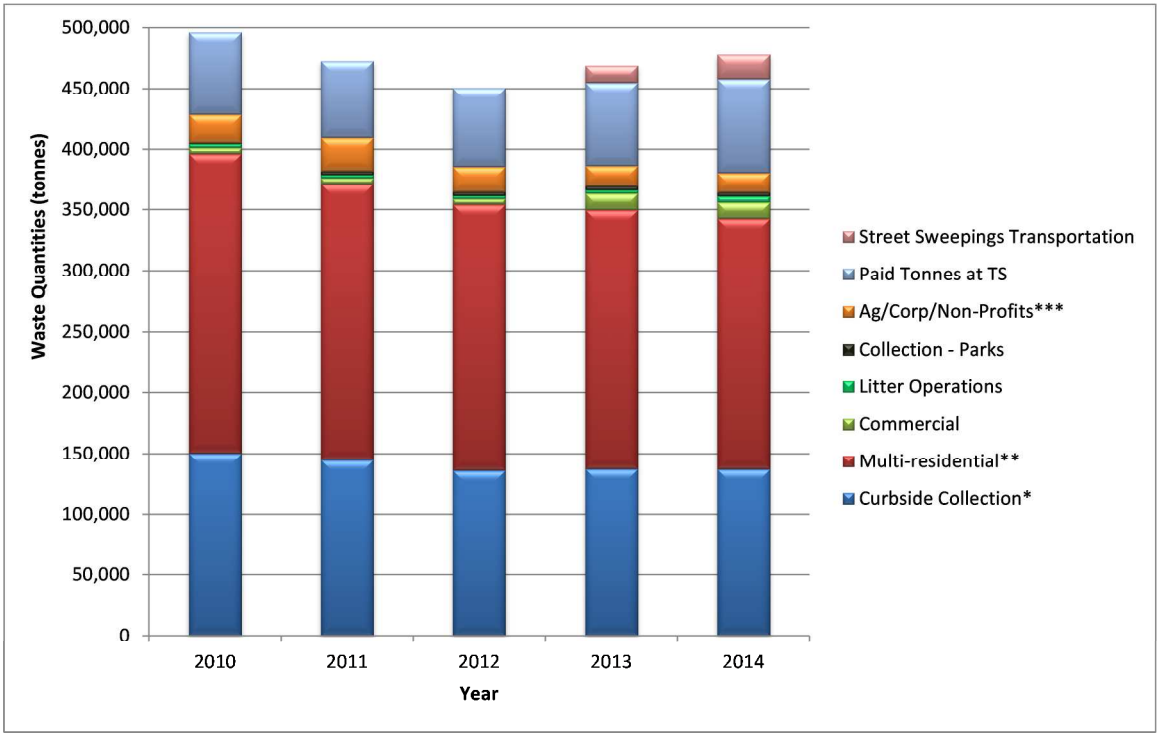
[12] It is important to note that the material collected for diversion is unprocessed waste and therefore will include contamination (residue). Waste diversion (i.e. the actual amount of waste diverted, not including any contamination) is discussed in Section 4.3.

Figure 4-2: Waste Collected for Diversion by Customer Type (2010-2014)



***Source**: Appendix C – Tonnage Map*
** Primarily Single family, schools, non-residential, non-profits*
*** Multi-residential includes front-end and curbside bin customers*
**** The Agency/ Corporations/non-profits amount only refers to tip customers*

Figure 4-3: Waste Collected for Disposal by Customer Type (2010-2014)



Source: *Appendix C – Tonnage Map*

** Primarily Single family, schools, non-residential, non-profits*

*** Multi-residential includes front-end and curbside bin customers*

**** The Agency / Corporations/non-profits amount only refers to tip customers*

Note: Street sweepings were not reported under SWMS waste quantity summaries before 2013.

4.2 Waste Composition

The City regularly conducts single family and multi-residential waste audits to determine waste composition and to monitor and measure performance. Single family waste audits were completed between 2012 and 2013 on Blue Bin recycling, Green Bin organics, and Garbage. Multi-residential waste audits were completed between 2010 and 2011 on Blue Bin recycling and Garbage; Green Bin organics were not included in the audits.

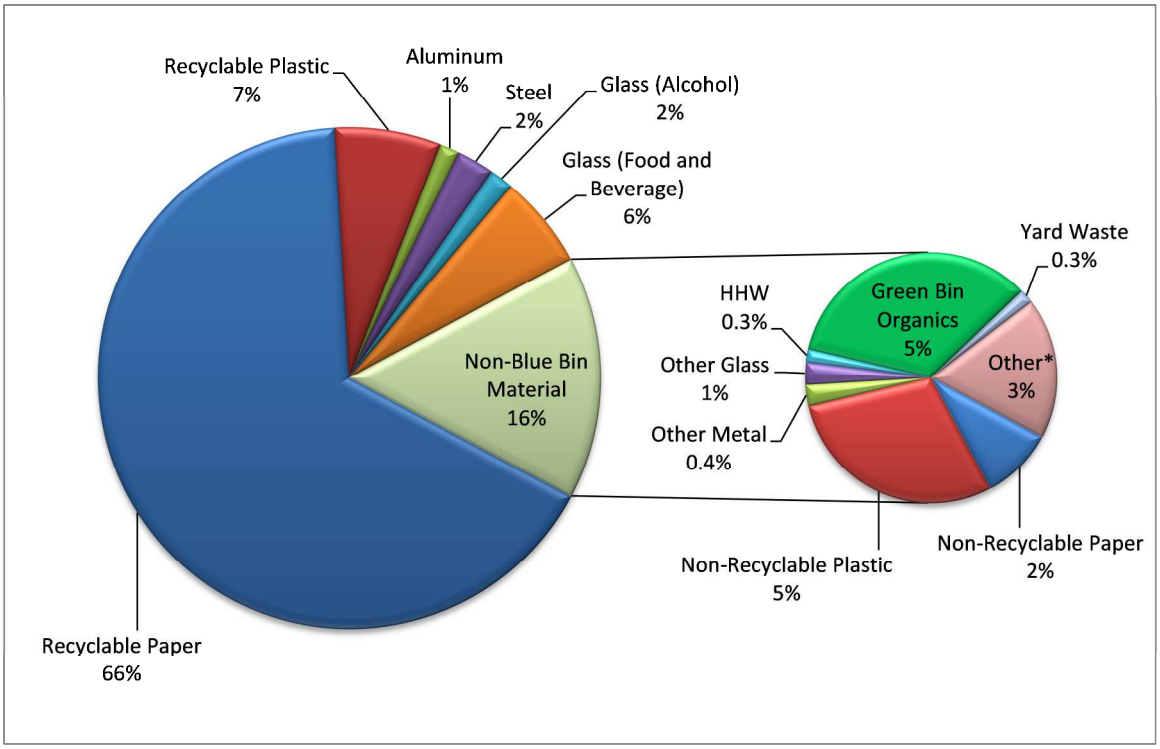
Single Family Waste Composition

The following sections provide an overview of the results of the single family waste composition studies completed between 2012 and 2013.

Single Family Blue Bin Recycling Composition

Figure 4-4 presents the composition of single family Blue Bin recycling. Recyclable paper forms the largest component of Blue Bin recycling by weight. Material that is not accepted in the Blue Bin (i.e. contamination) comprises 16% of the Blue Bin recycling and is predominately Green Bin organics and non-recyclable plastic.

Figure 4-4: Single Family Blue Bin Recycling Composition (2012-2013)

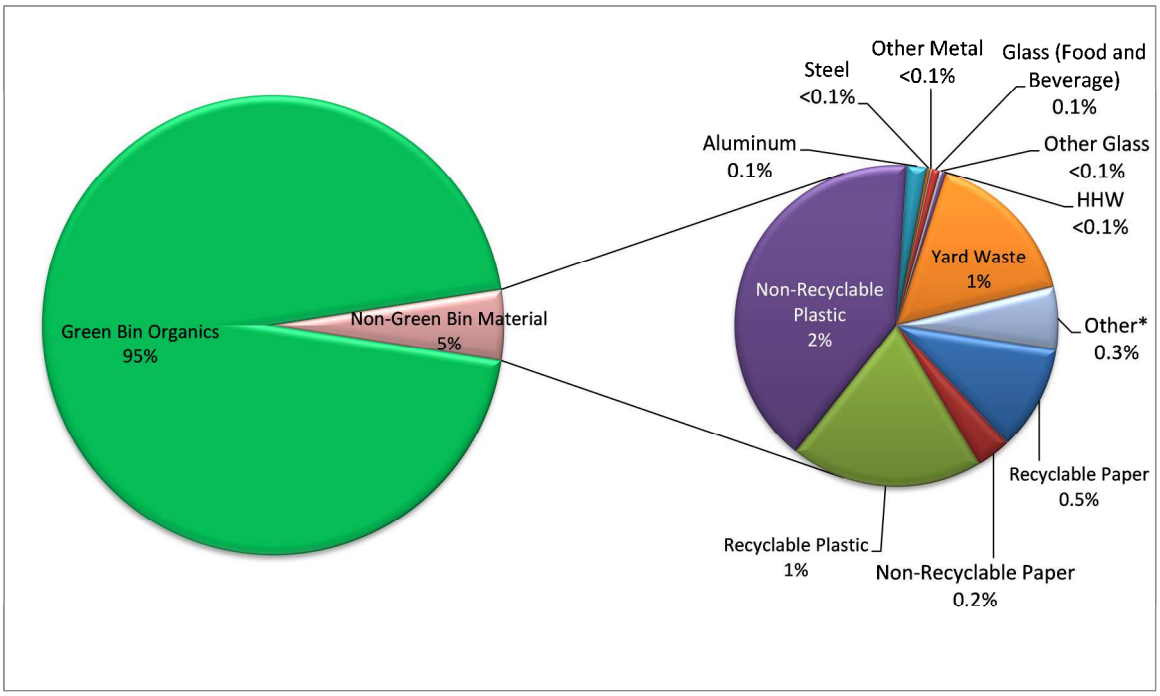


***Source**: 2012-2013 SF Waste Audit*
** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

Single Family Green Bin Organics Composition

Figure 4-5 presents the composition of single family Green Bin organics. Of the material sampled, 95% was acceptable material and only 5% was considered contamination (predominantly non-recyclable plastic). It should be noted that typical Green Bin contamination rates in Southern Ontario are around 20%. Toronto's contamination rate is much lower when compared to municipalities due to the fact that those materials typically considered contaminants in other jurisdictions (plastic film, diapers, sanitary waste) are considered acceptable materials in Toronto's Green Bin organics program due to the type of processing technology (i.e. anaerobic digestion) being utilized.

Figure 4-5: Single Family Green Bin Organics Composition (2012-2013)



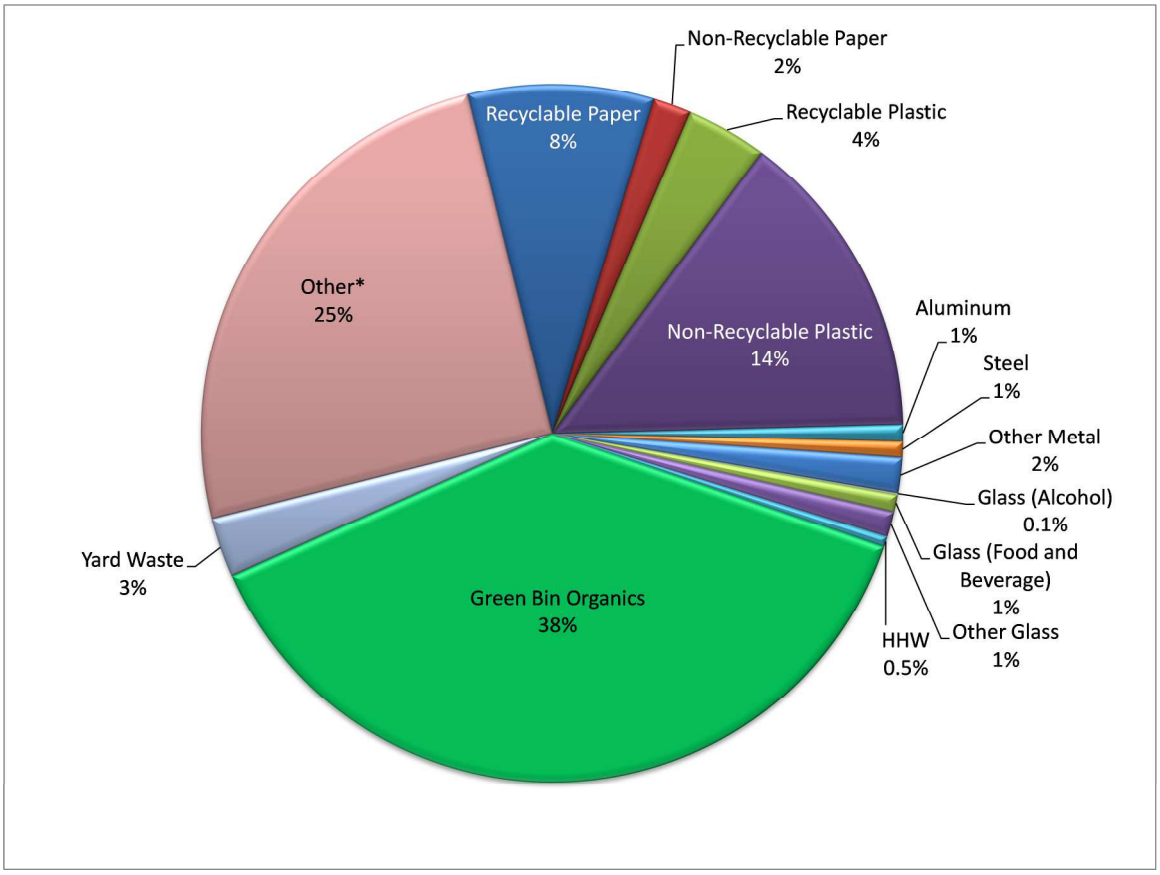
***Source**: 2012-2013 SF Waste Audit*

** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

Single Family Garbage Composition

Figure 4-6 presents the composition of the single family garbage stream by weight. The largest components of this waste stream consist of Green Bin organics (38%), other materials (25%) (e.g. household items) and Blue Bin recycling (15%).

Figure 4-6: Single Family Garbage Composition (2012-2013)

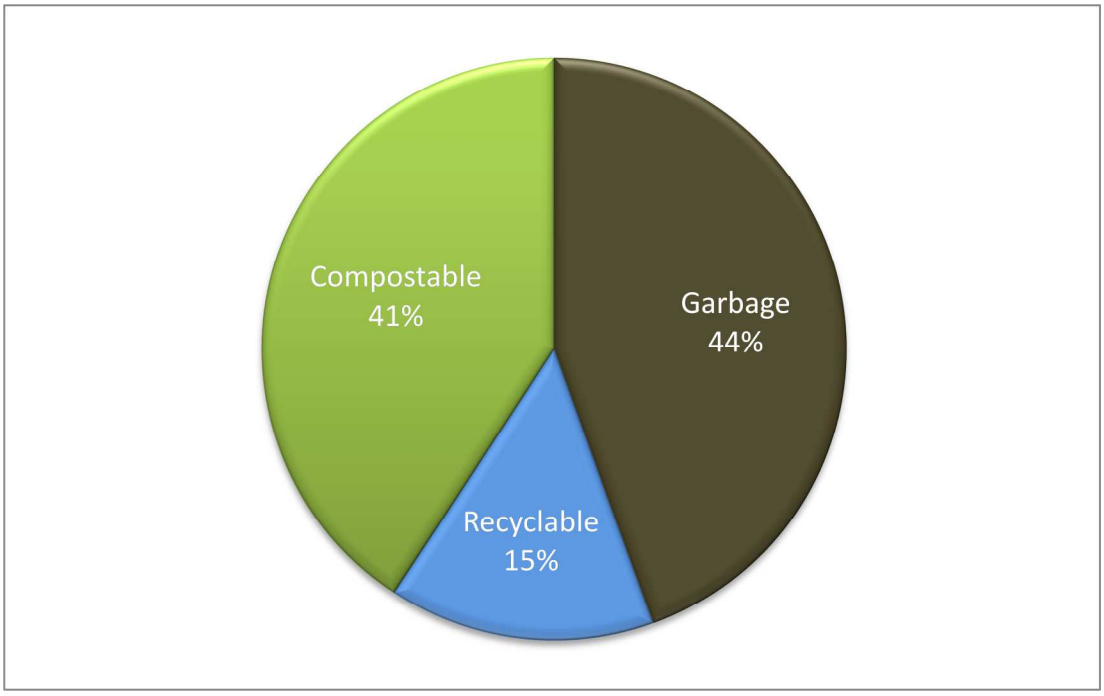


***Source**: 2012-2013 SF Waste Audit*
** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

Total Single Family Waste Generated

Based on 2012/2013 single family waste audit results, 56%, or 110 kg per household, of the material in the single family garbage stream is divertible through the City's recycling and organics diversion programs. 15% could be diverted through the Blue Bin recycling program, 38% through the Green Bin organics program and 3% through the yard waste program. Taking all the City's diversion programs into consideration, approximately 65% (~129 kg per household) of the materials disposed of in the garbage stream, including durable goods, HHW and electronics, can be diverted. Households generate an average of 200 kilograms of garbage annually[13].

Figure 4-7: Composition of Single Family Garbage (2012-2013)

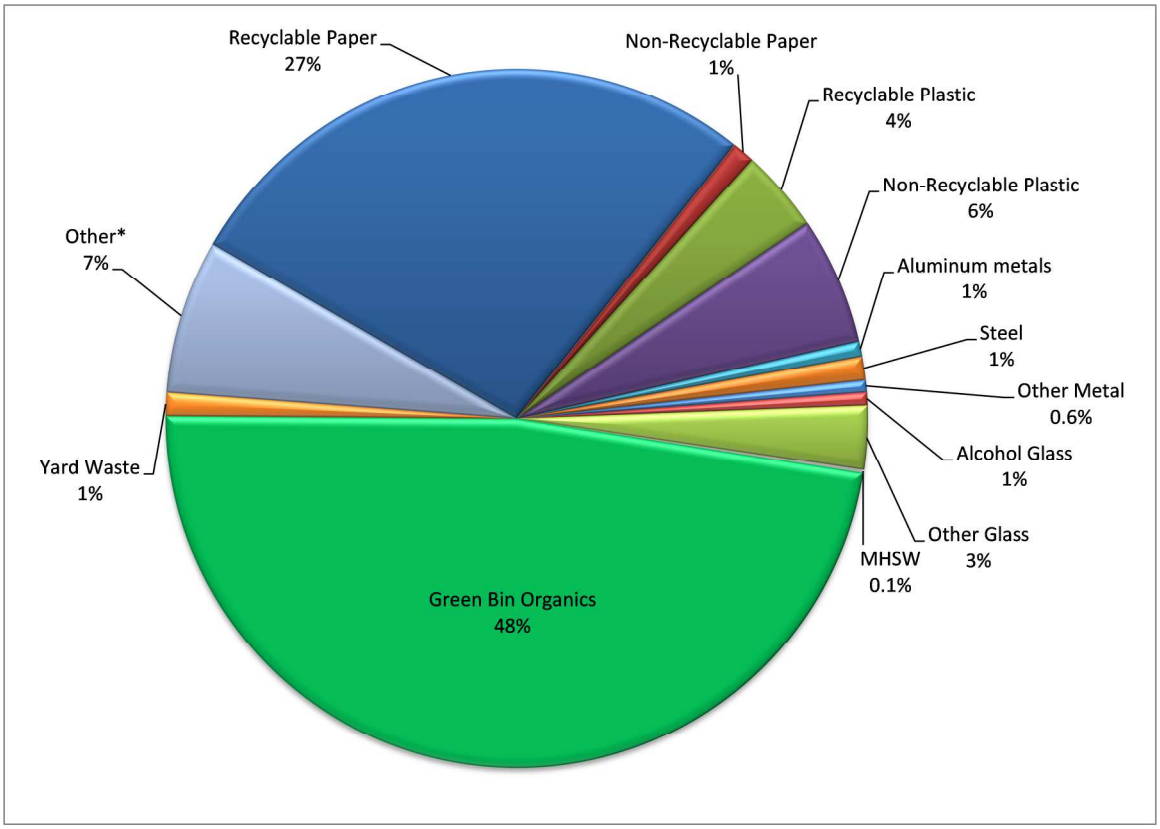


***Source**: 2012-2013 SF Waste Audit*

[13] Staff Recommended 2015 Operating Budget & 2015 – 2024 Capital Budget and Plan

Figure 4-8 summarizes the composition of the total single family waste stream by weight. Green Bin organics comprise the largest component of the overall waste stream (48%) followed by recyclable paper at 27% which is not surprising given these are both very dense, heavy materials.

Figure 4-8: Combined Single Family Waste Materials Composition (2012-2013)



***Source**: 2012-2013 SF Waste Audit*
** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

The following summarizes the key findings from the single family waste audits:

- The Green Bin organics program has a contamination rate of 5%.
- The Blue Bin recycling program has a contamination rate of 16%.
- The largest materials comprising the total waste stream, by weight, are Green Bin organics (48%) and recyclable paper (27%).
- On average, 65% of materials found in the garbage stream are still divertible through the City's diversion programs available to residents.

This information provides a snapshot of important areas for potential improvement in the management of single family waste that will need to be considered as the Waste Strategy development progresses.

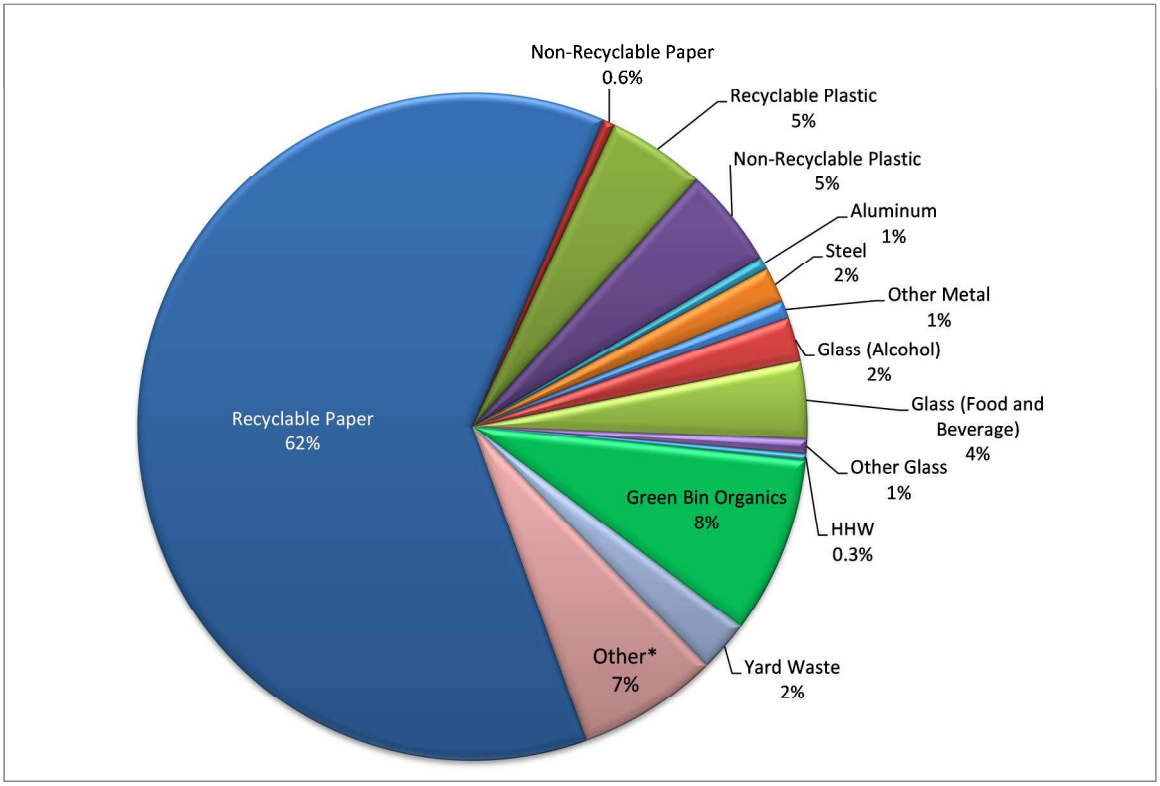
Multi-residential Waste Composition

The following sections provide an overview of the results of the multi-residential waste composition studies of garbage and Blue Bin recycling conducted in 2010 and 2011.

Multi-residential Blue Bin Composition

Figure 4-9 presents the composition of multi-residential Blue Bin recycling. The predominant material (by weight) consists of recyclable paper. The Blue Bin has a contamination rate of approximately 25%, including contaminants such as non-recyclable paper and plastic, other glass, HHW, Green Bin organics, yard waste and other materials.

Figure 4-9: Multi-residential Blue Bin Composition (2010-2011)



***Source**: 2010-2011 MF Waste Audit*

** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

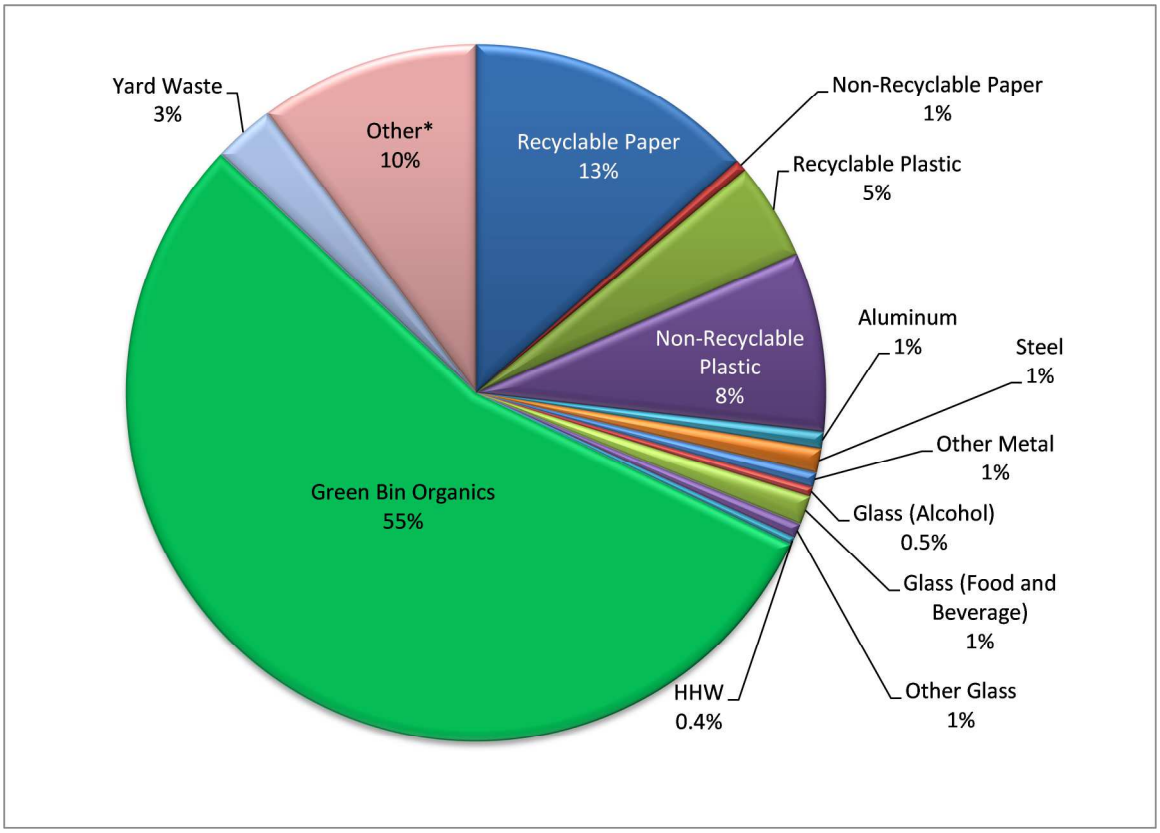
Multi-residential Green Bin Composition

There is currently limited Green Bin multi-residential waste composition data available. The audits completed in 2010 and 2011 did not include the sampling of this waste stream.

Multi-residential Garbage Composition

Figure 4-10 presents the composition of the garbage stream. The largest two components of the garbage stream are both divertible materials. Green Bin organics forms the largest component of the garbage stream at 55% and recyclable paper forms the second largest component of the garbage stream at 13% by weight.

Figure 4-10: Multi-residential Garbage Composition (2010-2011)



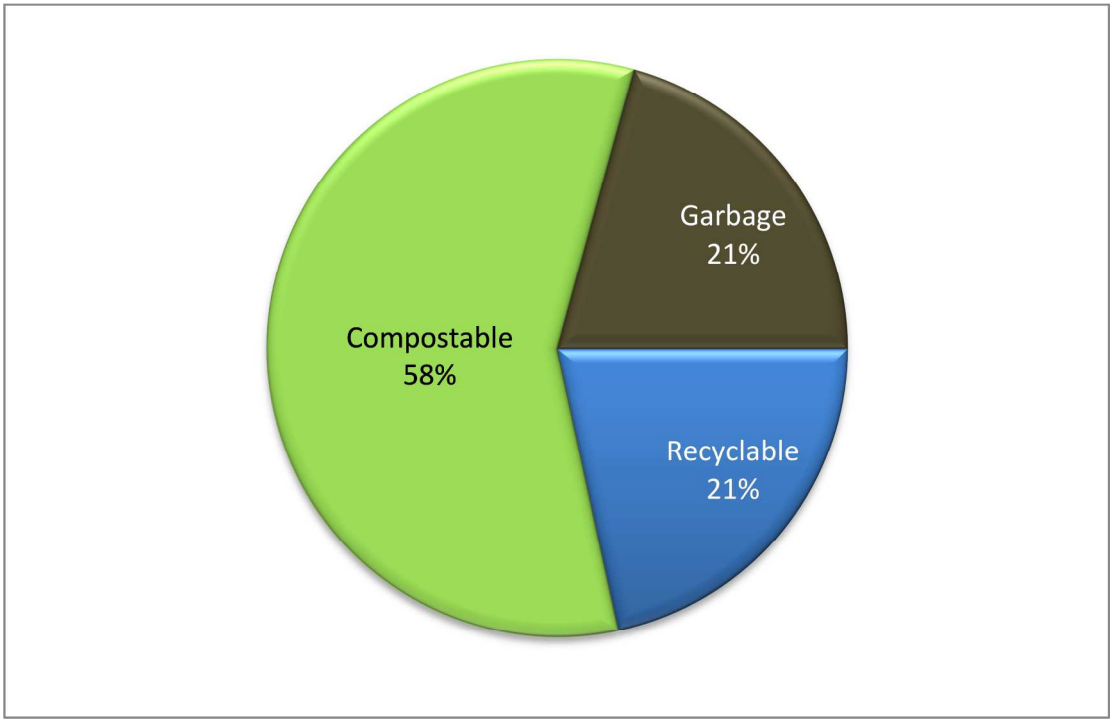
***Source**: 2010-2011 MF Waste Audit*
** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

Total Waste Generated

As shown in Figure 4-11, approximately 79% of the multi-residential garbage stream could be diverted; 21% through the Blue Bin recycling program, 55% through the Green Bin organics program and 3% through the yard waste program. This equates to about 410 kg/household/year of divertible waste that ends up in the garbage.

It should be noted that the Green Bin organics program was only initiated in 2009 in some multi-residential buildings. The program would have been relatively new for most residents at the time of the waste audits; therefore these audits would not be representative of waste composition in a facility with a mature, established program. It is expected that future multi-residential waste audits will show improvements as the multi-residential diversion programs matures.

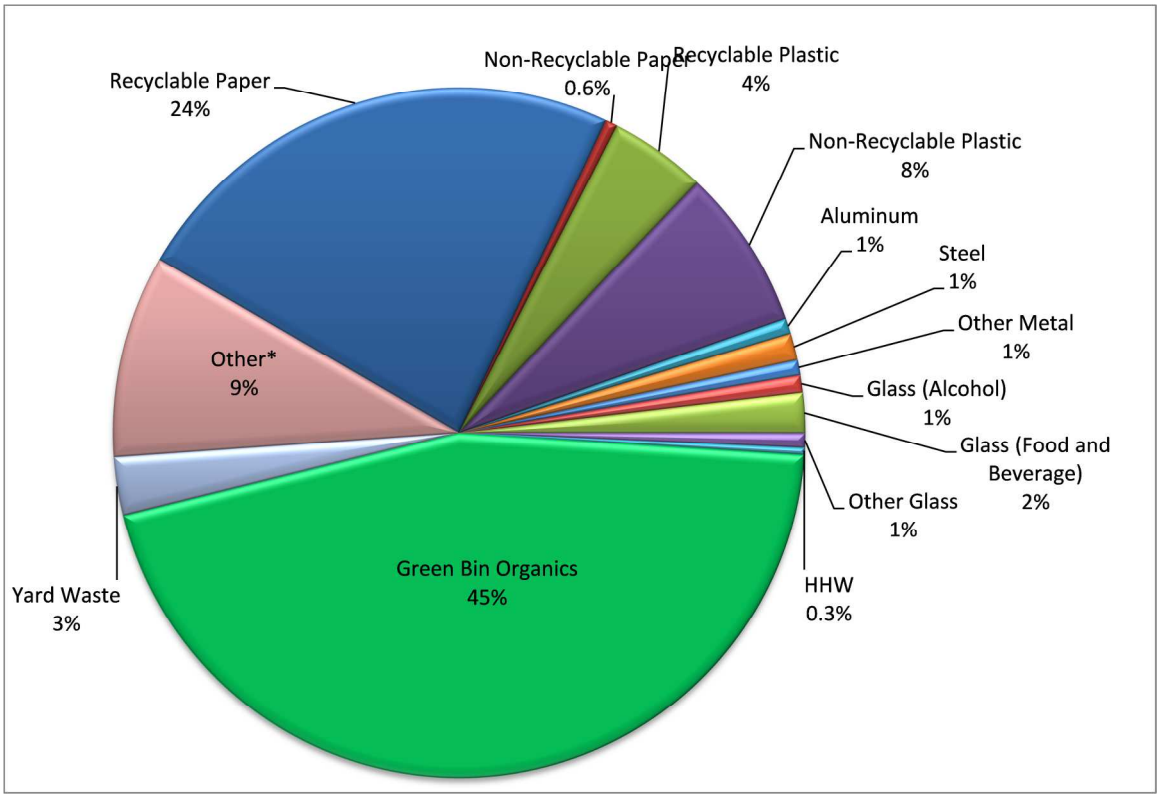
Figure 4-11: Overall Composition of Multi-residential Garbage (2010-2011)



***Source**: 2010-2011 MF Waste Audit*

Figure 4-12 presents the composition of the combined multi-residential waste stream by weight. As expected, Green Bin organics forms the largest component of waste. Recyclable paper comprises almost a quarter of the waste.

Figure 4-12: Combined Multi-residential Waste Materials Composition (2010-2011)



***Source**: 2010-2011 MF Waste Audit*

** "Other" material type refers to household items such as textiles, carpeting, kitchen appliances and wood.*

The following summarizes the key findings from the multi-residential waste audits:

- The Blue Bin program has a contamination rate of 25%.
- Green Bin program data is not currently available.
- About 79% of the materials in the garbage stream could be placed in either the Green Bin (58%) or the Blue Bin (21%).
- The largest materials comprising the total waste stream, by weight, are Green Bin organics (45%) and recyclable paper (24%).

This information provides a snapshot of important areas for potential improvement in the management of multi-residential solid wastes that will need to be considered as the Waste Strategy development progresses.

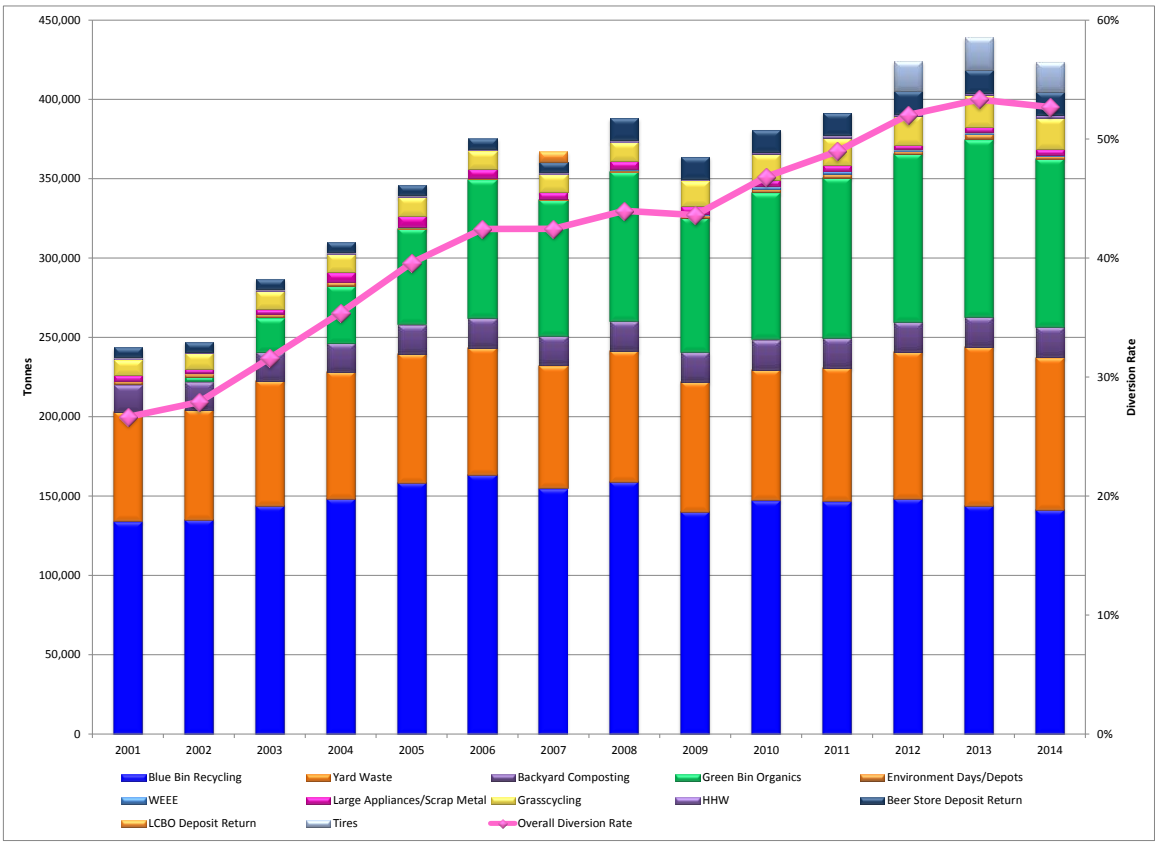
4.3 Waste Diversion

Waste diversion is defined as waste that is directed away from disposal through reduction, reuse, recycling or composting and is typically presented as a rate, calculated by dividing the total tonnes of waste diverted by the total tonnes of waste generated. Municipalities report their waste diversion rate as a residential "GAP" diversion rate (Generally Accepted Principles) to ensure a common reporting framework for municipalities across Canada to report waste generation, diversion and disposal. GAP is used by Statistics Canada and other government organizations as a performance measure for waste management reporting.

The City's diversion rate has been steadily increasing over the years as new programs and policies are implemented. The City reported an overall residential diversion rate of 53% in 2014; the single family diversion rate was 66% and the multi-residential diversion rate was 26%.

Figure 4-13 illustrates the changes in curbside waste (single family, multi-residential, commercial, Agencies and Corporations) diverted from 2001 to 2014.

Figure 4-13: Curbside Waste Diverted (2001-2014)



***Source**: City of Toronto 2001-2014_Diversion_Rates_all_streams*
Note: Also includes waste collected by the City along its residential collection route from schools, fire halls, etc. and processing facility residue.

During this 13 year period, the City's residential diversion rate went from 27% in 2001 to 53% in 2014. The following contributed to changes in the waste diversion rate over time:

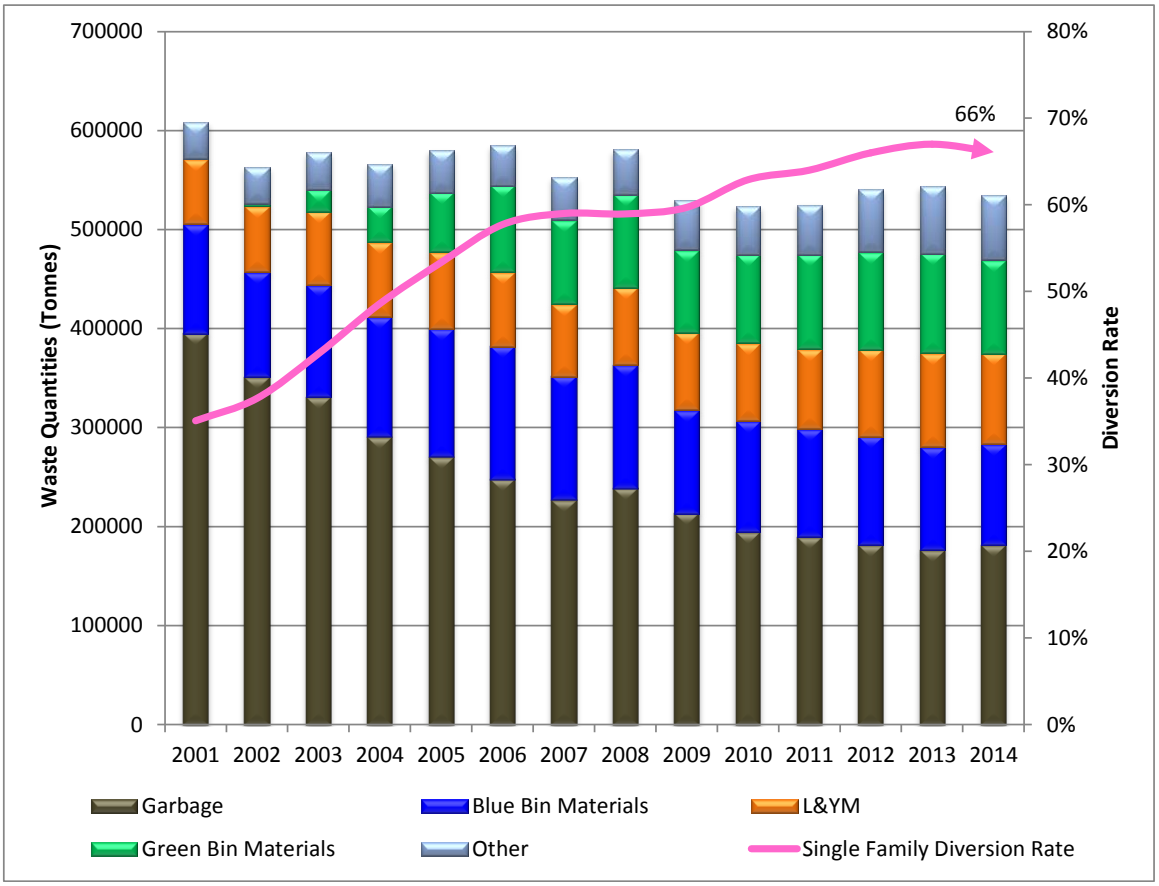
- Expansion of the Blue Bin program to include: polycoat containers (2001), tubs and lids (2005), cardboard cans (2006), paint and aerosol cans, polystyrene and plastic shopping bags (2009) and mixed rigid plastics (2012).
- The rollout of the Green Bin organics program from 2002 to 2006 to single family residential customers.

- The move in 2005 from a two-stream recycling system (Blue and Grey Box collection) to a single stream recycling system (Blue Bin collection)
- Introduction of the LCBO deposit return program in 2007.
- Introduction of a volume based rate structure for waste in 2008 for all multi-residential buildings receiving garbage collection from the City (July 1, 2008) and single family households (November 1, 2008).
- Start of the implementation of the Green Bin organics program in 2009 for multi-residential buildings.
- Provision of a diversion formula using WDO's GAP (Generally Accepted Principles) for municipalities to claim residential used tires diverted.
- Continually driving promotion and education efforts through new forms of education and outreach to the City's customers including additional efforts to encourage participation in diversion programs in multi-residential buildings.
- A number of weather related events which also affected waste diversion included; an early snowfall in 2007 which impacted the ability of crews to collect yard waste and a severe thunderstorm in July 2013 which caused flooding, power outages and major property damage to homes in Toronto.

The following figures show the contributions to residential diversion that single family residences and multi-residential buildings have had during the period from 2001 to 2014.

Figure 4-14 illustrates the overall downward trend in total quantities of waste generated with decreasing quantities of garbage and increasing diversion of additional materials. Overall, single family residences generated 608,416 tonnes of waste in 2001 which decreased to 534,645 tonnes in 2014. The single family residential diversion rate increased from 35% in 2001 to 66% in 2014.

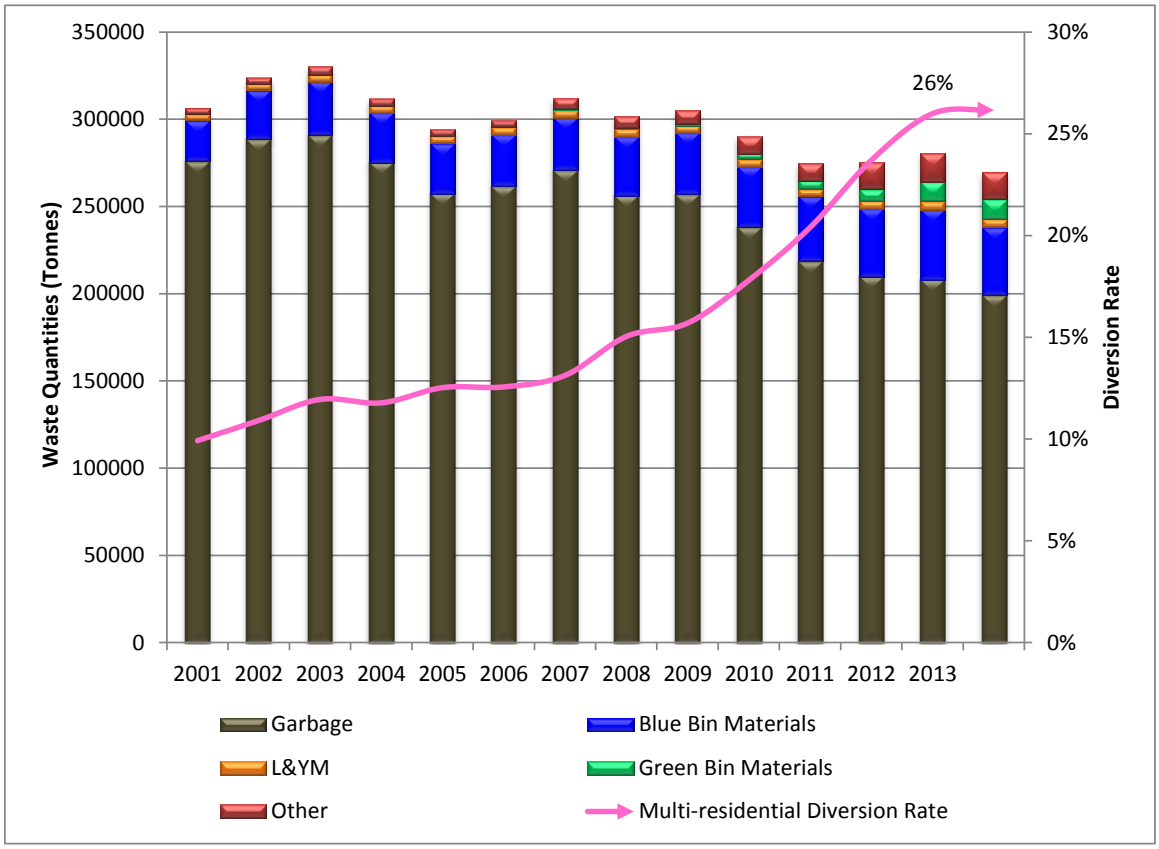
Figure 4-14: Single Family Waste Generated and Diverted (2001-2014)



***Source**: City of Toronto: 2001-2014 SF and MF Households Serviced*
**Primarily Single family, non-residential, schools*

Figure 4-15 presents a similar downward trend in the overall quantities of waste from multi-residential buildings and an upward trend in diversion rates. In 2001, multi-residential buildings generated 306,400 tonnes of waste; decreasing to 269,724 tonnes in 2014. The decrease in tonnage may be partially attributed to the loss of approximately 500 multi-residential buildings when the City implemented the volume based rate structure. The multi-residential diversion rate increased from 10% in 2001 to 26% in 2014. This represents only those materials collected by the City using its own employees or City-contracted service providers[14]. It is possible for multi-residential buildings to opt out of City collection services and arrange for private collection services.

Figure 4-15: Multi-residential Waste Generated and Diverted (2001-2014)

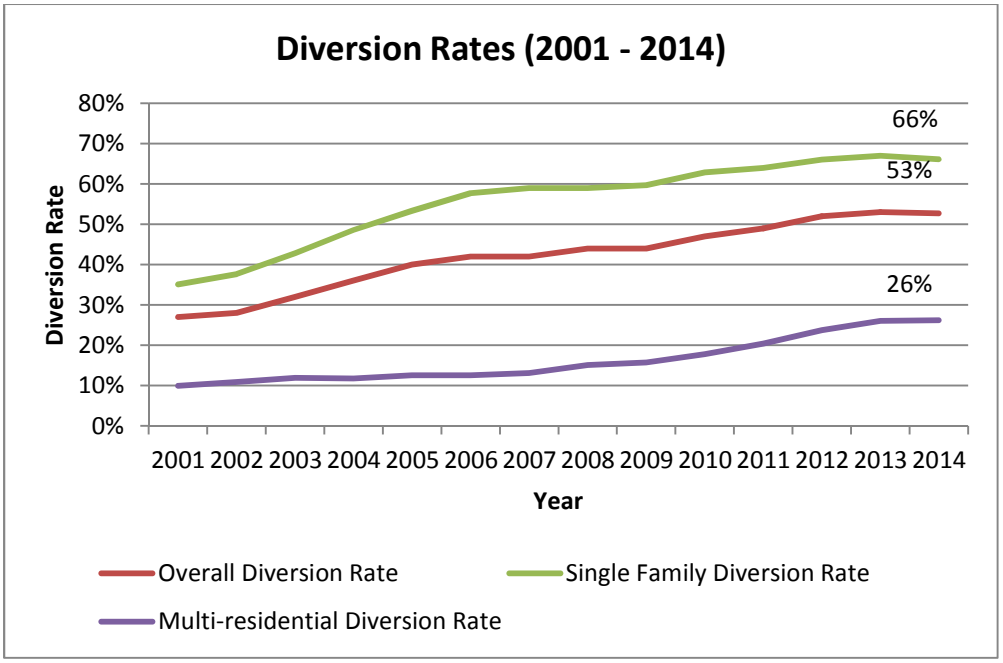


***Source**: City of Toronto 2001-2014_SF_MF_Households_Serviced*
**Multi-residential waste is collected in front-end bins and curbside bins.*

[14] Quantities of waste from multi-residential buildings not receiving City collection services are not included in these figures.

Figure 4-16 illustrates the large difference between single family and multi-residential diversion rates. The diversion rates of both sectors have been steadily increasing over the last 13-year period.

Figure 4-16: Waste Diversion Rates (2001-2014)



***Source**: City of Toronto 2001-2014_SF_MF_Households_Serviced*

5 Solid Waste Outreach, Education and Enforcement

The purpose of solid waste outreach, education and enforcement is to effectively communicate to the City's customers how to participate in the City's waste management programs and to encourage reduction, reuse and recycling of waste. Core activities include promotion and education, Community Environment Days and By-law enforcement. The following sections describe each of these components. More detailed information on these activities can be found in Appendix D.

5.1 Promotion and Education

The City offers comprehensive promotion and educational tools and resources to its customers, including:

- Videos
- Waste Wizard (online waste sorting tool)
- ReUseIt
- Collection calendars
- Live Green Toronto
- 311
- 3Rs Ambassador Volunteers
- Community Environment Day Events
- Speaking engagements
- Targeted campaigns and advertisements
- Multi-residential outreach

As part of its ongoing promotion and education efforts, the City maintains a comprehensive website (toronto.ca/recycle) which contains a variety of information for Houses, Apartments and Condos, Non-Residential (including Non-profits (Charities, Institutions, Religious Organizations), schools, Agencies and Corporations and commercial businesses) and Drop-Off Depots. The website is laid out with a general overview section and a "what goes where" section which provides information on acceptable and non-acceptable materials for Blue Bins, Green Bins, and Garbage as well as information on how to safely dispose of HHW and WEEE through City services. Detailed lists of acceptable and prohibited materials and information on collection and/or drop-off are available by clicking on the appropriate tab. The information on the website can be translated into 51 languages through Google Translate. The SWMS website is managed by City Strategic Communications staff, who manage content on the SWMS website, provide input on creative content related to communication initiatives, co-ordinate ad/media releases, and relations on behalf of the SWMS Division. Occasionally, design and creative services are contracted to an external consultant or advertising agency as required.

In addition to the online resources, the City also makes available printed resources such as posters, sorting guides which can be printed from the website, or hard copies ordered through 311.

In 2014, the largest service deliverables included:

- Various advertising campaigns;
- Direct mail campaigns to all residential customers;
- Annual calendars;
- 3Rs ambassadors;
- Community Environment Days;
- Website;
- Media relations;
- A multi-residential campaign; and,
- An IPSOS-Reid survey of multi-residential residents to help understand waste composition and participation behaviours.

In 2014, the City of Toronto budgeted approximately $3.1 million (or approximately $1.00 per resident) on communications activities related to solid waste education (SWMS 2014 Budget)[15]. Approximately half of the overall funding was dedicated to the multi-residential diversion program and the remaining half dedicated to single family residents and non-residential organizations. This amount is in line with the 2007 KPMG report on the Blue Box Program Enhancement and Best Practices Assessment Project that studied eight high performing Ontario municipalities and showed that similar municipalities with similar waste diversion rates spend, on average, $1.00 per household on promotion.

Further details on these programs, resources and awards that these initiatives have won can be found in **Appendix D**.

5.2 Community Environment Days

Community Environment Days are events which provide residents with alternative means to drop off reusable materials and safely dispose of HHW. In 2014, 43 events were; one event was held jointly for 2 wards from April and ending early in August due to the municipal election held in October 2014. (Typically, one event is held in each ward with a total of 44 events held from April to October).

[15] City of Toronto, June 4, 2013 Green Bin Implementation in Multi-Residential Buildings and Waste Reduction/Diversion Education Initiatives, PWIC Report

Community Environment Days are an important way to educate residents and promote SWMS programs and services. The events provide the following opportunities:

- Proper disposal of WEEE and HHW (e.g., computer equipment and peripherals, audio/visual equipment and peripherals, cleaning supplies, paint, batteries, residential cooking oil, etc.);
- Disposal of non-Blue Bin recycling materials, including donations for reuse or recycling (e.g., art supply materials for Artsjunktion[16], sporting goods, books, and small household items);
- Purchase/pick-up of backyard composters, Green Bins and kitchen containers;
- Pick-up of finished compost;
- Collection of non-perishable foods for donation to the food bank; and,
- Additional opportunities for City staff to promote and educate attendees about SWMS programs through face-to-face contact.

Table 5-1 summarizes the materials collected at the events held in 2014. Additional information about the events as well as historical tonnage diverted and participation can be found in **Appendix E.**

Table 5-1: Material Collected at Community Environment Days (kilograms) (2014)

Material Collected	(kg)
Goodwill Donations	68,792
Electronics	167,661
Tires	5,130
HHW	310,845
Food Donations	752
Donations to Artsjunktion (Toronto District School Board)	16,430
Total Weight	562,139

***Source**: City of Toronto (M. Kane), 2015*

5.3 By-law Enforcement

The City has enacted a number of By-laws that pertain to solid waste matters, namely Toronto Municipal Code Chapters 441, 442, 548, 604, 629, 841, 844, and 846, which may be used in situations where outreach, education and engagement have not been successful.

[16] Artsjunktion is a depot for receiving and distributing donated materials and supplies to be used in educational and creative programs within the Toronto District School Board.

The City's Municipal Licensing & Standards Division (ML&S) collaborates with SWMS to resolve By-law infractions where required. To a large extent, investigations into By-law infractions are complaint driven (especially for residential issues), however, ML&S may discover infractions by the commercial sector while out on duty (e.g. illegal dumping). Violations of the various City By-laws that pertain to solid waste matters can lead to prosecution by the City pursuant to the *Ontario Provincial Offenses Act* for set fines or other outcomes.

In 2013, the City's 311 customer service phone-in line received approximately 1.2 million calls resulting in almost 400,000 service requests[17]. Of these service requests, 39% were regarding solid waste issues and 10% were regarding enforcement of By-laws.

The following sections provide an overview of the relevant waste By-laws relating to waste transfer stations, collection services, packaging By-laws, and littering and dumping of waste. Additional details and descriptions of the By-laws can be found in Appendix D.

Enforcement at Waste Transfer Stations

SWMS staff at the weigh scales located at transfer stations have the first opportunity to interact with customers to find out what kind of waste is being transported and educate customers on the type of waste which is accepted at transfer stations. Chapter 846 – Waste Transfer Stations outlines how waste is to be handled at transfer stations and what types of waste are acceptable as well a description of how offences are handled (e.g. denied entry at transfer stations, fines etc.).

Enforcement of Collection Services By-laws

In general, the two By-laws related to residential and commercial collection services (Chapter 841 and 844) outline the City's responsibilities for collection of waste, as well as the responsibilities of their customers for set-out, containers, a description of prohibited acts and penalties (e.g. fines, discontinuance of service, recovery of expenses through taxes). Fees and rebates are also covered under these By-laws as well as the procedure for chute closure permits in multi-residential buildings.

The majority of non-compliances of the collection-related By-laws are enforced through placement of notices on collection bins or door hangers. Examples of notices and door hangers can be found in **Appendix D.** Collection

[17] City of Toronto, 311 Yearly Performance Metrics

operators place yellow notices on curbside bins if the following non-compliances are observed:

- Not out at the specified collection time (7 am or 9 pm);
- Overweight/oversized/overflow garbage;
- Household Hazardous Waste (HHW) – must remove immediately and call 311;
- Prohibited material/contaminated material;
- Recyclable materials not in Blue Bin;
- Not accepted in recycling or yard waste program;
- Special collection required;
- Inaccessible location;
- Wrong week to put out material; and/or,
- Bin could not be collected.

The most frequent non-compliances are for extra garbage bags that do not have the City-issued bag tag attached to it and the wrong bin set out for collection[18]. Other frequent non-compliances include bulky items, such as toilets, where the tank has not been separated from the bowl and sofa bed frames not being tied (to prevent it from springing open). Other common occurrences include cardboard boxes that have not been properly broken down and tied up and yard waste placed out that is not accepted (e.g. grass clippings and dirt).

Enforcement of Littering and Dumping By-laws

SWMS litter staff work actively with ML&S to resolve littering and illegal dumping infractions. ML&S will get involved to try to identify the parties responsible and issue fines if some identifying material is found in the litter/dumped material. In general, the By-law governing littering and dumping of refuse describes the prohibitions on littering, depositing and dumping of refuse, cleaning and clearing of refuse, how notices are served and how offences are handled (recovery of expenses through taxes and fines).

[18] Communication from M. Kane on July 7, 2014

6 Waste Reduction and Reuse

The City supports reduction and reuse of waste through a number of initiatives, including the following:

- Community Environment Days for reuse of items donated to local schools (e.g. art supplies, books, cameras etc.) and other items for reuse (e.g. sporting goods, books, small household items, textiles, eyeglasses etc.). Paint exchange centres are also offered at these events. See Section 5.2 for more information);
- Reuse Centres at HHW Drop-off Depots for reuse of donated HHW materials such as paint;
- Reuse of bins residents have exchanged for a different size bin;
- Toronto Green Standard;
- Participation in speaking events (e.g. Toronto Green Living Show);
- ReUseIt – Online guide to not-for-profit agencies accepting reusable items, lending libraries (Toronto Kitchen Library, Toronto Tool Library) and repair places (Repair Café and Toronto Clothing Repairathon);
- Promotion on the City's website; and,
- Promotion and education campaigns on reduction and reuse (e.g. single use packaging campaigns).

The SWMS staff are constantly exploring new opportunities to promote waste reduction and reuse opportunities to help reduce the amount of waste that requires collection, processing and disposal and thereby reduce costs and extend the life of valuable waste management infrastructure.

7 Waste Collection

This section provides a description of the waste streams managed by the City and a brief description of privately managed waste. The City collects a wide variety of waste materials to the residential and a portion of the non-residential sector. A description of the materials collected, method of collection and quantities are provided in the following sections.

7.1 Waste Collection Overview

SWMS provides collection of waste at the curb, at transfer stations, drop-off depots, and at Community Environment Days from the single family and multi-residential sectors, as well as from the non-residential sector. The City makes use of a 'user pay' system for garbage collection with subscription prices based on the size of bin chosen, frequency of collection, type of unit serviced, etc. Waste materials received at transfer stations and drop-off depots are charged a fee depending on the type and quantity of material delivered. Where possible, the City has moved to automate its collection system whereby collection containers are emptied by an automated arm positioned on the truck, versus manual loading of materials.

Table 7-1 presents an overview of the type of collection, frequency of collection and information about container ownership, rates and rebates. Approved 2014 rates associated with the various sizes of bins can be found in **Appendix F.**

Collection of each waste stream is more fully described in the following sections. Information on Community Environment Days has been previously discussed in Section 5.2.

Table 7-1: Waste Collection Frequency, Container, and Rates by Customer Type

Rule	Curbside Collection					Front End Collection	
	Residential			Non-Residential		Residential	Non-Residential
	Single Family	RUAC[19]	Multi-Residential	Commercial, Schools, Agencies & Corp.[20]	CIRO	Multi-Residential	Commercial, Schools, Agencies & Corp., CIRO
Garbage Frequency	Biweekly	Biweekly or 1x week	Bi-Weekly, 1x or 2x week	Biweekly, 1x or 2x week	Biweekly, 1x or 2x week	1x, 2x week	1x week
Recycling Frequency	Biweekly	Biweekly or 1x week	Bi-Weekly or 1x week	Biweekly or 1x week	Biweekly or 1x week	1x, 2x week	1x, 2x week
Organics standard frequency	1x week	1x week	1x week	1x week	1x week	1x week	1x week
Lead & Yard Waste	Seasonal Weekly (1x weekly)	n/a	Seasonal, Biweekly, (Curbside customers)	n/a	n/a	Seasonal (Call-in)	n/a
Premium Organics frequency options	Not available	Not available	Not available	2x, 5x or 6x week	2x, 5x or 6x week	Not available	Not available
Garbage and Recycling container purchase and replacement (ownership)	City	City	Customer	Customer	City	Customer	Customer
Rate basis	Subscription by number & size of bins.	Subscription by number & size of bins & frequency	Subscription by number & frequency	Subscription by number & frequency	Subscription by number & size of bins & frequency. Waiver for charities	Base rate per unit + excess yd^3	Per yd^3 Waiver for charities
Rebate basis	Per customer	Per customer	Per unit	None	None	Per unit	None

***Source**: Solid Waste Management Services, Information Model, Draft Common Understanding Deliverables, December 31, 2014 Collection Roles, Responsibilities and City Base of Operations*

[19] Can also be bag only. Not required to have bins.
[20] Can also use bags. Not required to use bins.

The City is divided into four collection districts (see Figure 1-4 for a map illustrating the collection districts). Collection from the residential and a portion of the non-residential sectors is conducted by a combination of City employees and City-contracted service providers as presented in Table 7-2.

Table 7-2: Summary of Waste Collection Roles

Sector Serviced	District 1	District 2	District 3	District 4
Single family[1]	✱	✱	●	●
Small multi-residential [1]	✱	✱	●	●
Large multi-residential [1]	✱	✱	✱	✱
RUAC	✱	✱	●	●
Non-residential	✱	✱	●	●
✱ City-contracted Service Providers				
● City Employees Collection Services.				

[1] *City-wide HHW collection (Toxic Taxi) is done by City Forces*

The City operates four solid waste collection yards located throughout the City. These yards serve a variety of functions including housing staff and equipment required for:

- Collecting Blue Bin recycling and/or garbage from litter bins located on sidewalks and bins located in parks;
- Manual collection of litter on City sidewalks (bag and broom);
- Collection of litter on sidewalks and near curb using power vacs;
- Street sweepers used to clean laneways;
- Night collection; and,
- Curbside collection in Districts 3 and 4.

Further information on the specific activities conducted at each yard can be found in **Appendix E**.

7.2 Customer Overview

The City provides solid waste management services (collection of Blue Bin recycling, Green Bin organics, Garbage, bulky materials, yard waste, WEEE, and, HHW) to the residential and non-residential sectors outlined in Table 7-3 below. It is important to note that all of these sectors are eligible for City services, however, some have "opted-out" of receiving this service and elected to retain a private contractor (e.g. some multi-residential buildings). Therefore, there is a portion of waste which is currently being managed by the private sector that the City does not track, nor does it currently have control over. This is further described in Section 7.12.

Table 7-3: Solid Waste Management Services Customers

Residential Sector	Description/Example
Single family	• semis, duplexes, rowhouses, and most small apartment buildings (less than nine units)
RUAC (Residential Units Above Commercial)	• residences (apartments) located above stores
Multi-residential	• nine or more units and generally include apartments, condominiums and some types of townhouses • small multi-residential buildings are those that receive curbside waste collection using wheeled bins • large multi-residential buildings are those facilities that use front-end loaded containers for waste collection
Non-residential Sector	**Description/Example**
Commercial businesses	• generally less than 4 floors and less than 500 square metres of ground floor space • must be eligible for and subscribe to the City's Yellow Bag program
Agencies and Corporations	• Boards of Management, TTC, Parks and Recreation, civic centres
Non-profits (Charities, Institutions and Religious Organizations)	• federally registered charities, incorporated non-profit and previously exempt institutions
Schools (not including post-secondary)	• Toronto District School Board, Toronto Catholic District School Board, and private schools

7.3 Blue Bin Recycling Collection

The City of Toronto operates a fully automated, semi-automated, and in some cases manual (where bag collection or cardboard collection occurs), single stream recycling program. Recycling collection is provided at no charge to those residential and non-residential customers receiving garbage collection by the City. Blue Bin recycling is also collected from parks, litter bins, and at drop-off depots located at transfer stations throughout the City.

A list of Blue Bin recycling materials accepted in the City's Blue Bin program can be found in **Appendix G**.

Table 7-4 presents the quantities of Blue Bin recycling collected from 2010 to 2014 from residential customers and a portion of the non-residential customers (serviced by the City), as well as from litter bins, parks, and at transfer stations and drop-off depots.

Table 7-4: Tonnes of Blue Bin Recycling Collected (2010-2014)

Source	2010	2011	2012	2013	2014
Residential and Non-Residential Blue Bin Recycling					
Curbside Collection (Single family, Non-residential, Schools, Non-profits)	153,680	144,915	140,258	140,171	137,205
Front-End Collection (Multi-residential, Schools, Agencies and Corporations)	44,518	48,621	53,786	55,415	55,776
Multi-residential Curbside Collection	12,979	11,802	7,055	7,964	8,104
Total Residential Blue Bin Recycling	**211,177**	**205,338**	**201,099**	**203,550**	**201,085**
Commercial (includes special events)	12,000	9,843	8,521	8,070	10,255
Litter Bins	1,346	2,123	2,216	2,242	1,883
Blue Bin Recycling from Parks	69	496	508	878	890
Total Non-Residential Blue Bin Recycling	**13,415**	**12,462**	**11,245**	**11,190**	**13,028**
Blue Bin Recycling Managed at Transfer Stations					
Agencies & Corporations/Non-profit Drop-Offs	868	640	606	561	635
Residential and Non-	808	737	729	797	941

Source	2010	2011	2012	2013	2014
Residential Drop-off					
Total Blue Bin Recycling Collected at Transfer Stations	**1,676**	**1,377**	**1,335**	**1,358**	**1,576**
Total Blue Bin Recycling Collected	***226,268***	***219,177***	***213,679***	***216,098***	***215,689***
Blue Bin Recycling - Tonnes Marketed	168,702	167,595	169,137	163,835	163,988

Source: *Appendix C – Tonnage Map*
Note: totals may not add due to rounding

Residential Blue Bin Recycling Collection

The following sections present an overview of Blue Bin recycling collection from single family residences, residential above commercial units (RUAC) and, multi-residential buildings.

a) Single Family

Blue Bin recycling is collected every other week at curbside. Residents may choose among four bin sizes which are provided at no charge by the City. Residents may exchange their Blue Bin for a different size, or may also order additional bins if the current capacity of the bin is not suitable.

b) Residential Units Above Commercial

RUAC residents may use either Blue Bins or clear bags for recycling depending on what the owner of the building has selected for type of collection. Property owners are responsible for ensuring tenants have sufficient containers. No bag tags are needed for recycling. Recycling is collected weekly, along with Garbage and Green Bin organics.

c) Multi-residential

Multi-residential buildings that receive garbage collection from the City receive Blue Bin recycling collection at no charge. The only cost is for the collection containers which must be provided by the facility; 360L (95 gallon) blue recycling bins can be purchased from the City. Blue Bin recycling collection from larger multi-residential buildings is predominantly carried out using front-end bulk collection containers due to the volume of Blue Bin recycling generated. For those buildings that cannot accommodate front-end bulk collection containers or generate less Blue Bin recycling, 360L (95 gallon) bins can be used instead (see Table 7-1 for frequency of collection). Customers must purchase their own containers.

City-contracted service providers and City employees collect Blue Bin recycling from:

- approximately 2,760 multi-residential buildings that use front-end bulk collection containers; and,
- approximately 1,781[21] small multi-residential buildings that use 360L (95 gallon) bins.

The majority of buildings receive weekly collection; however, approximately 117 buildings receive twice a week collection due to volume or storage issues. In total, 4,541 buildings receive Blue Bin recycling collection and must participate in the program to continue receiving service.

Commercial Blue Bin Recycling Collection

Those establishments participating in the City's Yellow Bag program must participate in the weekly collection of Blue Bin recycling (service provided at no charge). The City collects Blue Bin recycling in clear bags or recycling bins. Those establishments generating larger volumes of Blue Bin recycling (e.g. restaurants, bars) may be required to purchase a 360L (95-gallon) wheeled bin from the City at a cost of $98.93 (2014 approved rate) in order to participate. Establishments also have the opportunity to set out large volumes of cardboard.

Blue Bin Recycling Collection from Other Sectors

There are 750 schools and 700 Agencies and Corporations in the City participating in the Blue Bin recycling program. Schools, Agencies and Corporations receive weekly collection of Blue Bin recycling at no charge; these sectors are serviced by a City-contracted service provider.

There are approximately 1,100 Non-profits (Charities, Institutions and Religious Organizations) participating in the Blue Bin program. Depending on the size of the facility and the volume of Blue Bin recycling generated, either 95 gallon Blue Bins or front-end bins may be used; Blue Bins may be purchased from the City. Material may be collected by City employees or City contracted service providers depending on district and method of collection.

7.4 Green Bin Organics Collection

The City started rolling out the Green Bin organics program in 2002 to single family residences; and in 2009 to multi-residential buildings. With a goal of maximizing convenience and participation and diverting as much organic material as possible, the City allowed residents to use plastic liner bags (e.g.

[21] Information on number of buildings provided by R. Dello on March 17, 2015

regular plastic shopping bags) and included harder-to-process items such as disposable diapers, incontinence products, sanitary products and pet waste. See **Appendix E** for a list of acceptable and non-acceptable materials in the City's Green Bin organics program. The City is one of few municipalities in North America that collect this range of organic waste and is a direct result of the investment in anaerobic digestion processing technology.

Single family residences are provided with an indoor kitchen catcher and a 46L (12 gallon) Green Bin which is manually collected. Now that the City has moved to automated collection for its Blue Bin and Garbage waste streams, the City is pursuing a procurement process for larger Green Bins (75-90L) that can be used with automated collection. The City's next generation Green Bins for single family residences will be equipped with RFID (Radio Frequency Identification Device) tags for future tracking purposes.

Table 7-5 presents the types of collection containers used for the residential sector and the number of residences/buildings receiving collection.

Table 7-5: Number of Single Family Residences and Multi-residential Buildings Receiving Green Bin Organics Collection (2014)

Type of Residence	Collection Container	Number of Residences/Buildings
Single family residences	Wheeled 46L (12 gallon) Bins	460,303
Small multi-residential buildings*	Wheeled 120L (35 gallon) Bins	1,688 (35,229 units)
Large multi-residential buildings*	Front-end container (2-3 cu yds)	1,477 (201,459 units)

Source: *City of Toronto: correspondence from C. Ueta and M. Kane*

**Note: the City is currently in the process of implementing Green Bin organics programs at additional multi-residential buildings.*

Table 7-6 presents the tonnage of Green Bin organics collected from 2010 to 2014 from the residential and a portion of the non-residential sector. The majority of Green Bin organics collected curbside is generated by single family homes.

Table 7-6: Tonnes of Green Bin Organics Collected (2010-2014)

Source	2010	2011	2012	2013	2014
Curbside Collection (Single family, Non-residential, Schools, Non-profits)	105,178	112,716	116,033	118,597	111,364
Front-End Collection (Multi-residential, Schools, Agencies and Corporations)	2,969	4,850	6,549	8,067	9,963
Multi-residential Curbside Collection	930	876	1,525	5,612	3,427
Total Residential Green Bin Organics	**109,077**	**118,442**	**124,107**	**132,276**	**124,754**
Commercial (includes special events)	9,423	14,067	12,663	11,602	13,586
Total Non-Residential Green Bin Organics	**9,423**	**14,067**	**12,663**	**11,602**	**13,586**
Total Green Bin organics collected	118,500	132,509	136,770	143,878	138,340
Total Green Bin organics processed	108,331	125,614	129,129	131,751	130,970

Source: *Appendix C – Tonnage Map*
Note: totals may not add due to rounding

Residential Green Bin Organics Collection

The following sections present an overview of Green Bin organics collection from single family residences, multi-residential buildings, and, residential above commercial units (RUAC).

a) Single Family

The City provides Green Bin organics collection to single family residences on a weekly basis and provides collection containers at no charge. For single family Green Bin organics, there is only one container option.

b) Residential Units Above Commercial

Green Bin collection is offered to RUAC residents using the Bags system. The City will provide one free residential Green Bin (plus one kitchen catcher) to each RUAC property that is using the Bags system for Garbage. Property owners that require additional Green Bins for multiple units have to purchase additional Green Bins at their own expense. Green Bin

organics are collected weekly, along with Garbage and Blue Bin recycling. For RUAC Green Bin organics, there is only one container option.

c) Multi-Residential

For those multi-residential buildings receiving garbage collection, participation in the weekly Green Bin collection service is required. To encourage participation, the City provides Green Bin organics collection containers (front-end loaded containers or 35 gallon wheeled bins) at no charge.

Commercial Green Bin Organics Collection

For those establishments eligible to participate in the City's Yellow Bag program, the City collects Green Bin organics weekly at no charge. More than 6,000 commercial establishments are participating in the program. Material is collected in 120 L (35 gallon) Green Bins which must be purchased by the business receiving collection. They can be purchased from the City for $64.01 each (2014 approved rate). Those establishments generating larger quantities of Green Bin organics (e.g. grocery stores, restaurants) can apply for additional collections for an additional fee. See Table 7-1 for frequency of collection and **Appendix F** for the 2014 rates.

Green Bin Organics Collection from Other Sectors

The City collects material from Agencies and Corporations and Non-profits (Charities, Institutions and Religious Organizations) and has started rolling out the Green Bin organics program to schools. The City conducts site visits to determine what type of bin is required (front end bin or 120 L (35 gallon)) and where the bins will be located for collection. The City provides educational literature to schools and provides opportunities to educate caretaking staff. Schools either buy their own bins or they can purchase them from the City. The Toronto District Catholic School Board purchases Green Bins from the City; the Toronto District School Board purchases their bins from a private contractor. Material can be collected in either 2 yd^3 front end bin, 46L (13 gallon) or 120L (35 gallon) Green Bins; the City sells the 120L (35-gallon) carts at a cost of $64.01 (2014 approved rate).

See **Appendix F** for the 2014 rates for those customers requiring collection of Green Bin organics more than once weekly.

7.5 Garbage Collection

The City operates a fully automated, semi-automated, and in some cases manual (i.e. bag collection), garbage collection system from the residential sector and a portion of non-residential sector. The following, Table 7-7 presents the breakdown of customer types, the type of collection container used and the number of units receiving garbage collection services in 2014.

Table 7-7: Number and Type of Units Receiving Garbage Collection (2014)

Customer Type	Collection Container Type	2014 Units
Single family Residences		
Single family	Bins	447,320
Single family	Bags	1,627
RUAC (Residential Units Above Commercial)	Bins	5,666
RUAC	Bags	5,689
Total single family units		460,303
Multi-residential buildings		
Large multi-residential (front-end collection)	Front-end Containers (e.g. 4.6 to 7.6 m^3 (6 to 10 $yard^3$ bins)	373,573 (2760 buildings)
Small multi-residential (curbside collection)	360L (95 gallon) wheeled bins	43,242 (1781 buildings)
Total multi-residential units		416,815[22]
Total residential units		877,118
Non-residential	Yellow Bags or 360L (95 gallon) wheeled bins	14,159
Total Number of Units Receiving Garbage Collection Service		895,341

Source: *City of Toronto: 2014 SWM Residential Unit Count*

[22] As noted above, this number does not include the units currently serviced outside the City's system by the private sector.

Table 7-8 presents the tonnes of garbage collected from 2010 to 2014 from residential and non-residential sources, litter bins, garbage managed at transfer stations, and processing residue.

Table 7-8: Tonnes of Garbage Collected (2010 – 2014)

Source	2010	2011	2012	2013	2014
Tonnes of Residential and Non-Residential Garbage					
Curbside Collection (Single family, Non-residential, Schools, Non-Profits)	150,257	144,724	135,805	137,154	136,935
Front-End Collection (Multi-residential, Schools, Agencies and Corporations)	217,170	199,817	190,561	189,582	181,382
Multi-residential Curbside Collection	28,841	26,863	27,893	22,970	24,310
Total Tonnes Residential Garbage Collected	396,268	371,404	354,258	349,706	342,627
Commercial	5,000	4,862	4,641	13,720	13,470
Street Litter Bins	3,119	2,585	2,491	2,631	4,921
Parks Litter Bins	754	2,970	3,194	3,474	3,240
Total Tonnes Non-Residential Garbage Collected	8,873	10,417	10,326	19,825	21,631
Total Garbage Collected	**405,141**	**381,821**	**364,584**	**369,531**	**364,258**
Garbage Managed at Transfer Stations					
Agencies & Corporations/Non-profit Drop-Offs	23,177	27,578	20,988	16,890	16,329
Street Sweepings collected by Transportation Division				14,071	20,125
Garbage from Residential and Non-Residential Drop-off (Paid Tonnes)	67,699	63,201	64,927	68,554	77,411
Total Tonnes Garbage Managed at Transfer Stations	**496,017**	**472,600**	**450,499**	**469,046**	**478,123**
Processing Residue	55,894	51,932	51,019	56,110	47,166
Total Tonnes Garbage Inbound	**551,911**	**524,532**	**501,517**	**525,155**	**525,289**
Difference between Inbound and Outbound	8,327	1,219	437	517	840
Total Tonnes Garbage Outbound	**560,238**	**525,752**	**501,954**	**525,672**	**524,449**

Source: *Appendix C – Tonnage Map,*
Note: totals may not add due to rounding

In general, quantities of garbage collected decreased during the period from 2010 to 2012. In 2013, the City experienced two severe weather events - flooding in the summer and an ice storm in the winter - that caused significant damage to homes and trees. During the clean up in 2013, almost 5,000 tonnes of flood-damaged goods and food were collected, predominantly from single family residences. There was also an increase in the amount of garbage managed at transfer stations from residential and non-residential sources in 2013; this could be attributed to the special pick-up of damaged goods by SWMS.

Also affecting the overall tonnage of garbage managed in 2013 and 2014 are the tonnes of street sweepings which are now managed by SWMS. In the past, Transportation Services Division was responsible for this material with disposal being handled by a private contractor. In 2013 street sweepings became a new revenue stream for SWMS. Street sweepings are accepted at transfer stations and disposed of at Green Lane Landfill.

In 2013, there was an increase in residue from Blue Bin recycling, Green Bin organics and the Reuse Centre which may be attributed to a number of causes, including:

- Addition of mixed rigid plastics to the program;
- Commissioning of the Arrow Road MRF;
- Changes in how residue was handled at the contract facility; and/or,
- Addition of a significant number of multi-residential buildings to the Green Bin organics program.

Residential Garbage Collection

The following sections present an overview of garbage collection from single family residences, residential above commercial units (RUAC) and multi-residential buildings.

a) Single Family

Garbage is collected in grey City-issued garbage bins every other week on a four-day (Tuesday to Friday) collection schedule. Homeowners are allowed to put out excess garbage provided it is tagged with a City-issued bag tag. Bag tags are available for purchase from Canadian Tire stores (the City's current contracted vendor) across the city at a cost of $3.19 each (2014 approved price). There are certain conditions under which the City allows residents to put out garbage in regular bags instead of bins (without a tag). This occurs primarily in the downtown core due to storage issues

and each instance of the use of bags instead of bins must be approved by the City.

b) Residential Units Above Commercial

Residential Units Above Commercial (RUAC) properties owners have the choice of using bins or bags. If RUAC owners choose to use bags, they must either purchase Bag Tags or Yellow Bags for garbage. These types of residential units are provided with weekly and every other week collection depending on their collection route for the area. Collection for most RUAC customers takes place at night on a weekly basis.

c) Multi-residential

Depending on the size and configuration of the multi-residential building, garbage is either:

- collected in 360L (95 Gallon) curbside wheeled bins; or,
- collected using large front-end loaded containers ranging in size from 1.5 to 7.6 m^3 (2 to 10 $yard^3$)

Each approach has varying frequencies depending on the needs of the facility as shown in Table 7-1. The City does not provide bins, or front-end bulk bins.

Commercial Garbage Collection

The City provides garbage collection services to 14,159 commercial establishments[23] through the "Yellow Bag" program. Participating businesses must register with the City and purchase Yellow Bags for garbage from Canadian Tire stores (The City's current contracted Vendor) across the City at a cost of $3.19 each (2014 approved price); weekly collection of Blue Bin recycling and Green Bin organics is provided at no cost. Waste is generally collected at night from 8:45 p.m. to 6:45 a.m.

Commercial customers must use Bag Tags for small bulky items that do not fit into a Yellow Bag. The City does not provide collection of large bulk items from the commercial sector or white goods; they must make their own arrangements for collection and disposal of bulky items, HHW and WEEE.

For those businesses generating larger quantities of garbage and participating in the Yellow Bag program, the City offers a 360L (95-gallon) garbage bin for $98.93 (cost for the actual bin purchase, approved 2014 rate) and more

[23] Commercial establishments participating in the Yellow Bag program generally occupy less than 4 floors and less than 500 square metres of floor space.

frequent collection (See Table 7-1 and Table 7-7 for more details and Appendix F for 2014 approved rates).

Garbage Collection from Other Sectors

The City also provides garbage collection services for Agencies and Corporations, schools, and Non-profits (Charities, Institutions and Religious Organizations). Agencies and Corporations can purchase Blue Bins, Green Bins, and Garbage bins from the City. All of these customers can participate using bags, bins or front end collected bins. Collection ranges from once, twice or every other week. (See Table 7-1 for more details about collection). Schools can either purchase their own bins based on City specifications if they have secured their own contracts or can purchase their Blue Bins and Green Bins from the City.

7.6 Yard Waste Collection

Curbside collection of yard waste is provided every other week, on garbage collection day, from mid-March into December. Yard waste collection from multi-residential buildings is available upon request. Yard waste is also accepted from the public at the drop-off depots.

Christmas trees are collected on two separate occasions in January at the curb on the regular garbage collection day single family residences and multi-residential buildings. On average, the City collects about 100,000 trees each year which are hauled to the City's transfer stations and sent to the City's yard waste processors.

The City offers finished compost produced by the City's contracted processors from Green Bin organics and yard waste free of charge. It is provided to residents from April to October at Community Environment Days and is provided on a first-come, first-served basis at advertised Transfer Stations.

Table 7-9 presents the tonnes of yard waste collected from 2010 to 2014.

Table 7-9: Tonnes of Yard Waste Collected (2010-2014)

Source	2010	2011	2012	2013	2014
Yard waste collected curbside	67,022	68,333	70,385	74,850	90,438
Other Municipal/ Agencies & Corporations/Non-profits drop-offs	15,985	14,867	19,052	20,356	22,688

Source	2010	2011	2012	2013	2014
Yard waste dropped off at Transfer Stations (paid tonnes)	4,628	5,660	7,830	8,373	13,098
Asian Longhorn Beetle (ALHB) Contaminated Material[24]	12,855	10,754	10,500	0	7,122
Total Yard Waste Managed	**100,490**	**99,614**	**107,767**	**103,580**	**133,346**
Total Yard Waste Processed (incl. ALHB)	98,423	94,567	106,147	99,755	124,472

Source: *Appendix C – Tonnage Map*
Note: totals may not add due to rounding

Further information on the City's yard waste program, including acceptable materials, can be found in **Appendix** E.

7.7 Durable Goods, Bulky Waste Program, White Goods and Metals Collection

Curbside collection of durable goods and items that do not fit in the garbage bin is provided by the City at no charge; no appointment is required.

Table 7-10 presents the tonnage of materials either collected at the drop-off depots located at the transfer stations or collected curbside and transported to the transfer stations/drop-off depots. For example, corrugated cardboard (OCC) is collected from commercial establishments during night collection, white goods and scrap metal are collected curbside and transported to the transfer stations. Other materials can be dropped off at the transfer stations by residents and a portion of the non-residential sector including; scrap metal (auto parts, tools, pipes, cable, lawnmowers, bicycle frames, large and small appliances), tires and books.

[24] In April 2013, it was determined that no ALHB had been seen in five consecutive years and the quarantine was lifted. Then in late fall 2013, a beetle was found in Mississauga which affected the West end of the City only and a new quarantine was implemented.

Table 7-10: Tonnes of Durable Goods Collected Curbside and at Depots (2010-2014)

Material	2010	2011	2012	2013	2014
Porcelain	229	578	316	554	377
Carpet			72	66	
Mattresses	1,330	1,814	1,468	2,731	1,119
Clean Wood	9	10	14	1	
Plastic Bins	119	22	26	23	30
Bulky Rigid Plastic	68	96	54	45	58
Drywall		630	574	642	512
OCC (Nights)	815	5,427	5,338	5,037	5,206
White Goods/Scrap Metal[1]	5,827	2,563	2,021	2,350	2,733
White Goods/Scrap Metal[2]	3,015	38	23		
Election Signs	12	3		-	38
Books	12	34	7	-	
Roofing Materials	76				
Tires (incl. E. Days)		143	109	98	107
Total Material Collected	15,278	14,625	13,780	12,560	11,664

***Source**: Appendix C – Tonnage Map*
[1] Single family, Small multi-residential – Collected by City staff, direct delivery to Transfer Station
[2] Large multi-residential – Collected by Contractor, note that starting in 2013, these tonnes are no longer tracked separately
Note: totals may not add due to rounding

Further information on the City's durable goods program can be found in **Appendix E**.

7.8 Renovation and C&D Waste Collection

The City does not collect renovation, construction or demolition (C&D) waste at the curb and receives these types of materials only at its transfer stations (See Section 8 for more information).

7.9 Waste Electrical and Electronic Equipment (WEEE) Collection

Waste Electrical and Electronic Equipment (WEEE) is accepted at the drop-off depots, at Community Environment Days and is collected curbside by the regular collection service provider in the same vehicle that collects bulky goods. Curbside collection is available to single family residences and multi-residential buildings; no appointment or tags are required. Residents can put out WEEE for collection in marked boxes or bags which are available from the

City. Collected material is recycled through approved processors as part of the Province's stewardship program.

Table 7-11 presents the tonnage of WEEE collected from 2010 to 2014. A City-contracted service provider (which must be registered as part of the stewardship program) processes the City's WEEE.

Table 7-11: Tonnes of WEEE Collected (2010-2014)

Source	2010	2011	2012	2013	2014
Residential Curbside (including Multi-residential in-house)	840	798	178	288	40
Large multi-residential buildings	13	52	27		54
Drop-off depots/Environment Days	994	905	774	566	843
Total Electronics	1,847	1,755	979	854	937

***Source**: Appendix C – Tonnage Map*
Note: totals may not add due to rounding

A list of acceptable items can be found in **Appendix E.**

7.10 Waste Tire Collection

With the introduction of the Ontario Tire Stewardship Program, the City manages far fewer tires. The City entered into an agreement with Ontario Tire Stewardship for the collection and hauling of used tires in 2009 in order to receive funding.

Tires are accepted at drop-off depots only and are not collected at the curb. Additional details on how tires are collected can be found in **Appendix E.**

In 2014, the City collected 107 tonnes of tires[25]. See Table 8-2 for further information for the quantity of tires collected as part of the material collected at the depots.

The City estimates tire diversion at 7.1kg per capita which, based on the current population, resulted in an estimated 19,043 tonnes of tires diverted in 2014.

[25] City of Toronto, C. Ueta.

7.11 Household Hazardous Waste Collection

The City of Toronto offers a range of opportunities for residents to safely and conveniently dispose of Household Hazardous Waste (HHW). HHW is collected at the drop-off depots at transfer stations, Community Environment Days and at the curb through the City's "Toxic Taxi" service. Additional details on HHW collected through Community Environment Days and the Toxic Taxi program can be found in **Appendix E.** Residents may also dispose of HHW at any of the collection sites identified through the Orange Drop Program, which is run province-wide by Stewardship Ontario. *(www.makethedrop.ca*)

In 2014, the City collected 2,185 tonnes of HHW which includes HHW; picked up by the Toxic Taxi, dropped off at transfer stations and 336 tonnes collected at Community Environment Days.

7.12 Privately Managed Waste

In addition to the waste materials managed by the City, a substantial quantity of waste from the following three sectors is privately managed by the private sector outside of the City of Toronto system:

- A portion of Multi-residential waste;
- The majority of Industrial, Commercial and Institutional (IC&I) waste; and,
- The majority of Construction and Demolition (C&D) waste.

Although the City is not obligated or mandated to provide collection to the sectors mentioned above, a portion of the waste stream generated by these sectors could potentially require management by the City under certain circumstances. A discussion of privately managed waste is included in this Technical Memorandum in order to provide a complete picture of the waste currently managed within the City's geographic boundaries and other sources of waste which the City may either manage, or have some influence over in the future. More detailed information on privately managed waste can be found in **Appendix G**.

Private Waste Management Services Overview

The private sector waste management industry in Ontario is very competitive, with a reported 483 businesses offering the following services:

- Waste collection;
- Recycling/processing;
- Transfer; and,
- Disposal.

Private sector firms provide collection of garbage and recycling and other services to municipalities (including the City of Toronto) as well as commercial customers in many cities, towns and villages in Ontario.

There are at least 60 waste transfer stations and material recovery facilities in the Toronto area which are owned and operated by the private sector.

Multi-residential Waste

Many (but not all) multi-residential buildings within the City of Toronto receive waste management services from the City. Approximately 4,500 multi-residential buildings receive waste collection services from the City. Data provided by the City's Planning Department indicates that there are 5,000 to 6,000 multi-residential buildings accounting for approximately 55% of dwelling units in the City of Toronto. Based on the above, and information from the 2015 tax roll, it is assumed that between 500 and 1,500 buildings, or approximately 200,000 units utilize private waste management services instead of City services. Multi-residential buildings that do not receive City waste management services are those where:

- The building management has opted out of the City's waste services; or,
- The building does not comply with the City's eligibility criteria to receive municipal waste collection services.

In July 2008, the City of Toronto introduced the Multi-Unit Residential Volume Based Solid Waste Management Fee to provide a financial incentive for building owners to reduce waste, and to provide the financing to establish the infrastructure required to meet the City's 70% waste diversion objective. The program targeted all multi-residential buildings, with nine or more dwelling units that were receiving front-end bin garbage collection services. The City estimated that approximately 500 multi-residential buildings switched to a private service provider as a result. The fee structure was revised in 2010, adopting a linear rate structure in an effort to be more competitive and reduce the number of facilities switching to private service providers. This resulted in a number of multi-residential buildings returning to City services.

In order for Multi-residential buildings to receive waste management collection services from the City they must meet certain design requirements. SWMS also applies the requirements to existing buildings seeking to move from private waste collection to City service. New developments and existing buildings requesting City waste management services must submit site plans and other information to SWMS staff in order to determine if they meet the City's requirements relating to accessibility and waste diversion services.

Industrial, Commercial and Institutional (IC&I) Waste

Historically (i.e. more than 20 years ago) most IC&I waste generated in Ontario was disposed in local municipal landfills. In recent years, municipalities in Ontario and throughout Canada have adopted a "hands off" approach to IC&I waste management, as they consider IC&I waste to be adequately managed by private sector haulers and waste service providers. As a result, establishing the precise quantity and composition of the IC&I waste stream generated within Toronto is problematic due to the absence of a comprehensive tracking and reporting system for IC&I waste in Ontario.

Based on its 2010 Waste Management Industry Survey (published in August 2013) Statistics Canada reported that 6 million tonnes of "non-residential" waste (which includes both IC&I and construction and demolition (C&D) waste) was disposed from non-residential sources in Ontario in 2010. If it is reasonable to assume that 70% of the non-residential waste is IC&I waste and 30% is C&D material, and Toronto represents 20% of the provincial population; it is estimated that up to 840,000 tonnes of IC&I waste and 360,000 tonnes of C&D waste could be disposed from Toronto sources annually.

Currently, the City of Toronto provides collection services to this sector for a fee through the provision of waste collection to businesses that meet specific criteria on main city streets (the Yellow Bag program), as well as paid drop-off service at transfer stations.

Some IC&I generators in Toronto have waste diversion programs in place, particularly for valuable and easily recyclable materials such as cardboard and metal. Most of the IC&I waste generated in Toronto is managed through a network of private sector transfer stations located within the City, as well as other private transfer stations located close to Toronto. Transfer stations have become an increasingly important part of the IC&I waste management infrastructure since export to rural Ontario and the United States has become a significant component of the waste management system. The regulatory oversight of these private sector facilities and flow of IC&I waste across the border is the responsibility of the Province of Ontario through the Ministry of the Environment and Climate Change and the Federal government.

Construction and Demolition (C&D) Waste

Wastes generated as a result of construction and demolition (C&D) activities come from various sources and can include a wide range of materials such as:

- Drywall;
- Wood;
- Steel;
- Renovation wastes;
- Bricks and concrete;
- Masonry, tile, glass;
- Soil and aggregates;
- Asphalt;
- Shingles;
- Wire; and,
- Other materials

Roll-off containers are typically used for collection of C&D waste as many of the materials are bulky, non-compactable wastes such as wood, concrete, brick construction waste, and cardboard. These bins can be used for source separated materials at the construction or renovation site or as mixed waste bins that are sent to C&D mixed waste recycling facilities or to waste transfer stations. Most C&D projects use private sector facilities to recycle or dispose of their waste.

As mentioned in the previous section, it is estimated that there are approximately 360,000 tonnes of C&D waste generated annually within the City of Toronto.

Currently, the City only diverts limited quantities of drywall, and accepts other C&D waste from smaller renovation companies for a fee at transfer stations.

7.13 City Beautification Program

The City services approximately 18,500 litter and recycle bins, predominantly through its “Clean and Beautiful City” program. The main features of this program include:

- Coordinated street furniture program;
- Litter pickers;
- By-law enforcement officers to help prevent illegal dumping;
- Dedicated Clean City Beautiful City Roundtable;
- 20-Minute Toronto Makeovers;
- Community Clean-Up days;
- Neighbourhood beautification initiatives; and,
- Working with other City Divisions to support existing and new projects that contribute to a cleaner and more beautiful City.

Litter Bin Collection

Waste is collected from litter bins by SWMS, the litter bins are maintained by Astral Media as part of the street furniture agreement between Astral Media and the City in exchange for advertising rights on the street furniture.

Litter Pick-up

SWMS are responsible for litter pickup on the sidewalks. For any type of litter pick-up beyond the regular collection from bins and special events, requests for litter pick-up are coordinated through a 311 service request.

SWMS is also involved in the numerous special events taking place in the City every year. In 2014, the City was involved in over 900 events; about 25 of the largest events produced approximately 80 tonnes of Blue Bin recycling and 35 tonnes of Green Bin organics. Overall, for 2014, the waste diversion rate for special events increased to 57% compared to 36% in 2012.

For special events, whether it is a street festival or a run/walk, a waste management plan is required. Each large event is monitored by SWMS staff to ensure general cleanliness is maintained throughout the event and to ensure the Blue Bins and Green Bins are not being contaminated with garbage. The City provides 30m^3 (40 cubic yard) recycling roll off bins, recycling and organic bins and clear plastic bags to encourage waste diversion for larger events. The event organizer is responsible for hiring contractors to maintain general cleanliness of the event area throughout the event until the road reopens as well as to dispose of any garbage generated.

Parks Bins

Waste collection in parks is predominantly conducted by SWMS utilizing similar containers used for curbside collection. Wire basket litter bins are occasionally used in the interior of parks and collected by Parks, Forestry and Recreation staff since it is difficult for the automated collection vehicles to access the bins.

8 Waste Drop-off and Transfer

The City owns and operates seven transfer stations (see Figure 1-4 for locations within the City) which accept waste from collection vehicles for transfer to other facilities and serve as drop-off depots for additional types of waste from residents and small commercial haulers. In general, the City's transfer stations are used to transfer Blue Bin recycling, Green Bin organics, yard Waste, and Garbage[26]. In combination with some of the City's transfer stations, drop-off facilities for residential customers are also provided. These facilities provide an opportunity to residents to dispose of additional materials, typically at no charge. Please see Table 8-1 for materials accepted at the City's transfer stations.

Additional details for each transfer station and drop-off depot including; operating hours; items accepted; Environmental Compliance Approval (ECA) conditions; and, quantities of material managed in 2013 can be found in **Appendix H**.

Table 8-1: Materials Accepted at Transfer Stations

Material	Bermondsey	Commissioners	Disco	Dufferin	Ingram	Scarborough	Victoria
Garbage	✓	✓	✓	✓	✓	✓	✓
HHW	✓	✓	✓		✓	✓	✓
Electronic Waste	✓	✓	✓		✓	✓	✓
Yard Waste	✓	✓	✓	✓	✓	✓	✓
Blue Bin recycling	✓	✓[1]	✓		✓	✓	✓
Drywall (up to one tonne)	✓	✓			✓		
Tires (up to 5)	✓	✓		✓	✓		
Scrap metal	✓	✓			✓		

[1] *Residential Drop-off only*

[26] Due to space constraints, the Commissioners Street transfer station[26] only accepts garbage from collection vehicles and does not accept Blue Bin recycling or Green Bin organics from collection vehicles. All Blue Bin recycling or Green Bin organics originating in this area are taken to the Bermondsey Transfer Station.

The following Table 8-2 presents a detailed breakdown of the tonnages of material collected at each transfer station in 2014.

Table 8-2: Tonnes of Material Managed at each Transfer Station (2014)

	Berm. TS	Comm. TS	Disco TS	Duff TS	Ingram TS	Scar. TS	Vic. Park TS	Total
Agencies, Boards and Commissions								
Drywall - clean off cut	0	0	0	0	1	0	0	**1**
Garbage	106	398	111	2	124	189	43	**972**
Old Books	0	0	0	0	0	2	0	**2**
Scrap Metal / White Goods	1	30	0	0	16	0	0	**47**
Blue Bin Materials	30	3	0	0	40	184	0	**257**
Tires - Passenger	0	0	0	1	1	0	0	**2**
Woodchips	0	37	58	0	8	10	110	**223**
Yardwaste	0	123	49	0	69	43	58	**342**
Total	**137**	**590**	**219**	**3**	**258**	**428**	**211**	**1,846**
City Divisions								
Christmas Trees	1	0	0	0	0	0	0	**1**
Corrugated Plastic Election Signs	7	5	3	0	7	7	2	**31**
Garbage	94	775	351	109	124	327	36	**1,817**
Logs/Branches (> 3")	0	0	3	0	0	0	0	**3**
Scrap Metal / White Goods	2	33	0	25	4	0	0	**64**
Blue Bin Materials	43	0	18	0	13	7	0	**81**
Street Sweepings	65	276	403	0	1,707	29	200	**2,680**
Tires - Passenger	0	0	0	19	0	0	0	**19**
Woodchips	1,591	1,995	4,137	1,703	268	1,635	5,896	**17,225**
Yardwaste	551	1,468	530	291	4,420	740	539	**8,539**
Total	**2,353**	**4,554**	**5,444**	**2,146**	**6,544**	**2,746**	**6,673**	**30,460**
Collection Services								
Christmas Trees	289	20	132	17	245	0	37	**741**
DGMS (Alternate Stream)	1,667	1,226	4,131	841	1,007	4,812	5,139	**18,824**
DGMS Durable Goods Mtrl Strm	0	2,168	0	0	0	0	0	**2,168**
eWaste	0	22	0	0	24	0	9	**54**
Garbage	76,252	36,175	47,481	32,377	82,604	41,930	26,472	**343,290**
Mattresses & Boxsprings	0	566	0	0	97	38	200	**901**
Mattresses and Boxsprings (Alternate Stream)	139	1	0	0	300	123	410	**973**
Old Corrugated Cardboard (OCC)	3,520	0	0	0	1,687	0	0	**5,206**
Green Bin Materials	41,905	2	18,130	1,166	40,492	31,415	5,230	**138,339**
Scrap Metal / White Goods	9	33	0	5	29	0	0	**76**
Blue Bin Materials	67,473	48	28,682	16,011	55,527	30,743	15,630	**214,113**
Street Sweepings	81	0	21	0	1,049	0	18	**1,169**
Tires - Passenger	0	0	0	0	0	0	0	**0**
Woodchips	2	0	0	0	0	0	0	**2**
Yardwaste	24,728	2,674	7,886	4,334	22,039	15,427	5,058	**82,146**
Total	**216,065**	**42,935**	**106,464**	**54,751**	**205,099**	**124,488**	**58,202**	**808,004**

	Berm. TS	Comm. TS	Disco TS	Duff TS	Ingram TS	Scar. TS	Vic. Park TS	Total
SWM Roll-off Operations								
DGMS Durable Goods Mtrl Strm	0	26	0	0	0	0	0	**26**
eWaste	0	143	0	0	0	0	0	**143**
Garbage	1,747	3,275	204	169	1,212	1,151	328	**8,086**
Scrap Metal / White Goods	0	168	8	147	34	7	1	**364**
Blue Bin Materials	37	26	0	0	5	1	0	**69**
Street Sweepings	1,296	4,171	946	628	5,554	1,956	1,725	**16,276**
Tires - Passenger	0	5	2	6	0	0	0	**13**
Yardwaste	53	58	0	0	31	107	34	**283**
Garbage	116	988	332	40	184	5	2	**1,667**
Scrap Metal / White Goods	0	18	6	0	5	0	0	**29**
Blue Bin Materials	114	6	31	0	2	0	0	**153**
Yardwaste	0	105	5	6	117	0	0	**232**
Total	**3,362**	**8,988**	**1,535**	**996**	**7,143**	**3,226**	**2,090**	**27,340**
Private								
Christmas Trees	0	1	0	0	0	0	0	**1**
Drywall - clean off cut	1	0	0	0	1	0	0	**1**
Garbage	889	146	164	156	613	509	932	**3,410**
Blue Bin Materials	1	0	4	0	0	76	7	**87**
Tires - Mixed Passenger/Commercial	0	0	0	0	0	0	0	**0**
Tires - Passenger	2	0	0	0	0	0	0	**2**
Woodchips	689	62	20	21	89	741	473	**2,096**
Yardwaste	105	192	402	61	99	115	326	**1,299**
Total	1,**686**	**401**	**590**	**238**	**802**	**1,440**	**1,738**	**6,896**
Private Cash								
Christmas Trees	1	0	0	0	0	0	0	**2**
Corrugated Plastic Election Signs	0	0	0	0	0	0	0	**1**
Drywall - clean off cut	169	32	0	0	150	0	0	**351**
Garbage	23,103	7,693	3,334	708	15,347	15,461	8,355	**74,001**
Scrap Metal / White Goods	58	14	0	0	27	0	0	**99**
Blue Bin Materials	205	79	50	0	311	131	76	**853**
Tires - Passenger	21	3	0	10	11	0	0	**44**
Yardwaste	1,967	625	557	917	2,084	1,818	1,732	**9,700**
Total	**25,525**	**8,446**	**3,941**	**1,635**	**17,930**	**17,411**	**10,162**	**85,051**
Non-Profits								
Drywall - clean off cut	0	0	0	0	1	0	0	**1**
Garbage	610	46	506	65	515	3,221	1	**4,964**
Scrap Metal / White Goods	0	0	0	0	0	0	0	**0**
Blue Bin Materials	1	1	1	2	0	0	0	**6**
Tires - Passenger	1	0	0	1	0	0	0	**2**
Yardwaste	1	0	0	0	0	0	0	**1**
Total	**613**	**47**	**507**	**68**	**516**	**3,221**	**1**	**4,974**
Total	**249,742**	**65,961**	**118,699**	**59,837**	**238,292**	**152,960**	**79,079**	**964,570**

Drop and Load Inbound	Berm. TS	Comm. TS	Disco TS	Duff TS	Ingram TS	Scar. TS	Vic. Park TS	Total
ICI Garbage	10,099	6,786	3,580	3,833	11,418	18,615	18,839	**73,169**
Total	**10,099**	**6,786**	**3,580**	**3,833**	**11,418**	**18,615**	**18,839**	**73,169**
Total Including Drop and Load	**259,840**	**72,747**	**122,280**	**63,670**	**249,710**	**171,575**	**97,918**	**1,037,739**

1. *Note that the material weighed at the transfer stations through the Drop and Load service has a "net-zero" impact on the quantity of waste managed by the City as an equal amount of material is removed from the transfer stations by the private haulers.*
2. *Privately managed waste is that material brought to the transfer stations by residential and non-residential sources (e.g. brought to the drop-off depots or tipping floor for which a tipping fee may be collected depending on quantities and type of waste).*
3. *City managed waste is that material collected at the curb by the City or its contracted service providers.*

Drop and Load (Tolling Service)

The City offers a drop and load (tolling) service which allows private haulers to bring garbage to a transfer station and access the City's certified scales, staff and equipment to weigh waste materials for a charge of $13.39/tonne (2014 rate). Private haulers must use their own vehicles and disposal sites. Vehicles cross the weigh scales and unload their material on the tipping floor which is mixed together with City garbage. Private haulers are required to remove an amount of garbage equal to what was brought to the transfer facility to their own disposal facility using their own transfer/haulage vehicles.

9 Waste Recycling and Processing

The following sections provide a description of how materials collected, either at curbside or at the transfer stations and drop-off depots are recycled and processed.

9.1 Blue Bin Recycling

Blue Bin recycling is either transported directly to the contracted Material Recovery Facility (MRF), depending on the location of the collection vehicles, or hauled to the closest City transfer station. Historically, Blue Bin recycling was transported to one of two MRFs in the City; to either the City's now-closed MRF located at the Dufferin Waste Management Facility or to the Canada Fibers MRF located on Arrow Road. The Arrow Road MRF is owned and operated by Canada Fibers Ltd. who have been contracted to process approximately 260,000 tonnes (100%) of the City's Blue Bin recycling annually.

The City uses an "Offer to Purchase" (OTP) process to market Blue Bin recycling. All Blue Bin recycling (except fibre, glass and polystyrene) are sold through the OTP process. Sale of fibre is part of the contract with Canada Fibers Ltd.; glass and polystyrene are further processed through an RFQ (Request for Quotation). The City posts the details of the OTP (e.g. quantities of material expected, time frames, security requirements, and closing date) on the City's purchasing calls web site. Qualified bids are sent to Purchasing, Materials, Management Division (PMMD) who then make the contract award recommendation.

Table 9-1 provides a breakdown of the tonnes of Blue Bin recycling marketed.

Table 9-1: Tonnes of Blue Bin Recycling Marketed (2012-2014)

Material	2012	2013	2014
Mixed Glass	19,418	16,368	15,503
Polycoat	757	1,336	1,553
Aluminum	920	1,238	1,532
Aluminum Foil	104	74	199
Steel	4,318	4,691	4,720
PET	3,498	5,014	6,312
HDPE	2,365	2,492	2,695
Film	32	425	2,056
Tubs & Lids	299	244	

Material	2012	2013	2014
Polystyrene	75	207	217
Mixed Rigid Plastics	1,043	2,358	3,848
Mixed Plastics (Bulky Rigid Plastics)			324
Fibres	135,598	127,549	122,944
Total Blue Bin Recycling	168,427	161,995	161,902
Scrap Metal[1]	710	1,355	1,455
Total Material Recycled	**169,137**	**163,350**	**163,357**

Source: *Processing Operations, SWMS Staff*

[1] *The scrap metal that comes in with the Blue Bin recycling has been included, even though it is not an acceptable item. It is separated and marketed along with other scrap metal collected at the drop-off depots.*

9.2 Green Bin Organics Processing

As part of implementation of the Green Bin organics program, the City initiated the development of a facility to process the Green Bin organics collected from residential and non-residential sources. The first facility was located at the Dufferin Waste Management Facility, utilizing anaerobic digestion. This technology was chosen for its ability to process a complex organics stream with a significant component of plastic. The City wanted to include materials such as diapers and other sanitary waste and allow the use of plastic bags as liners in order to make the program as convenient as possible for residents.

As the Green Bin organics program expanded, the City realized additional processing capacity was needed. In May 2007, Council authorized the design and development of two organic processing facilities in Toronto. This authorization included a new facility at the Disco Road Waste Management Facility and an expanded facility at the Dufferin Waste Management Facility. Once complete, these two facilities will have a combined processing capacity of approximately 130,000 tonnes per year.

The following sections provide additional details about the two City-owned Green Bin organics processing facilities located at the Disco and Dufferin Waste Management Facilities as well as private organics processing facilities currently under contract to the City.

Dufferin Organics Processing Facility

The Dufferin Organics Processing Pilot Facility was commissioned in 2002 with an initial processing capacity of 25,000 tonnes/year using anaerobic digestion technology. In August 2012, a second digester was installed to increase capacity. The facility was operated by CCI Bioenergy up until March 2014 using their BTA process under contract. This facility is currently shut down in preparation for construction efforts to begin in 2015 for expansion to 55,000 tonnes/year of capacity, with commissioning anticipated in 2018. Additional details about this facility can be found in **Appendix H**.

Disco Road Organics Processing Facility

In 2010, the City awarded a contract to design, build, operate and maintain (DBOM) a new anaerobic digestion facility at the Disco Road Transfer Station. The Disco Road Organics Processing Facility has now been commissioned and is processing a portion of the City's Green Bin organics. This facility has a design capacity of 75,000 tonnes/year with a permitted capacity of 90,000 tonnes/year. Additional details about this facility can be found in **Appendix H**.

City-contracted Service Providers for Organics Processing

The City also utilizes City-contracted service providers for processing capacity up to 80,000 tonnes/year of Green Bin organics and up to 32,000 tonnes of digestate (the product resulting from the anaerobic digestion process). Further details on these contracts can be found in **Appendix I.**

9.3 Yard Waste Processing

The City requires processing capacity for up to 110,000 tonnes of yard waste collected annually and typically contracts with five private sector processing firms to ensure sufficient capacity at peak times. Details on the contracts the City currently holds for yard waste processing capacity can be found in **Appendix I**.

Asian Longhorn Beetle (ALHB) contaminated material is processed by a City-contracted service provider that is contracted by the Parks, Forestry and Recreation Division. Residents in the quarantine area are asked to bring their cuttings/yard waste to the Disco Road Transfer Station (which is located in the quarantine area). All of the grinding is done on site at Disco Road. Once the material is ground to a specific size to remove the potential threat of spread of the beetle, it is hauled to City contracted service providers for composting.

9.4 Backyard Composting and Grass-cycling

Backyard composting and grass-cycling are actively promoted by the City as an additional means to divert organic material. Toronto has banned the collection and receiving of grass clippings since 2001.

The City sells backyard composters for $15.00 (2014 approved rates); subsidizing them by $10.00. Composters are available at Community Environment Days and transfer stations. In 2014, 594 backyard composters were distributed to residents. Since the City started selling composters in 1991, over 188,606 composters have been distributed.

Overall, the City assumed, based on WDO criteria, that in 2014, 19,179 tonnes of organic material was diverted through backyard composting and approximately 19,214 tonnes diverted through grasscycling (2014 Datacall), based on an average of 100 kg of material diverted in a backyard composter annually.

9.5 Durable Goods, Bulky Waste Program, White Goods and Metals Processing

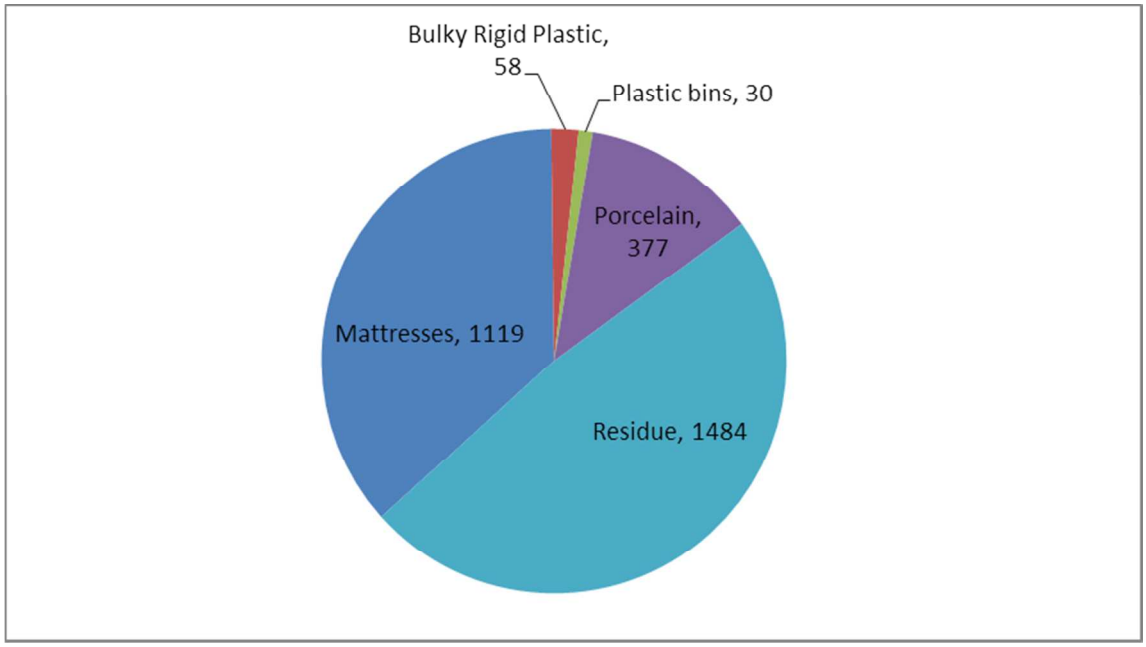
The City utilizes the Cherry Street Durable Goods Processing Facility located at 242 Cherry Street in the Port Lands area of Toronto as its primary method of processing durable goods. This facility accepts durable goods from collection vehicles only; there is no public drop-off of material. All incoming collection vehicles with materials destined for the Cherry Street Durable Goods Processing Facility are weighed at the nearby City of Toronto Commissioners Street Transfer Station. Upon delivery to the Durable Goods Processing Facility, materials are manually unloaded from the vehicles and sorted. Up to 100 tonnes/week of durable goods and electronics material streams are received from incoming collection vehicles.

Materials are sorted into 30 m^3 (40 yd^3) bins and shipped to processors with the exception of mattresses which are loaded into 53 foot trailers and shipped to a processor for recyclable material recovery.

In 2014, a total of 3,068 tonnes of durable goods were delivered to the Durable Goods Processing Facility; 1,584 tonnes were recycled (predominantly mattresses)[27]. The breakdown of the outgoing tonnes is presented in the following Figure 9-1.

[27] 2013 Cherry St. Incoming_outgoing tonnes

Figure 9-1: Outgoing Tonnes from the Durable Goods Processing Facility (2014)



***Source**: Appendix C – Tonnage Map*

Appendix H provides further information on Durable Goods Processing Facility, including quantity and types of materials received at this facility for processing.

9.6 Renovation and C&D Waste Processing

Drywall is the only C&D/renovation waste that the City diverts for recycling. Drywall is accepted at the Bermondsey, Commissioners and Ingram drop-off depots only and volumes are restricted to one tonne with manual unloading. See Table 7-10 for tonnes of drywall collected.

9.7 Waste Electrical and Electronic Equipment (WEEE) Processing

Waste Electrical and Electronic Equipment (WEEE) that is received at the drop-off depots and at Community Environment Days and collected curbside by the regular collection service provider is recycled through approved processors as part of the Province's WEEE stewardship program.

9.8 Waste Tire Processing

Waste tires are recycled through approved processors as part of the Province's Tire stewardship program.

9.9 Household Hazardous Waste Processing

HHW is processed by City-contracted service providers.

10 Waste Recovery

Following the reduction, reuse and recycling of materials, there are still opportunities to recover valuable resources from the waste that remains. These resources could be in the form of additional, hard to capture, recyclables such as metals (mixed with other materials), or energy resources including gas and heat.

A Landfill Gas/Biogas Utilization Study was completed for the City of Toronto. The study investigated utilization options for landfill gas/biogas generated at GLL, the expanded Dufferin Anaerobic Digestion (AD) facility and the new Disco Road AD facility. Options examined as part of the study included using the gas to produce electricity, renewable natural gas, or other viable alternative utilization options. Currently none of these facilities are utilizing the gas being recovered for energy generation purposes.

Of the 160 closed landfill sites for which the City is responsible, 27 sites have landfill gas collection systems with 13 systems utilizing mechanical extraction equipment (active) and 16 incorporating only passive venting. Only one active gas collection system remains at Keele Valley, which feeds an on-site power plant. The City receives royalty payments for the electricity that is created and sold from landfill gas at Keele Valley. The Brock West plant closed in the fall of 2012 and the Beare Road plant closed in the summer of 2014. The City's monitoring group looks after the monitoring, operation and minor maintenance of the landfill gas systems at Keele Valley. There is currently a great deal of uncertainty regarding the future of the Ontario Power Authority's (OPA) Large Renewable Procurement Program (LRP) (formerly known as the Feed in Tariff or "FIT" program). Depending on the outcome of the pending release of the final LRP Request for Qualification criteria, the City will decide whether or not it is financially beneficial to pursue an energy incentive through this OPA program.

11 Waste Residual and Disposal

The following sections provide an overview of the City's primary residual waste management facility, the Green Lane Landfill, as well as a description of the use of private landfills for additional disposal capacity.

11.1 Green Lane Landfill

The following sections provide an overview on the background and history of Green Lane Landfill, its current estimated disposal capacity, acceptable wastes, and the quantity and origin of waste currently disposed.

Background

Green Lane Landfill (GLL) has been operational since 1978 under Provisional Certificate of Approval Number A051601 issued on April 28, 1978. Historical site Certificates of Approvals[28] (Cs of As) allowed the site to accept municipal, domestic, commercial and solid non-hazardous industrial waste generated within a specific local service area. In 1999, the amended C of A for the long-term expansion permitted the site to receive waste generated anywhere within Ontario.

In 2006, approval was received under the *Environmental Assessment Act* (EAA) to expand the existing landfill. GLL currently operates under amended Certificate of Approval Number A0510601 for a Waste Disposal Site issued to the City in July 2007. The approved landfilling site is 71 hectares within a total site area of 130 hectares.

On April 2, 2007 the City of Toronto acquired the GLL at a cost of $220 million for the landfill and associated buffer lands (approximately 1,200 acres) in order to have a long-term disposal solution for the City in Ontario.

Green Lane Landfill is located in Southwold Township in the County of Elgin (near London and St. Thomas), about 200 km from downtown Toronto. The site is located about 8 kilometres from the Highway 4 exit from Highway 401. Figure 11-1 presents a map of the location of Green Lane Landfill.

[28] now known as Environmental Compliance Approvals (ECAs)

Figure 11-1: Location of Green Lane Landfill

Disposal Capacity and Acceptable Wastes

GLL is permitted to receive municipal waste including domestic, commercial and non-hazardous solid industrial waste, institutional waste, non-hazardous contaminated soils, and sewage sludge from Toronto's municipal sewage treatment plants. GLL currently receives Toronto's municipal garbage collected from the residential and a portion of the non-residential sectors, parks and litter bins, street sweepings, as well as paid garbage from private waste haulers, Southwold Township, City of St. Thomas, York Region, other local municipalities and First Nations.

The estimated total approved site volume is 18,832,625 m^3 resulting in a total capacity of approximately 16,786,610 tonnes. As of the end of 2014, the remaining available airspace was approximately 11.14 million m^3. Based on the quantity of garbage disposed at GLL in 2014 and assuming the same total annual air space utilization in future years, GLL is currently estimated to close in about 15 years (2029)[29][30].

Table 11-1 provides a summary of the quantities of garbage received at GLL between 2011 and 2014.

[29] Provided by City of Toronto SWMS Staff via email in July 2014.
[30] Note: This estimated lifespan calculation will be updated as the Waste Strategy is developed.

Table 11-1: Tonnes of Garbage Disposed at Green Lane Landfill (2011-2014)

	2011	2012	2013	2014
Garbage from Toronto's Transfer Stations	525,752	501,954	511,602	524,449
Sewage Sludge from Toronto's Municipal Sewage Treatment Plants	22,852	14,313	11,194	11,979
Toronto Street Sweepings (from Transportation Services Division)			14,071	20,125
Paid Waste from Other Municipal Customers	65,068	60,016	53,392	37,877
Paid Waste from Private Haulers	117,022	143,927	71,816	1,840
Waste from Private (material suitable to displace aggregate needs for GLL)	14,076	24,227	33,437	15,001
Disco SSO Processing Residue				11,322
Dufferin SSO Processing Grits				654
Other (ice storm from Parks)				617
Total Waste Landfilled	744,769	744,437	695,511	603,739

Source: *Appendix C – Tonnage Map*
Note: totals may not add due to rounding

Community Relations

GLL has a number of community programs in place, as summarized below and described in more detail in **Appendix H**:

- Host Community Agreement (April 2007);
- First Nations Community Benefits Agreement (March 2007);
- Green Lane Landfill Public Liaison Committee (PLC);
- First Nations Liaison Committee (FNLC);
- Property Value Protection Plan (PVPP); and,
- Habitat Restoration Project.

Long-Term Business Planning

The City is currently in the process of developing an updated business plan[31] for GLL to support the efficient filling of the site in a manner consistent with the City's operating and capital spending and debt financing plans. The business plan is intended to identify all future cash flows associated with the landfill and link them to the utilization of the available disposal capacity. This will provide the City with a framework to manage the GLL asset to be self-sustaining, ensure all current and future costs net to zero when the landfill reaches the end of its lifespan, and sufficient long term perpetual care

[31] It is anticipated that the business plan will be complete in the fall of 2015.

reserves are set aside. The GLL business plan will be incorporated into the Waste Strategy and included in the evaluation of long term waste disposal options.

11.2 City-contracted Landfill Disposal Capacity

The City has secured additional garbage disposal capacity (for both contingency and regular disposal capacity) at three private sector landfill sites in Ontario to preserve space at GLL and for emergency situations such as highway closures prohibiting transport of waste from Toronto to GLL. Table 11-2 provides information about the current City-contracted service providers of landfill disposal capacity.

Table 11-2: City-contracted Landfill Disposal Capacity

City-contracted Service Provider	Landfill Name/Location	Maximum amount accepted annually
Waste Management of Canada Corporation	Petrolia, Twin Creeks	200,000 tonnes
Walker Environmental Group	South Landfill, Niagara	50,000 tonnes
Lafleche Environmental	Lafleche Landfill, Moose Creek	75,000 tonnes

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11.3 Closed Landfills

The City has responsibility for the post-closure monitoring, maintenance and management of 160 closed landfill sites located in and around Toronto. The majority of the 160 closed landfill sites are located in the City of Toronto with the exception of three sites: Brock West (Pickering), Brock North (Pickering) and Keele Valley (Vaughan). Additional details on post-closure care of closed landfills and their priority status can be found in Appendix H.

12 Progress and Performance Monitoring

The following sections provide an overview of the ways the City measures and monitors progress and performance of its system and assets, particularly for SWMS.

12.1 City of Toronto Progress and Performance Monitoring

Currently, there are two key reports issued by the City Manager's Office that are used to report on Toronto's progress and performance:

- The annual Performance Measurement and Benchmarking Report; and,
- The quarterly Management Information Dashboard.

These two reports are discussed in greater detail in **Appendix J** and briefly discussed in the sections below.

Performance Measurement and Benchmarking Report

The Performance Measurement and Benchmarking Report is produced every year and provides detailed information about 33 service areas. The latest report available on the City's website was published in 2013 and provides a comparison of City's programs and performance to other municipalities for the year 2011.

Several major waste management performance indicators are examined in the annual Performance Measurement and Benchmarking Reports including the following:

- How much solid waste is recycled/diverted away from landfill sites?
- How much waste from houses is recycled/diverted away from landfill sites?
- How much waste from apartments is recycled/diverted away from landfill sites?
- How many garbage collection complaints are received?
- How much does it cost to collect a tonne of garbage?
- How much does it cost to dispose of a tonne of garbage?
- How much does it cost to recycle a tonne of solid waste?

The following is a summary of the results pertaining to solid waste management derived from the City's 2011 Performance Measurement and Benchmarking Report:

Overall, the efficiency and performance of Toronto's Solid Waste Management services increased in 2011 compared to 2010. Efficiencies and increased performance were seen by the overall increases in waste diversion rates for single family and multi-residential homes. In addition the total cost of waste collection decreased as well as the operating and disposal costs. The one area where there was no improvement in services was the Customer Service section. It was reported that the rate of complaints received regarding garbage collection increased since 2010.

The 2011 Performance Measurement and Benchmarking Report noted several 2012 Achievements and 2013 Planned Initiatives that are expected to further improve the effectiveness and efficiency of SWMS through measures to increase diversion and improve collection of waste materials. These are described more fully in **Appendix J**.

Toronto's Management Information Dashboard

Toronto's Management Information Dashboard provides information to assess trends and directions of key indicators for Toronto as a whole and for City of Toronto services. It includes the most recent data available for 2013 and compares it to previous periods, previous years and any targets that had been established for those indicators.

Waste management revenue is one of many indicators monitored. The latest version of Toronto's Management Information Dashboard for Quarter 4 of 2013 concluded that waste management revenues from the sale of recycled materials were up 2.7% as of December 2013 compared to 2012 levels however, revenues remain well below 2011 levels, reflecting lower market commodity prices. City Staff continue to monitor a number of indicators on an ongoing basis to support decision-making and planning processes.

12.2 Other Forms of Performance and Progress Review

Over the past several years the City has conducted several studies and implemented reporting processes to assess the performance and efficiency of various components of SWMS operations and processes as discussed below.

These include:

- A Service Review Program conducted in 2011. This study had three parts, a core service review, a service efficiency study and a user fee review.
    - **Core Service Review:** As part of the core service review conducted by KPMG, core waste management services were among many City services examined and several areas were identified where service could be improved; including changes to the Toxic Taxi program, Community Environment Days, contracting out of

collection services, eliminating the 4 free garbage tag program, and expansion of the Drop and Load program at transfer stations.

- Service Efficiency Review: The purpose of the service efficiency study conducted by Ernst & Young was to identify efficiency savings within solid waste collection, transfer stations operations, processing and disposal, and several additional City-run programs including the garbage tags program, Community Environment Days program, overflow recycling, charities and the drop and load program. The study found that a total of $10.9 million could be saved through service efficiency ($7.1 million) (e.g. staffing changes, route optimization, and operational changes at transfer stations) and additional savings identified in other programs areas in the SWMS division ($3.8 million).

- In 2011 City Council directed SWMS to report quarterly and annually on the performance of the District 2 collection contractor (at the time - Green For Life Environmental East Corporation was under contract to provide services in this District) against the Division's key performance indicators including customer satisfaction, diversion targets, contract cost, compliance monitoring and performance monitoring.
- Data based performance monitoring:
  - The City has conducted waste audits to monitor and measure performance for a variety of sectors including single family waste and multi-residential waste, for various waste streams (e.g. electronics, HHW, tires) and for various programs and facilities (e.g. transfer stations, reuse centre, community environment days).
  - The City submits information regarding their waste management program annually to Waste Diversion Ontario (WDO) as part of the municipal datacall process. Various metrics are collected such as quantities of recycling and organics collected, costs, revenue, population and households, etc.
- Ongoing Promotion and Education Performance Monitoring:
  - A number of methods are used to measure the success of promotion and education campaigns and activities for continuous improvement. These include analyzing waste audit data to identify materials that are not being diverted properly, tracking requests through 311 to identify gaps or needs for promotion and education (e.g. information requests in other languages), measuring the amount of contamination in Blue Bin recycling processed at the MRF and monitoring visits to online resources (i.e. to identify those resources that are being utilized the most). For example, a campaign to educate residents about the ability to

upsize bins was tracked by the number of service requests placed through 311 after the advertisement aired.

12.3 OMBI Performance Measurement Report

The Ontario Municipal Benchmarking Initiative (OMBI) collects data annually from 15 municipalities across Canada, predominantly from Ontario, for 37 municipal service areas, one of which is waste management. The other municipalities participating include the Regions of Durham, Halton, Niagara, Waterloo, and York and the Cities of Calgary, Greater Sudbury, Hamilton, London, Montreal, Ottawa, Thunder Bay, Windsor and Winnipeg.

None of the municipalities to which Toronto is being compared provide the range of diversion services that Toronto offers, nor do they have the same degree of multi-residential housing. For the purposes of "apples to apples" comparison (to the extent possible), Toronto's performance was compared to the Regions of Durham, York, Waterloo, Niagara and Halton and the cities of Hamilton, Ottawa, as these municipalities offer a similar suite of waste management services. The cities of Calgary, Winnipeg, London, Thunder Bay, Greater Sudbury and Windsor were not included.

Table 12-1 presents the 2013 results specific to waste management. In general, the City of Toronto performed better than average for cost of garbage collection, solid waste disposal and diversion rates but had higher costs for diversion and disposal.

Table 12-1: 2013 OMBI Waste Management Performance Measurement Results

	Toronto	Minimum	Maximum
Materials collected (tonnes/hhld)	0.68	0.68(Toronto)	1.03 (Halton)
Cost for garbage collection ($/tonne)	$69	$69 (Toronto)	$153 (Halton)
Solid waste disposed (tonnes/hhld)	0.35	0.35 (Toronto)	0.53 (Hamilton)
Cost for solid waste disposal - $/tonne	$100	$25 (Niagara)	$135 (Durham)
Solid Waste Diverted (tonnes/hhld)	0.40	0.40 (Toronto and Ottawa)	0.63 (York)
Cost for Solid Waste Diversion ($/tonne)	$325	$131 (Niagara)	$325 (Toronto)
Diversion Rate (%)	53%	46% (Ottawa)	York (58%)

Source: *2013 OMBI Performance Measurement Report (Section 34 Waste Management)*
Note: only includes information for Regions of Durham, York, Waterloo, Niagara and Halton and the cities of Toronto, Hamilton, and Ottawa

12.4 Global City Indicators Facility

The Global City Indicators Facility (GCIF) is a program of the Global Cities Institute, created to allow cities across the world to share knowledge and information about city performance. Over 250 cities are participating, including the City of Toronto. GCIF has compiled a database of statistics based on a set of indicators with a globally standardized methodology. There are a number of performance indicators related to city services (one of which is solid waste) and quality of life. The indicators that relate to solid waste and the City's reported numbers for 2013 are presented in Table 12-2.

Table 12-2: City of Toronto Data for Global City Indicators Facility (2013)

Indicator	2013 Results	Explanation
Core Indicator		
Percentage of city population with regular solid waste collection (residential)	100%	• All residential solid waste including, Single-Family, Multi-residential and RUAC managed publically or privately. • Access is available to some kinds of solid waste collection. • Includes City and/or privately managed solid waste.
Total collected municipal solid waste per capita	0.31 tonnes per capita	• Uses total solid waste collected by City and its contractor and dropped off at the transfer stations/environment days. • Does not include private tonnes or municipal tonnes received directly at Green Lane or received at other landfills, excluding street sweepings, water and waste water tonnes. • Based on inbound tonnes including residential, ABCD, Schools, YB etc. divided by City population. • Does not include back yard composting (BYC), grass-cycling, Liquor Control Board of Ontario (LCBO) and Ontario Tire Stewardship Tires (OTS)
Percentage of the City's solid waste that is recycled	53%	• This measure is for residential diversion only. • Recyclable materials include those

Indicator	2013 Results	Explanation
		materials collected by the City (e.g. HHW, yard waste, Blue Bin recycling, Green Bin organics, durable goods (if applicable), tires) as well as calculated amounts for grass cycling, LCBO, backyard composting, and OTS tire tonnes.
Supporting Indicator		
Percentage of the City's solid waste that is disposed of in a sanitary landfill (supporting indicator)	47%	• Applies to residential solid waste that is disposed of in a sanitary landfill
Percentage of the City's solid waste that is disposed of in an incinerator (supporting indicator)	0%	• No City managed waste is disposed of in an incinerator.
Percentage of the City's solid waste that is burned openly (supporting indicator)	0%	• No City managed solid waste is burned openly.
Percentage of the city's solid waste that is disposed of in an open dump (supporting indicator)	0%	• No City managed solid waste is disposed of in an open dump.
Percentage of the city's solid waste that is disposed of by other means (supporting indicator)	0%	• No City managed solid waste is disposed of by other means.
Hazardous waste generation by capita	0.00066 tonnes per capita	• Indicator is Municipal Hazardous Special Waste (MHSW) collected/received per capita. • Includes phase 1 and 2 MHSW, collected and received by SWMS via environment days, toxic taxi and depot collection. • Does not include electronics. • Materials based on Ontario Regulation

Indicator	2013 Results	Explanation
		347. • Calculated as total of materials divided by population.
Percentage of city's hazardous waste that is recycled	86%	• Calculated as total MHSW that is recycled divided by total phase 1 and 2 MHSW collected and managed by SWMS. • Does not include electronics.

Source: *Email from M.Kane, dated March 26, 2015*

13 Financial Overview

As detailed in Section 4, the City of Toronto provides a wide range of solid waste management services to approximately 2.6 million residents and a number of additional non-residential customers. The service operates as a utility and the expenditures are funded from revenues and user fees. This section provides an overview of the expenditures and revenues for the City of Toronto's SWMS Division.

13.1 Toronto's Solid Waste Management Utility Model

For many years, the City's solid waste management services were funded directly through property taxes. In 2001, the City convened the "Waste Diversion Task Force 2010." Among its findings to enhance long-term waste diversion, the Task Force recommended that financing of solid waste services be moved to a separate billing from the general tax bill and that in the future the City also look at options such as user fees.

Building on these concepts, in 2007 the Province amended a regulation under the *City of Toronto Act* (O. Reg. 594/06) to facilitate the City being able to finance its solid waste management services as a rate-based utility, similar to Toronto Water.

Consequently, City Council authorized a series of measures to shift the costs of solid waste management services from the municipal property tax base to a system of fees charged directly to solid waste management services customers. By implementing these actions commencing in 2008, the City's SWMS effectively became a rate-based system. This change provided the City with greater flexibility to raise the funds required to invest in the high diversion rate waste management system envisioned by the Task Force and subsequently updated in the Target 70 process.

The net customer charges for solid waste management services that have been established in the utility model include a rebate amount. This rebate is necessary to adjust for the assessed property tax charges that the City must continue to allocate for SWMS to comply with current Provincial legislative requirements.

The approach adopted by the City provides flexibility to tailor customer's net charges for solid waste management services on a volume-based user pay system. This also allows SWMS customers to see, understand, and control the costs of the waste management services they use. Further, the net rates

charged to customers are structured to provide economic incentives to encourage specific actions such as greater participation in waste diversion programs.

13.2 Current Financial Overview

The following sections provide information about the cost and revenue associated with the City's waste management programs.

Operating Expenditures

The services described in Sections 5 to 11 are grouped into five program areas in a service based budget. The SWMS Division has an annual operating budget of $353.9 million (2014 approved budget)[32]. A general breakdown of the budget by service activity is presented in Table 13-1.

Table 13-1: Breakdown of 2014 Operating Budget by Service Activity

Service Activity	Material Managed/Service Provided	Budget Allocation	
		($ millions)	(%)*
Solid Waste Collection and Transfer	Garbage Green Bin organics Blue Bin recycling Yard waste Durable goods HHW WEEE	111.1	31%
Solid Waste Processing and Transport		113.5	32%
Residual Management	Garbage disposal at Green Lane Landfill Long-term care of closed landfills Generation of energy from landfill gas	90.2	25%
City Beautification	Litter pick-up Special events Public spaces collection bins (parks and streets)	32.9	9%
Solid Waste Education and Enforcement	Promotion and education Environment Days Enforcement of solid waste By-laws.	6.2	2%
Total		$353.9	100%

**Rounded to nearest decimal place*

[32] The detailed 2014 solid waste management services budgets are available at http://tinyurl.com/q4gr522

The line items for processing and transport, and collection and transfer activities combined represent close to two thirds of the City's annual operating expenditures for solid waste management services.

Table 13-2 provides a breakdown of the 2014 operating budget by the different types of expenses incurred.

Table 13-2: Breakdown of 2014 Operating Budget by Expense Category

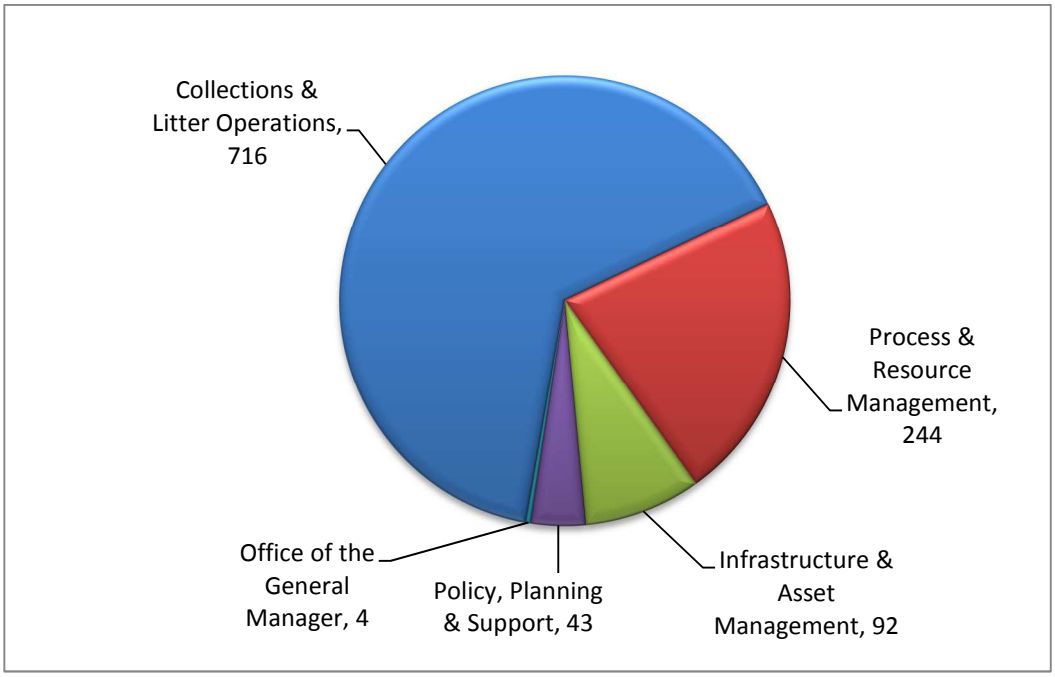
Expense Category	Budget Allocation	
	($ millions)	(%)*
Services and Rents	125.7	36%
Salaries and Benefits	92.4	26%
Other Expenditures	57.6	16%
Contributions To Reserve	40.5	11%
Interdivisional Charges	31.4	9%
Materials and Supplies	6.0	2%
Equipment	0.4	0.1%
Total	$353.9	100%

**Rounded to nearest decimal place*

The line item for services and rents represents the single largest annual expenditure of the SWMS Division and includes private sector contract services utilized by the City for collection, processing, transport and operations.

Staff salaries and benefits represent the second largest expenditure. The City's SWMS Division has an approved complement of approximately 1,100 full time equivalents (FTEs) to deliver its programs (not including part-time and seasonal employees). Staffing is distributed among the various functions of the Division as shown in Figure 13-1. The largest portions of the staff complement are front-line personnel directly involved in collection and transfer of waste materials.

Figure 13-1: City of Toronto's Solid Waste Management Staffing (2014 Approved Full Time Equivalents)



***Source**: 2014 Operating Budget, Operating Analyst Notes, Appendix 2*

Capital Expenditures

Capital expenditures are funded by a combination of recoverable debt, reserves and industry stewardship funding.

There are a number of key initiatives that are currently driving the City's need for capital investment in solid waste management including:

- Increasing diversion:
  - Expanding the Green Bin organics program to more multi-residential buildings; and,
  - Increasing Green Bin organics processing capacity;
- Completing a Long-Term Waste Management Strategy and development of a long-term waste management facility to further enhance diversion and extend the life of the Green Lane Landfill;
- Continuing development of the Green Lane Landfill to keep pace with disposal needs;
- Complying with legislated requirements for perpetual care of closed, former municipal landfills located within the City of Toronto;

- Recovering and using landfill gas and biogas to produce renewable energy and generate additional sources of revenue and can be used to offset a portion of the operating costs;
- Improving transfer stations, collection yards and durable goods receiving facilities; and,
- Upgrading and improving various information technologies.

Table 13-3 presents the 2014-2023 planned 10 year capital investment in infrastructure and assets necessary to support delivery of solid waste management services.

Table 13-3: 10-Year Summary of Planned Capital Expenditures

Project/Initiative	Planned Capital Expenditures ($000s)										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10 Year Totals
Diversion Systems	29,389	13,051	3,086	3,297	3,074	3,110	3,145	3,210	3,192	1,500	66,054
Transfer Stations	8,955	6,865	6,200	6,414	3,240	2,181	4,312	2,541	821	4,290	45,819
Collection Yards	700	400	400	400	400	400	400	400	400	400	4,300
Disco Source Separated Organics Processing Facility	8,000										8,000
Dufferin Material Recycling Facility	5,011	13,351									18,362
Dufferin Source Separated Organics Processing Facility	7,000	25,000	10,534	1,900	100						44,534
Future Re-Use Centre		5,000									5,000
Green Lane Landfill Development	18,437	14,163	15,070	17,592	19,620	19,545	18,516	14,889	15,468	14,939	168,239
Green Lane Landfill Gas Utilization	350	5,000	20,000	7,000	2,550						34,900
Biogas Utilization (Dufferin and Disco SSO)	5,000	4,200	2,600								11,800
Perpetual Care of Former Landfills	10,000	10,000	10,000	10,000	10,000	7,972	8,064	8,165	8,272	8,731	91,204
Long Term Waste Management Strategy & Facility	1,000	891	891	62,574	65,341	66,914					197,611
SWM Information Technology Initiatives	1,697	3,173	1,722	1,571	247	105	75	75	105		8,770
Corporate Information Technology Initiatives	1,033	1,269	1,114								3,416
Annual Totals	$96,572	$102,363	$71,617	$110,748	$104,572	$100,227	$34,512	$29,280	$28,258	$29,860	$708,009

***Source**: 2014 Budget, Capital Analyst Notes: Appendix 2*

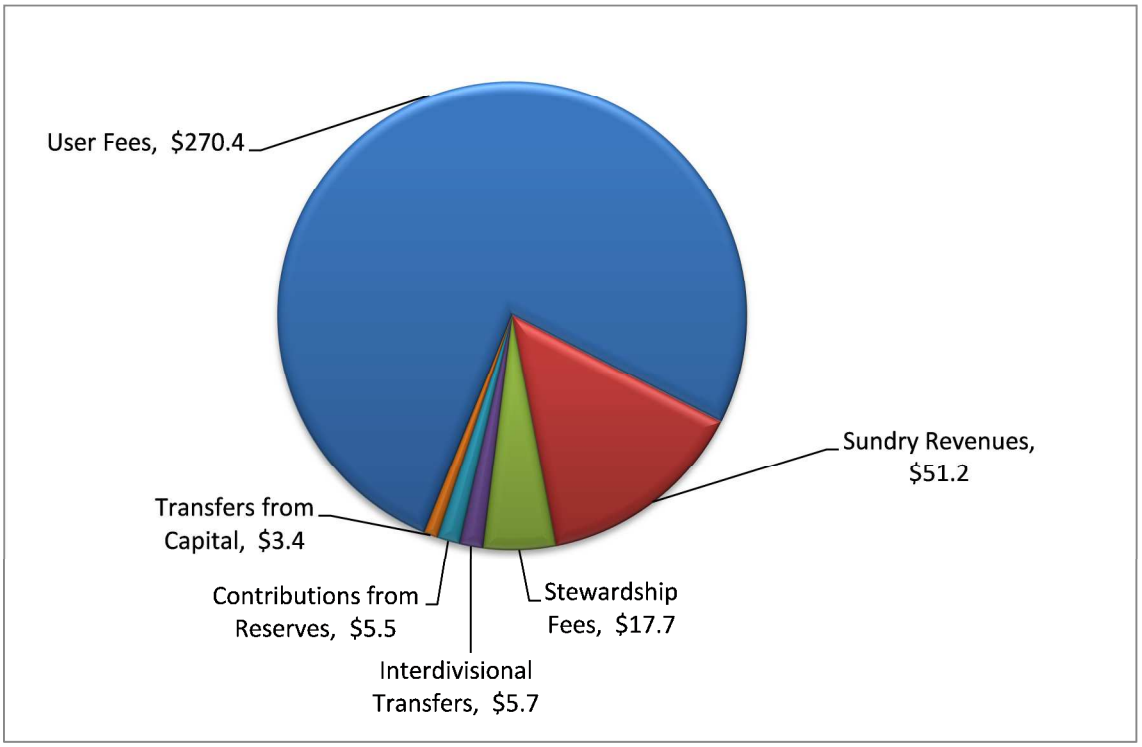
Reserve Funds

Reserve funds are used to finance the long-term investments in capital works and facilities needed to support the SWMS Division's programs, as well as to assist with stabilization of user rates. The operating budget includes annual reserve contributions to build up the reserve funds.

Revenue

SWMS is a utility funded from a combination of volume-based rates, user fee revenue, reserve funds, sale of recyclables and industry stewardship funding. The 2014 budgeted revenues for the City's solid waste management services in 2014 equal the total approved annual operating budget of $353.9 million and are broken down as shown in Figure 13-2[33].

Figure 13-2: Sources of Revenue for Solid Waste Management Services 2014 Operating Budget ($ Millions)



***Source**: 2014 Operating Budget, Operating Analyst Notes*

User Fees

User fees represent the predominant portion of the revenue required to support the City's solid waste management services. The City's solid waste management user fees are structured to:

[33] Derived from "2014 Operating Budget, Solid Waste Management Services"

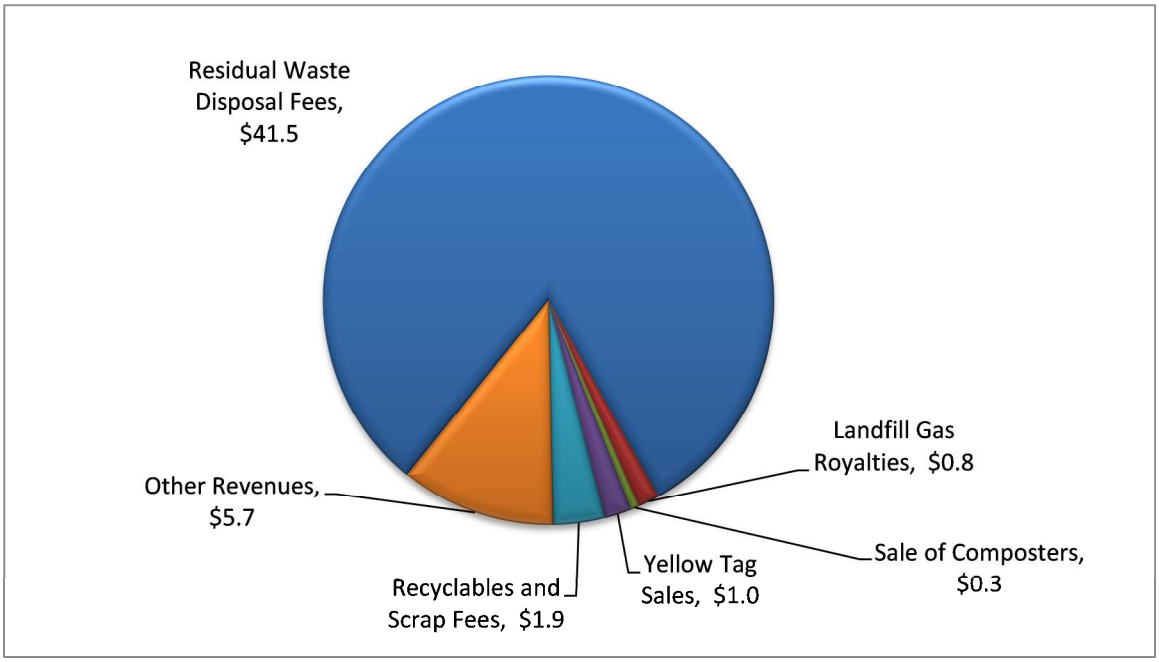
- Ensure long-term sustainable cost recovery;
- Provide financial incentives to encourage diversion activities over disposal of garbage;
- Be fair and transparent, providing customers with the opportunity to control their own waste management costs; and,
- Reflect the wide range of service needs and conditions of the City's various solid waste management customers.

Most (76%) of the total revenue is generated from the volume based rates. Another major source of user fee revenue is from transfer station and landfill tipping fees. **Appendix F** contains a detailed listing of all 136 line items included in the City's approved 2014 user fees for solid waste management services, excerpted from the "City of Toronto Municipal Code Chapter 441, Fees and Charges".

It is important to recognize that while the user fees are largely structured around charging for garbage collected, embedded in those fees is also the revenue needed to support all of the City's waste management services including its diversion programs, long-term capital expenditures, administration and other costs. Other user fees are based on cost recovery for the services.

Revenue from tipping fees for materials received at the City's facilities and other sources are projected to be approximately $51 million in 2014 and broken down as shown in Figure 13-3.

Figure 13-3: 2014 Projected Breakdown of Tipping Fees and Other Sundry Revenue ($ Millions)



Sundry Revenues

Additional revenue sources that are projected to contribute to the City's solid waste management programs in 2014 include:

- Sales of bins to commercial customers;
- Sales of backyard composters;
- Fees for drop and load weighing service at transfer stations;
- Royalties from sale of energy from existing landfill gas utilization projects; and,
- Transfers from other City Divisions for provision of services and transfers from reserves.

Blue Bin Recycling Revenue

The City received approximately $17.0 million in revenue from the sale of Blue Bin recycling material in 2014[34].

[34] Information provided by C. Ueta.

Stewardship Fees

Based on anticipated diversion performance and established funding formulas, the City has projected revenue of approximately $17.7 million for stewardship funding contributions in 2014 relating primarily to Blue Bin recycling, HHW and other diversion program recoveries.

Continuous Improvement Fund

The Continuous Improvement Fund (CIF) was developed through a partnership among Waste Diversion Ontario, the Association of Municipalities of Ontario, the City of Toronto and Stewardship Ontario to provide grants and loans to Ontario municipalities to execute projects that improve the effectiveness and efficiency of municipal Blue Box recycling.

The City of Toronto has received funding from CIF over the past few years for the following projects:

- Tower Renewal - Maximizing Residential Waste Diversion;
- Multi-residential (MR) Community Housing Recycling Rooms;
- Maximizing Residential Waste Diversion;
- Toronto Public Space Recycling;
- Analysis of Bill 91 Implications on Municipal Diversion Services;
- Automated Bins and CNG Trucks Project;
- Multi-Residential Waste Audits and Workshop; and,
- Single Family Waste Audits.

Charities Waiver

SWMS provides waste management services to approximately 1,120 charities, institutions, not-for-profit and religious organizations, and grandfathered for-profit nursing or retirement homes as defined in Article 841-1 of the Toronto Municipal Code. Table 13-4 provides a breakdown of these non-residential customers.

Table 13-4: Non-Residential Customer Breakdown (2014)

	Charities (85%)	Other (15%)			
Service Delivery		Non-Profit**	For - Profit***	Institutions****	Total
Curbside Bin and Bag	926	119	0	0	1,045
Front End	16	7	33	9	65
Transfer Station Tip Fee Customers	10	0	0	0	10

Service Delivery	Charities (85%)	Other (15%)			
		Non-Profit**	For - Profit***	Institutions****	Total
(Charities only)					
Total Customer base*	952	126	33	9	1,120

Source: *Waste Diversion Rate Waiver Program for Charities Report, S. Fleming, July 2014*
**Approximate customer totals are based on the best available information at the time of table generation.*
***Non-profit includes community service organizations, non-profit seniors' homes, and legions.*
****For-profit includes "for-profit" retirement/nursing homes.*
*****Institutions include senior's homes and university residences.*

The City developed a Charities Waiver Program whereby federally registered charities would receive 100% credit/refund for the City's waste management services.

In order to qualify for the Charities Waiver Program, the organization must:

1. be a federally registered charity eligible for Non-Residential collection services; and,
2. fully participate in the City's Waste Diversion programs as demonstrated by annual Waste Inspection Compliance Audits performed by Solid Waste Management Services.

It is anticipated that all eligible organizations (approximately 952) will be eligible and approved for the Program.

The annual financial impact of the new Charities Waiver Program is approximately $2,210,000[35] with $891,000 for staffing, $568,000 in lost revenue[36] from transfer station tip fees and $250,000 of revenue from the 15% of clients who did not qualify for the waiver program.

[35] Waste Diversion Rate Waiver Program for Charities Report, S. Fleming, Table 2, 2015 Annual Expenditure Report Figures (including Additional Lost Revenue)
[36] Additional Lost Revenue from Transfer Station Tip Fees is included for reference. It was not included in the Report due to a Net $0 financial impact where a 100% refund is being applied under the current Special Category Program, and the same would apply under the new Charities Waiver Program. There is no financial impact because their fees are already being waived under the Donated Goods program in 2014 – It is a lost opportunity for Revenues that is different from the rate deferral because they were covered under another program.

This program was initiated in January 2015 and the final deadline for 2015 pre-registration and application submission is November 2015.

14 Next Steps

As described in Section 1.3 above, this Technical Memorandum #1 represents the completion of **Deliverable 1 –"Where are we? Establishing a Comprehensive Baseline"**. The purpose of this deliverable is to document the existing reduction, reuse, collection, transfer, processing, disposal and financial systems used to manage waste in the City. This baseline will be used as the foundation upon which to base future programs, policies and facilities.

The next step in the process will be the development of **Deliverable 2 – "Where do we need to go? Identifying the Long-Term Needs"** which will help to continue building the foundation. This next step will be documented in Technical Memorandum #2 which will document the gaps and challenges in Toronto's waste management system, the projections for the future quantities of waste requiring management and the vision and guiding principles that will guide the implementation of the Waste Strategy in the future.

A

Historical Participation in Long-term Disposal Capacity Efforts

Appendix A - Historical Participation in Long-term Disposal Capacity Efforts

Effort/Timing	Summary
Solid Waste Interim Search Committee (SWISC) **Late 1980s**	In collaboration with the Province of Ontario, SWISC (Solid Waste Interim Search Committee) was established by the five GTA area municipalities (Peel Region, Durham Region, Metro Toronto, York Region, Halton Region) in March 1989. In October 1989, an expression of interest was issued for a comprehensive range of long term systems and system components, including identification of a host community. The Adams Mine site in Boston Township, outside Kirkland Lake, 500km north of Toronto was identified at that time as a long term disposal option. Waste would be hauled by rail to the site, using an existing railway track. The SWISC process was abandoned in September, 1990, when the NDP (New Democratic Party) government came into power in Ontario. [1][2]
Interim Waste Authority (IWA) **Early to Mid 1990s**	The Interim Waste Authority (IWA) was established by the NDP provincial government in November, 1990, under the power of the Waste Management Act to identify a location for separate landfills for three GTA communities: Toronto and York Region (combined); Peel Region and Durham Region. Through the IWA process, Durham and Peel Regions were required to find sites within their own borders, whereas Toronto (with York Region) was allowed to look for sites within the borders of the two regions combined. Sites were identified through the process, but the NDP government lost power in the 1995 provincial election, and the IWA was disbanded by the new Progressive Conservative government when they came to power. Combined, all the participants in the IWA process invested an estimated $90 million.[3]
Adams Mine Site Assessment Process (AMSAP) **Mid 1990s**	In late 1993, members of Metro Toronto Council were concerned that the IWA process would not identify and approve a site in time to meet their needs. The AMSAP (Adams Mine Site Assessment Process) process was initiated to pursue the Adams Mine option as a Metro Toronto owned landfill, although the possibility of the site being privately owned was also up for negotiation. In December 1995, Metro

[1] Legislative Assembly of Ontario. Committee Transcripts: Standing Committee on Social Development 1992-Jan-21. http://www.ontla.on.ca/web/committee-proceedings/committee_transcripts_details.do?locale=en&BillID=&detailPage=/committee-proceedings/transcripts/files_html/1992-01-21_s041.htm&ParlCommID=133&Business=Bill%20143,%20Waste%20Management%20Act,%201992&Date=1992-01-21

[2] Winfield, M. 2011. *Blue-green Province: The Environment and the Political Economy of Ontario*

[3] Hostovsky, C. 2006 *The Paradox of the Rational Comprehensive Model of Planning: Tales from Waste Management Planning in Ontario. Canada.* Journal of Planning Education and Research, 25: 382-395. And Winfield, M. 2003. Ontario Environment Handbook. Produced by Environmental Communication Options.http://www.pembina.org/reports)

	Toronto decided not to renew its ownership option on the Adams Mine site[4], and to pursue private sector landfill capacity options only. By this time, Toronto had spent over $150 million during the 10 year period from 1986 to 1995 on various efforts to site and establish a new, long term municipal landfill. This effort did not result in establishing a new municipally owned landfill.
Toronto Integrated Solid Waste Resource Management (TIRM)	In December 1996, the TIRM (Toronto Integrated Solid Waste Resource Management) Process was initiated to carry out an environmental assessment for long term disposal. In February, 2000 six qualified proposals for long term disposal capacity for Toronto were received. RailCycleNorth (now involving WMI (Waste Management Inc.) as a partner in the Adams Mine) was the preferred solution. Metro Toronto Council voted in favour of the proposal; however, the RailCycleNorth consortium could not meet last minute provisions added by Toronto City Council[5]. The contract was awarded to Republic Services to transport residential as well as IC&I waste to Carleton Farms landfill in Michigan, starting in 2003. The Adams Mine contract withdrawal resulted in a situation where both municipal and IC&I waste managed by Toronto was being sent to private sector landfills, effectively the first time in 200 years that Toronto did not have its own landfill. The Adams Mine was a prominent element of City of Toronto landfill site searches until passage of the Adams Mine Lake Act in 2004, which permanently eliminated the site from further consideration[6].
Michigan Agreement Late 2000s	A portion of Toronto's municipal waste was landfilled at private sector landfills in Michigan from 1998 to 2003. By January 2003, the amount being shipped to the Carleton Farms landfill in Michigan was almost 1.1 million tonnes per year. This substantial amount of waste resulted in strong objections from Michigan politicians, leading to the Michigan Agreement. In 2006, the Province of Ontario agreed with the State of Michigan that municipal waste would no longer be disposed in Michigan by 2010. The agreement covered waste managed by municipalities only. Private sector IC&I waste could continue to be shipped to Michigan; a practice which continues today.

[4] Price, M.A. January 29, 1998. Subject: Long-Term Solid Waste Disposal Planning. Report to Works and Utilities Committee. (http://www.toronto.ca/legdocs/1998/agendas/committees/wu/wu980211/it008.htm)
[5] Requiring the contractor to take financial responsibility for any future environmental levies and taxes imposed during the 20 year period
[6] The Regional Municipality of York. Solid Waste Management Public Liaison Committee. Minutes – April 25, 2000. Available at http://archives.york.ca/councilcommitteearchives/pdf/april%2025.pdf; Vitello, C. January 1, 2001. *Rail haul derailed.* Solid Waste & Recycling Magazine. Available at: http://www.solidwastemag.com/features/rail-haul-derailed and Stratos Ltd. 2005. *Learning from the Experience of Others: A Selection of Case Studies about Siting Processes(*http://www.nwmo.ca)

Green Lane Landfill Purchase 2007	The City of Toronto purchased the Green Lane landfill in 2007 to have a disposal option located in Ontario and under its own control, when the Michigan agreement took effect. Currently the City utilizes this landfill asset for the management of the majority of its garbage[7]. All solid waste was directed to the landfill starting in 2014.

[7] City of Toronto. 2015. About Green Lane Landfill. (http://www1.toronto.ca/wps)

B

Solid Waste Legislation and Policy Framework

1 Appendix B - Solid Waste Legislation and Policy Framework

The City of Toronto's solid waste management services and programs are strongly influenced by a number policies and legislative requirements. The following sections provide an overview of the major legislation and policies of governmental organizations (Federal, Provincial and municipal) as well as other key initiatives and stakeholders influencing solid waste management.

1.1 Federal

Provision of solid waste management services to residents and businesses is largely a municipally led function, while regulation of waste management activities falls mainly within the jurisdiction of the Province. Federal government involvement in waste management is limited and is focused in the following areas:

- Assessment and mitigation of the potential environmental impacts of waste management projects/activities within certain specific areas of Federal responsibility;
- Prevention of pollution and protection of the environment and human health from risks posed by toxic and other harmful substances;
- Transboundary shipments of hazardous wastes; and,
- Facilitation of collaboration between Provincial governments on certain common, cross-cutting environmental issues.

The following sections outline the major components of the Federal government's current role in solid waste management.

1.1.1 The Canadian Environmental Assessment Act

Regulatory environmental assessments establish a science-based planning and decision-making framework to: collect and analyze information; predict the potential effects of a proposed project or undertaking; and identify needs and measures required to mitigate potential adverse effects. In Ontario, the Provincial government has primary regulatory jurisdiction over conduct of environmental assessments associated with waste management activities (see Section 1.3.1).

The Canadian Environmental Assessment Act is legislation that supports planning and decision-making for designated projects at a Federal level. The "*Canada-Wide Accord on Environmental Harmonization*" provides a basis for a project to undergo the necessary environmental assessment to avoid duplicating Federal and Provincial processes. The accord establishes principles for consistency among environmental assessment processes. It also delineates distinct roles and responsibilities to reduce the potential for overlap between the jurisdictions of the Federal and Provincial governments.

In the context of planning approvals for waste management projects in Ontario, typically the Ontario Environmental Assessment is the process that is followed, when applicable. In the case of projects which involve Federal jurisdictional issues, the Federal Minister of the Environment can decide whether the

Ontario environmental assessment process adequately addresses the matters of Federal concern, or if a Federal environmental assessment is also required for a specific project.

The Canadian Environmental Assessment Act, although not specifically applicable to finalization of the Long Term Waste Management Strategy, may become relevant depending on the implementation strategies or solutions the Strategy identifies. For example there may be a need to complete environmental assessment and related studies to support certain solutions such as a new waste processing and management facility.

1.1.2 The Canadian Environmental Protection Act

The Canadian Environmental Protection Act (CEPA) focuses on pollution prevention and the protection of the environment and human health from risks posed by toxic and other harmful substances. CEPA is the primary legislation that gives the Federal government jurisdictional authority for involvement in solid waste related matters.

CEPA points to pollution prevention as "the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste and reduce the overall risk to the environment or human health."[1] A key focus of CEPA is the virtual elimination of releases of certain substances into the environment. CEPA also establishes Federal government authority to participate in international agreements on trans-boundary movement of hazardous and other wastes.

1.1.3 Canadian Council of Ministers of the Environment

The Canadian Council of Ministers of the Environment (CCME) serves as a forum for Federal and Provincial Environment Ministers to collaborate in developing overarching tools that each environment ministry can use. The CCME seeks to achieve positive environmental results while focusing on issues that are national in scope. Among its wide achievements, the following lists several of the recent policies and technical contributions made by CCME to the field of solid waste management:

- Compostability Standard and Certification Protocol, 2010;
- Canada-wide Action Plan for Extended Producer Responsibility, 2009;
- Canada-wide Strategy for Sustainable Packaging, 2009;
- Extended Producer Responsibility Product Evaluation Tool, 2008;
- Canada-wide Principles for Extended Producer Responsibility, 2007;
- Guidelines for Compost Quality, 2005;
- Recommended E-waste Products, 2005;
- Canada-wide Principles for Electronics Product Stewardship, 2004; and,
- National Packaging Protocol, 2000.

1.1.4 Federal Climate Change Policy

Linkages between solid waste management, greenhouse gases and climate change have been well established and encompass the following:

[1] "A Guide to Understanding the Canadian Environmental Protection Act, 1999", Environment Canada, December 2004.

- Emissions arising from consumption of raw resources and energy to produce consumer goods and packaging;
- Emissions associated with waste management activities including transportation, processing of waste materials and decomposition of waste disposed in landfills; and,
- Use of waste as fuel to produce renewable fuels displacing consumption of conventional fossil fuels.

Federal legislation and policies on greenhouse gas emissions and climate change are currently primarily focused in the following areas:

- Greenhouse gas emissions from passenger vehicles, light trucks and heavy duty vehicles ;
- Renewable content requirements for gasoline and diesel fuel;
- Greenhouse gas emissions from coal fired electricity generation; and,
- Funding initiatives related to carbon capture and storage technologies and agricultural research on greenhouse gas mitigation.

The influences of these Federal climate change policies and initiatives on solid waste management are largely indirect.

1.2 Canadian Food Inspection Agency (CFIA)

The CFIA reports to the Minister of Health and is dedicated to safeguarding food, animals and plants, which enhances the health and well-being of Canada's people, environment and economy.

1.2.1 Invasive Species

The CFIA regulates Firewood and domestically regulated pests under their plant protection policies. The City of Toronto under these policies must ensure all wood products potentially affected by diseases and invasive species are treated properly. Two pests that are of concern for the City of Toronto include the Emerald Ash Borer and the Asian Long Horned Beetle (ALHB).

The CFIA has established a regulated area in parts of Mississauga and Toronto to prevent the spread of the ALHB. The ALHB Infested Place Order prohibits the movement of any tree materials out of or through the regulated area unless authorized by a Movement Certificate issued by the CFIA.

1.2.2 International or Special Waste

The CFIA also regulates the disposal of international waste and special waste (e.g. wastes that require special handling such as deep burial). These materials may be accepted at Green Lane Landfill on a case-by-case basis after review by landfill management.

1.3 Provincial Policy

The following sections outline the major components of the Provincial government's current role in solid waste management.

While the long-term direction towards increased Extended Producer Responsibility (EPR) appears reasonably certain, there is considerable uncertainty regarding on-going financing of the Blue Box Program and the role of municipalities in program delivery. Depending on which direction the provincial government takes, the LTWMS will need to be reflective of these decisions and ensure that the City is prepared for any future provincial policy changes or changes to municipal funding. The Green Energy Act (2009) and changes to Ontario's Compost Quality Guidelines and Regulatory Framework may also impact waste policies and programs for Ontario municipalities. Municipalities are primarily responsible for solid municipal waste management. This responsibility is framed by Provincial legislation, with some issues impacted by Federal legislation (discussed in the previous section). Municipalities have limited ability to address the consumption and design of products purchased by their citizens. Municipalities must rely on Provincial and Federal authorities and regulations to influence these important areas, which contribute to source reduction of waste.

1.3.1 Ontario Environmental Assessment Act

The Ontario Environmental Assessment Act (and its regulations) establishes a regulatory framework for planning and decision-making for a range of projects and undertakings. Individual or streamlined environmental assessments are required for public projects (i.e. Provincial, municipal and public authorities) involving, amongst other items, resource management, flood protection and waste management. In the specific area of waste management, environmental assessment requirements are applied to both public and private projects and undertakings.

The Ontario Environmental Assessment Act defines the following three streams for waste management projects:

- Major projects with significant potential for environmental effects, which require terms of reference and an individual environmental assessment (e.g. new landfill);
- Projects with predictable environmental effects that can be readily mitigated, which require an environmental screening process (e.g. a thermal treatment facility, transfer station); and,
- Projects which are exempt from approval under the Ontario Environmental Assessment Act (e.g. certain changes to landfills or waste disposal sites).

Types of waste management projects which are subject to the requirements of the Ontario Environmental Assessment Act are broadly defined and generally involve the following:

- Landfills/dumps;
- Thermal treatment of wastes;
- Various types of waste disposal sites and transfer stations including facilities where waste is handled, treated or processed; and,
- Hazardous or liquid waste disposal sites.

Details regarding which waste management projects fit into each of the three streams are defined in Ontario Regulation 101/07, Waste Management Projects.

Environmental Assessments (EAs) are intended to assess the potential impacts of a specific project designed to address a particular need. As part of the assessment of potential impacts, a range of

alternatives can be considered depending on availability, circumstances, legislation requirements, etc. Typically, the requirement to complete an EA process is the result of the identification of a particular need that arises during the development of a long term strategy or plan. For waste management, a long term strategy will identify the areas where a particular issue may exist (e.g. insufficient long term disposal capacity to support the municipality's requirements) and then outline the available alternatives which, depending on the circumstances, may require the completion of an EA to address.

1.3.2 Ontario Environmental Protection Act

The Ontario Environmental Protection Act (and its regulations) is the primary legislation governing a wide range of environmental matters, those specific to solid waste include:

- Discharge of contaminants into the natural environment;
- Approvals, permits, registrations, licensing, codes and standards;
- Waste management systems;
- Waste disposal sites;
- Sewage works;
- Industrial facilities and discharges;
- Brownfields, records of site conditions, remediation;
- Renewable energy;
- Air pollution, air quality. ozone depleting substances and emissions trading;
- Notification requirements;
- Spills and clean-ups; and,
- Investigations, orders, enforcement, fines and penalties.

The following list a few of the key regulations issued under the Ontario Environmental Protection Act that most strongly influence solid waste management:

- 225/11: Applications for Environmental Compliance Approvals
- 452/09: Greenhouse Gas Emissions Reporting
- 232/98: Landfilling Sites
- 101/94: Recycling and Composting of Municipal Waste
- 102/94: Waste Audits and Waste Reduction Work Plans
- 103/94: Industrial, Commercial and Institutional Source Separation Programs
- 104/94: Packaging Audits and Packaging Reduction Work Plans
- 342/90: Designation of Waste
- 347/90: General – Waste Management

While all of the above regulations issued under the Ontario Environmental Protection Act influence the City's solid waste management programs, the 3Rs regulations (Ontario Regulations 101/94, 102/94, 103/94, 104/94 and 105/94) are particularly relevant in terms of diversion efforts. The 3Rs regulations were issued in 1994 to increase the diversion of residential, industrial, commercial, institutional, construction and demolition waste from landfill disposal in Ontario.

1.3.3 Waste Diversion Act

Enacted in 2002, the Waste Diversion Act (and its regulations) focuses on reduction, reuse and recycling of wastes. Key elements of the Waste Diversion Act include:

- Establishment of Waste Diversion Ontario with authority and responsibility for developing, implementing and operating waste diversion programs;
- Definition of the structure and governance of Waste Diversion Ontario;
- Designation of materials targeted for diversion programs by the Minister of the Environment; and,
- Establishment of industry funding organizations to cooperate on development, implementing, operating and funding waste diversion programs.

A key objective of the Waste Diversion Act is to ease the financial burden on municipalities for waste diversion programs and allocate a share of costs for diversion to producers of the designated materials. The following sections briefly summarize diversion programs overseen by Waste Diversion Ontario under the Waste Diversion Act. The Long Term Waste Management Strategy (LTWMS) will provide options and best practices for waste diversion and will ensure the City's commitment to improved waste diversion efforts and moving towards the goal of 70% waste diversion.

1.3.3.1 Blue Box Program and Blue Box Plan

Created in October 2002, Stewardship Ontario was the first industry funding organization. Under this plan, all designated stewards of Blue Box materials are required to pay fees to Stewardship Ontario to help finance the collection and diversion of Blue Box materials in municipal programs. Blue Box stewards are defined as companies that introduce packaging and printed paper into the Ontario residential marketplace. Stewards are the brand owners, first importers and franchisors in Ontario of products that result in consumer packaging and printed paper waste. Currently affected industry stewards are responsible for funding 50% of the net costs of blue box recycling that are incurred by municipalities.

1.3.3.2 Municipal Hazardous or Special Waste Program

Stewardship Ontario was designated as the industry funding organization for the development of an industry program to collect, divert and safely dispose of Municipal Hazardous or Special Waste (MHSW). Now labeled the "Orange Drop Program," Phase 1 of the program launched in July 2008 to manage the nine materials listed below:

- Paints and coatings, and the containers in which they are contained;
- Solvents, and the containers in which it is contained;
- Oil filters;
- Empty oil containers;
- Single –use dry cell batteries;
- Automotive antifreeze, and the containers in which it is contained;
- Pressurized containers;
- Fertilizers, and the containers in which it is contained; and,

- Pesticides, herbicides and fungicides and the containers in which it is contained.

There are many opportunities for convenient and responsible disposal of Phase 1 materials through industry run take-back programs available at local retailers and depots.

On July 22, 2008, the Minister provided direction to the Waste Diversion Ontario (WDO) board of directors on the development of additional phases of the MHSW Program and requested the development of an amended Program to include all MHSW designated under Phase 2 and Phase 3, in addition to materials currently included in Phase 1[2]. The Recycling Council of Ontario (RCO) was appointed to administer payment from the Province for Phase 2 materials after legislative change in 2010.

Phase 2 Materials include:

- Rechargeable batteries;
- Portable fire extinguishers;
- Fluorescent light bulbs and tubes;
- Mercury-containing devices;
- Sharps, syringes; and,
- Pharmaceuticals.

Phase 3 Materials include:

- Flammable wastes (can include gasoline, kerosene, adhesives, thinners, sealers);
- Corrosive wastes (can include acidic products such as tire cleaners or drain cleaners and alkaline products such as paint remover or masonry products);
- Toxic wastes (can include adhesives like contact cement and glues, waxes, polishes); and,
- Reactive materials (such as isocyanate foams or metal powders).

The purpose of Phase 2 and 3 was to facilitate the reimbursement to Ontario municipalities for the costs associated with properly managing, recycling, and disposing of these additional materials. However, on July 21, 2010, the Minister of the Environment filed Regulation 298/10 which suspended the payment of fees on the products in Phases 2 and 3. The suspension was made permanent by Regulation 396/10 on October 18, 2010[3]. Stewardship Ontario continued to operate the Orange Drop (MHSW) Program at the request of the government until September 30, 2012.

RCO was informed by the Ontario Ministry of the Environment and Climate Change that effective October 1, 2014, municipalities will no longer be reimbursed for the management of materials through the Phase 2 and 3 programs. Since 2009 to June 30, 2014, Toronto has received $8,026,569 in MHSW funding from SO and through RCO.

[2] Stewardship Ontario, 2014. Orange Drop Regulations and Plans. http://www.stewardshipontario.ca/stewards-orangedrop/orange-drop-regulations-plans/

[3] Stewardship Ontario, 2014. Orange Drop Regulations and Plans. http://www.stewardshipontario.ca/stewards-orangedrop/orange-drop-regulations-plans/

Although municipalities such as Toronto will not be reimbursed for materials in the Phase 2 and 3 programs, several industry take back programs are still being operated. Due to the removal of the Phase 2 and 3 programs above, The City of Toronto will need to continue to work closely with the existing industry take-back programs. These programs include;

- ***Take Back the Light Program*** - Take Back the Light is a light recycling program for the IC&I and residential sectors for responsible recycling of fluorescent lamps and light fixtures[4]. The program, which is funded by the Ministry of the Environment, but led by the Recycling Council of Ontario, works with both buyers and sellers of fluorescent lamps of any kind to recover and properly recycle lights to the highest environmental standards.
- ***Ontario Sharps Collection Program (OSCP)*** - On October 2nd, 2012, Ontario Regulation 298/12 '*Collection of Pharmaceuticals and Sharps - Responsibility of Producers*' came into force under the Ontario Environmental Protection Act (EPA). The program is designed to provide collection service for all types of sharps sold in Ontario for the consumer waste stream (i.e. those products returned by residents to pharmacies) The OSCP is administered by the Health Products Stewardship Association (HPSA).
- ***Ontario Medications Return Program (OMRP)*** - OMRP includes all prescription drugs, medications such as over-the-counter medications (e.g vitamins and minerals, traditional Chinese medicines, herbal products, probiotics, amino acids, homeopathic medicines)[5].

Both the OMRP program and the OSCP program (described above) are administered by HPSA and are funded by brand-owners selling medications and sharps in Ontario[6]. Funding from the industry covers expenses occurred in the collection, transportation, storage, disposal, promotion and education. Due to provincial funding cancellation, municipalities are no longer eligible for funding for collection of these materials. The HPSA understands that some municipalities still allow residents to bring their pharmaceuticals and sharps to household hazardous waste depots. However, they are actively engaging these municipalities to have industry take responsibility for these materials and transition them to the industry-run retail pharmacy collection network[7].

1.3.3.3 Electronics Stewardship Program

The Ontario Waste Electrical and Electronic Equipment Program for Phase 1 materials (i.e. computers, monitors, computer peripherals, printers, fax machines and televisions) was launched on April 1, 2009. A total of 44 types of electronics are now covered by program which is run by Ontario Electronics Stewardship (OES) as the industry funding organization. The costs of collecting and diverting electrical and electronic waste are the responsibility of stewards. Funding for the Ontario Electronics Stewardship (OES) program comes from fees paid by stewards which includes both manufacturers and importers of electronics in Ontario. Funds cover the cost of diverting changing volumes of e-waste; specifically in the

[4] Take back the Light. 2014. http://www.takebackthelight.ca/
[5] Health Products Stewardship Association. 2014. http://www.healthsteward.ca/returns/ontario
[6] Health Products Stewardship Association. 2014. http://www.healthsteward.ca/returns/ontario
[7] Health Products Stewardship Association. 2014. http://www.healthsteward.ca/news/ontario-residents-return-750-tonnes-pharmaceuticals-and-sharps

areas of collection, transportation, consolidation and recycling of those materials. These funds also cover program research, education and promotion[8]. Municipalities such as Toronto play a key role in helping residents manage their end-of-life electronics safely and responsibly. By working closely with OES the City can offer better resources designed to help residents manage their electronic waste.

1.3.3.4 Used Tire Program

Ontario's Used Tire Program was launched in 2009 with the objectives of: diversion of used tires in Ontario; and, clean-up of existing scrap tire stockpiles. Ontario Tire Stewardship is the designated industry funding organization and is made up of brand owners and first importers of tires. City of Toronto residents can currently drop up to 4 tires off for free at designated collectors or at collection events.

1.3.3.5 Municipal Datacall Process

Each year, Waste Diversion Ontario (WDO) requires municipalities to complete the Municipal Datacall in order to be eligible for funding for the Blue Box Program. The Municipal Datacall is Ontario's comprehensive reporting system and database for residential waste that is managed by WDO. Reporting municipalities each receive a portion of the net residential Blue Box costs of the province.

1.3.4 Proposed Waste Reduction Act (Bill 91)

Extended producer responsibility (EPR) is a strategy that seeks to link financial and environmental responsibility for end-of-life management of waste materials to the production and use of those materials. As noted in Section 1.1.3, the Canadian Council of Ministers of the Environment prepared its "Canada-wide Principles for Extended Producer Responsibility" and defines EPR as,

> "*…an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle*."

The basic tenets of EPR form the structure for proposed Bill 91, the Waste Reduction Act which was intended to establish a new framework for reduction, reuse and recycling of waste in Ontario. If enacted, the Waste Reduction Act would replace the current Waste Diversion Act (see Section 1.3.3) with the primary intention of shifting responsibility for the management of wastes from municipalities to producers of packaging and products.

Key elements of the proposed Bill 91 included:

- Establishment of regulatory authority for designation of wastes, definition of producers, producer registration and reporting requirements;
- Commitment to establishing regulated individual producer obligations for:
  - Waste reduction (i.e. collection and recycling) targets
  - Customer service level standards
  - Promotion and education

[8] Ontario Electronic Stewardship Fact Sheet. 2014. http://www.ontarioelectronicstewardship.ca/wp-content/uploads/2014/02/OES_current_Fact_Sheet_English2.pdf?v=March2014

  - Funding of programs
  - Labeling to support integrated pricing with diversion costs included in the pricing of the products
  - Registration, provision of information and reporting
- Revised rules around funding of programs (i.e. removal of Blue Box funding cap);
- Registration and mechanisms for municipalities to be compensated for waste collection; and,
- Replacement of the existing WDO with a new Waste Reduction Authority with a new structure and governance model intended to support its mandate to:
  - Oversee existing waste diversion programs and transition to a new individual producer responsibility framework
  - Monitor and enforce producers' compliance with obligations
  - Information management and reporting
  - Provide the government with advice on waste management issues and resolve disputes
  - Report

If enacted, Bill 91 would have affected all municipalities in Ontario, including the City of Toronto in terms of how waste would be managed, who would be responsible and how costs would be paid. Proposed Bill 91 and its accompanying plan, the Waste Reduction Strategy, outlined key principles to overhaul and improve waste diversion in Ontario, but also left many details still to be resolved during implementation. If enacted, it was anticipated that the requirements of the Waste Reduction Act would be phased in over a five year period.

Bill 91 was proposed by the Ontario government in June 2013; went to second reading in the Ontario legislature beginning in September 2013 and had not yet been enacted (or defeated) at the time the sitting of Parliament was dissolved for election on May 2, 2014. While it is clear there is a strong need and appetite for change in the area of waste diversion in Ontario, the status and future of proposed Bill 91, the Waste Reduction Act, is uncertain.

As a key element of waste management policy in Ontario, driving increased producer responsibility and influencing the role of municipalities in solid waste management, it is important that the City remain attuned to the status of Bill 91 or its successor legislation.

1.3.5 City of Toronto Amalgamation

In 1996, the Government of Ontario passed Bill 26, Savings and Restructuring Act and associated amendments giving the Minister the power to make regulations to restructure and amalgamate municipalities. The intention of this legislation was to streamline government and provide greater flexibility to municipalities to determine which municipal level would provide certain services prescribed in the regulations. For instance, prior to the passing of this legislation, local municipalities traditionally provided solid waste collection services, with regional municipalities providing processing and disposal services. Amalgamation of large municipalities in Ontario including the City of Toronto resulted in further consolidation of waste management services and integration of collection, processing and disposal into one system.

1.3.6 City of Toronto Act, 2006

Effective January 1, 2007, the City of Toronto Act, 2006 came into force replacing the preceding City of Toronto Act (1997) and removing the City from the purview of the Ontario Municipal Act.

The City of Toronto Act seeks to:

- Recognize the distinctive significance and needs of the City of Toronto in Ontario and Canada;
- Redefine the City's relationship with the Province; and,
- Provide the City with tools for greater autonomy and public accountability.

The City of Toronto Act includes a section that specifically addresses the management of waste in the City and also includes references to waste in other sections such as zoning and site plans and approvals.

Key elements of the City of Toronto Act that may impact or could potentially tie to Solid Waste Management Services include:

- Authority to directly impose new taxes (excluding income tax, sales tax and certain other specific types of taxes);
- Ability to impose user fees for services provided by the City and definition of scope of costs which may be included in user fees;
- Broad abilities to impose licensing requirements on businesses;
- Broad authority to pass by-laws to support "…*any service or thing that the City considers necessary or desirable for the public*…" (subject to not conflicting with Provincial or Federal laws); and,
- Authority to delegate some levels of decision making to certain committees and others;
- Greater authority to manage its own finances including borrowing, investing and incurring debt.

The City of Toronto Act, 2006 provides the City with broad powers and tools to allow the City to manage its affairs as needed to best suit the interests of the City's citizens.

1.3.7 Ontario Building Code Act

This Ontario statute authorizes municipalities, including the City of Toronto, to adopt various standards for maintenance and occupancy of property within the City. Such standards can include, among other things, waste in buildings. Consequently, the City has adopted a property standards by-law that currently addresses garbage and debris storage and disposal and may be helpful for other aspects of waste planning.

1.3.8 Places to Grow Growth Act and Plan

In 2006, the Ontario Ministry of Public Infrastructure Renewal released Places to Grow - the Growth Plan for the Greater Golden Horseshoe. The Growth Plan was developed under the Places to Grow Act, 2005.

The Places to Grow Growth Plan identifies that by 2015 a minimum of 40% of all residential development within upper and single tier municipalities must be within the built up areas, achieved through a phased increase. The Growth Plan sets out a minimum gross density target for the City of Toronto of 400 residents and jobs combined per hectare within the urban growth centre. The only option for the City is

to grow "up" since it cannot grow "out". This has changed development patterns in the planning areas towards more high-rise and high density housing which has created additional challenges for SWMS.

1.3.9 Ontario Green Energy Act and the Feed in Tariff Program

There are strong linkages between solid waste management and energy:

- Recycling programs reduce the amount of energy consumed in production of materials used for consumer goods and packaging; and,
- Numerous conversion technologies are available and under development that seek to liberate energy from the non-recyclable materials that society defines as "waste".

The Ontario Green Energy Act, introduced in the Ontario legislature on February 23, 2009, is intended to expand renewable energy production, encourage energy conservation and create green jobs. Among the key features of the Green Energy Act are:

- Different levels of Feed-in-Tariff are set for electricity from different renewable sources (solar photovoltaic, biomass, landfill gas, on-shore and off-shore wind and water power) that are fed into the electrical grid.
    - Depending on the size of the project, current Feed-in-Tariff payments range from 7.7 cents per kilowatt-hour for landfill gas projects, up to 39.6 cents per kilowatt-hour for small residential solar rooftop projects;
- Local electrical distribution companies (LDCs) are obligated to accept electricity from small generators into their systems, and given a set of standard regulations for systems under 10kW (i.e. microFIT) and a variety of other sizes, depending on the technology involved;
- Smaller systems, and in particular microFIT (under 10kw) systems are guaranteed a simpler application procedure and faster turn-around time; and,
- The contract for payment of tariffs is for 20 years (40 years for hydro generators) and is the responsibility of the specially created Ontario Power Authority (OPA).

The City of Toronto was one of the first Canadian municipalities to capture and recover energy from landfill gas being produced in the City's landfill sites. Toronto's leadership in implementing anaerobic digestion to process Green Bin organic wastes creates the opportunity to capture and utilize the biogas being generated by that process. The City is currently actively investigating this renewable energy opportunity at the Keele Valley landfill.

1.3.10 Disco Biogas Utilization Facility

SWMS has initiated a Renewable Energy Application (REA) to capture and use the biogas generated at the Disco Road Organics Processing Facility, as a renewable energy resource. Biogas is a by-product of the anaerobic digestion process that breaks down organic waste collected from the City's Green Bin Organics Program. Currently, the plan will be to use the biogas to provide heat and power to City facilities at 120 and 150 Disco Road. All Draft Renewable Energy Application reports are available for public review on the following web page: www.toronto.ca/discogreen.

The second and final public consultation meeting for the Renewable Energy Approval was held in January 2015. The REA reports being finalized and the REA application package is scheduled to be submitted by late February or early March, 2015.

1.3.11 Dufferin Biogas Utilization Facility Update

This project will occur in tandem with the Dufferin Organics Processing Facility Expansion. The biogas utilization facility will likely be a load displacement with limited heat capture facility similar in configuration to the one envisioned for Disco. A Renewable Energy Approval process similar in scope to that completed for Disco will be undertaken.

1.3.12 Green Lane Landfill Gas Utilization Strategy

The City's Green Lane Landfill generates combustible landfill gas and has a system to collect and flare this gas in accordance with the requirements of the permit issued under the Environmental Protection Act.

The landfill gas can be utilized as a source of renewable energy to provide an economic benefit to the City. The purpose of this project is to create the capability to convert landfill gas into a renewable energy product, either as electricity or as renewable natural gas and to transport the energy product to a location where it can be connected and supplied to the local energy distribution grid.

The Utilization Strategy Report was completed in December 2014. The likely use for the landfill gas will be electricity generation for sale to the distribution system under a power purchase agreement. For electricity generation, a Renewable Energy Approval larger in scope compared to Disco and Dufferin will need to be undertaken.

1.4 Municipal Policy

In addition to policy and legislation at the Federal and Provincial levels, the City has also developed their own policy framework to support and guide the provision of waste management services. City policy components that impact solid waste management services include:

- Official Plans and Zoning By-laws;
- Strategic Plans and Vision Documents;
- Long-term Sustainability Plans;
- Solid Waste Specific By-laws; and,
- Green Procurement Initiatives.

The following section highlights the City's own policies and regulations and identifies how these will affect waste management and the long term planning of waste in the City.

1.4.1 Official Plan

The City has developed an Official Plan which is currently undergoing review. Official Plan amendment 231 was approved by Council on December 18, 2013 and was forwarded to the Minister of Municipal Affairs and Housing for approval in January 2014.

The City's Official Plan, originally adopted by Council in 2002, provides the vision and guidance for future growth of the City with strategies for the built, human, natural, and economic environments. The Plan provides clear direction for the City of Toronto and provides the basis for building a City-wide consensus around change. The Plan also describes the land use designations in the City and the strategies for managing growth, implementation plans, monitoring and assessment. In general the Official Plan influences waste management activities through:

- Environmentally sustainable building design and construction practices;
- Policies for the natural environment to reduce the consumption of natural resources;
- Policies regarding waste management facilities;
- Site plan control to provide dedicated areas for collection and storage of solid waste; and,
- Development of a long term waste management strategy.

Although the Official Plan does not include a specific section regarding waste management, it does address waste management strategies through various sections of the plan and specific policies within those sections. Table 1 lists the specific policies that were developed as a part of the Official Plan and how they influence management of waste in the City.

Table 1: Waste Management Policies in the Official Plan

Chapter and Section	Policy
2.2.3 Re-urbanizing arterial corridors and avenues	Reduce waste and promote recycling
2.3.1 Healthy Neighbourhoods	Energy efficiency and programs for reducing waste
3.1.2 Built Form	New development will provide amenities for adjacent streets and open spaces to make them more comfortable, functional and attractive including providing waste and recycling containers
3.4 Natural Environment	Address environmental stresses caused by the consumption of natural resources by reducing the amount of solid waste requiring disposal in landfill and by promoting programs for reducing, reusing, recycling and composting. Designs that facilitate waste reduction and recycling and other innovative waste management technologies and practices. Major facilities such as waste management facilities will be appropriately designed, buffered and or separated from each other to prevent adverse effects from noise,

Chapter and Section	Policy
	vibration, odour, contaminants and to promote safety.
5.1.3 Site Plan Control	To help achieve sustainable development, site plans must include dedicated areas for collection and storage of recycling and organic waste to reduce solid waste.
5.3.2 Implementation Plans and Strategies for City-Building	Implement a solid waste management plan to increase waste diversion.

It is important to note that although the Official Plan provides a general guide for directing growth and change, it cannot encompass or even imagine every circumstance. Further implementation plans and strategies are required for dealing with specific requirements and to bring the plan to life. These include; a municipal housing strategy, a transportation strategy, community service and facilities strategies and many others. This suggests that although the Official Plan addresses waste generally as listed in the policies above, there is a need for a specific study such as the Strategy to help manage waste in the long term and to clearly implement and enforce the policies developed in the Official Plan.

1.4.2 Waste By-laws

The City of Toronto Act requires the City to exercise its powers through the establishment of by-laws. City Council makes decisions by adopting or amending recommendations from its committees and City officials contained in reports and communications. This ensures that every decision is made by by-law. Some decisions are also the subject of a more specific by-law. These by-laws provide for greater clarity and certainty, and for ease of reference.

Most by-laws are added to the Toronto Municipal Code (Code). The Code is a compilation of selected by-laws organized by subject. The Municipal Code is updated frequently to contain current law. The City of Toronto has developed by-laws specific to regulating and governing waste management. The City's Solid Waste By-laws are compiled into Chapters of the Toronto Municipal Code. Each Chapter is a by-law. The individual by-laws or chapters most directly applicable to waste management in the City of Toronto include the following in Table 2.

Table 2: Municipal Code Chapters Applicable to Waste Management in the City of Toronto

Category	Municipal Code Chapter	Items Regulated
Fees	441 – Fees and Charges	Regulates the fees and charges applied to the collection/management of the City's waste (Appendix B).
	442 - Administration of Fees and Charges	Regulates administration of waste management fees for schools and fees charged at transfer stations.

Collection	844 – Residential Collection.	Regulates the collection of waste materials from residential properties. Includes information on eligibility for collection services*, what will be collected, when it will be collected, how it will be collected, containers type and size, restrictions on collection and applicable fees.
	841 – Commercial and Non-Residential Collection.	Regulates the collection of waste materials from commercial and non-residential properties. Includes information on eligibility for collection services*, what will be collected, when it will be collected, how it will be collected, container type and size, restrictions on collection and applicable fees.
	* *City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments (May 2012).*	
Waste Transfer and Landfill	846 – Waste Transfer Station.	Regulates waste and separation requirements, prohibited activities and prohibited wastes at City transfer stations and landfill locations.
Packaging	604 – Packaging	Addresses compatibility of plastic bags with the City's waste processing operations.
Waste Standards for Buildings	629 – Property Standards	Garbage and debris storage and disposal
Business Licensing	545 – Licensing	Requirements could potentially apply to certain private waste operations in the City.
Littering and Dumping	548 – Littering and Dumping of Refuse	Prohibits dumping or depositing of waste on any land within the city.
Requirements for Developments and Re-Developments	By-Law	In order to qualify for City of Toronto solid waste collection services, new developments, including existing developments currently receiving private collection services that must meet the eligibility criteria and requirements outlined in this document.
Zoning By-Law 569-2013	By-Law	Includes by-laws on waste including; Waste and Recyclable Storage in Residential, Apartment, Commercial and Institutional Zones.

These by-laws are important as they assist the City in reaching their diversion goals and help to keep Toronto a clean and sustainable City. The waste by-laws are monitored and enforced by enforcement officers and are reviewed on an annual basis. Some examples of by-law infractions include the following:

- Waste materials placed out for collection at the wrong day, or taken out too early on the right day.
- Waste not placed in an approved regulation container (Green Bin, Yellow Bag, etc.).
- Waste item exceeds weight limit.
- Carpet, wood or cardboard not tied into bundles of regulated size.
- Failure to remove containers / waste from City property.
- Waste set out for collection picked over, removed or scattered, or permitting any animal owned by a citizen or under his/her care to do so.
- Waste generated on private property deposited in public receptacles.
- Waste generated a result of commercial or retail activity, etc. deposited for residential collection.

1.4.3 Council's Strategic Plan

Toronto's original Strategic Plan was approved by Council in 2002; it set out Council's vision and mission for the City and specific goals to guide planning activities. The Strategic Plan is Council's leadership document for the City of Toronto. It sets out Council's vision and mission for the City and specific goals that guide the planning activities within the organization. The Strategic Plan was approved by Council in three stages:

- Vision and Goals in November of 1999;
- City Directions in August 2000; and,
- Fiscal Principles in December 2001.

The Strategic Plan embraces sustainability as its central concept. The concept of sustainability helps the City consider economic, environmental and social implications together rather than using a single perspective. It encourages decision making that is long range, democratic, participatory and respectful of all stakeholders. Sustainability also means focusing on long term horizons (30 years ahead and beyond) instead of the next fiscal or council year.

As a part of the strategic plan, Council has developed several strategic actions some of which will influence waste management services in the City over the long-term, including:

Strategic Action # 6, which includes development an Environmental Sustainability Framework to advance the City's corporate and divisional environment and energy objectives including:

- Developing integrated business plans and implementation strategies to move forward environmental and energy priorities within the City's jurisdiction over the next five years;
- Integrating environmental and energy policies and plans across City divisions and establishing interdivisional teams as required;
- Establishing a Program Advisory Body by 2013 to bring together community and sector leaders to provide advice and support to the Chief Corporate Officer in implementing the City's Environmental Sustainability Framework and achieving the City's environmental and energy objectives;

- Developing key partnerships at the provincial, regional and local level to leverage and advance shared environmental and energy objectives; and,
- Monitoring environmental sustainability outcomes and publishing an annual report on the health and City's progress in achieving its environmental and energy objectives.

Strategic Action # 7 is the development of a long-term sustainable waste management strategy, in partnership with community and divisional stakeholders that is environmentally sustainable and economically viable and includes:

- Increasing divisional, community and citizen engagement and stewardship to support sustainable solid waste management.
- Increasing efforts to achieve waste diversion targets in the residential, multi-residential, industrial, commercial and institutional sectors;
- Reviewing and evaluating new and emerging techniques and technologies that can maximize the lifespan of the Green Lane Landfill;
- Leveraging partnerships with other public and private sector operators to achieve sustainability objectives;
- Assessing expansion or acquisition of landfills and alternative disposal options that will ensure effective solid waste management and disposal; and,

Development of a long term waste management strategy will not only satisfy Council's strategic plan and strategic actions, but will assist in aligning the City's waste management policies and regulations with the core values and concepts of the Official Plan and sustainability documents and guidelines developed over the past decade.

1.4.4 SWMS Strategic Plan

To align itself with the City's overall Strategic Plan (discussed in Section 1.4.3), SWMS developed its own strategic plan. The mission of the plan is;

"*To provide innovative waste management services to residents, businesses and visitors within the City of Toronto in an efficient, effective and courteous manner, creating environmental sustainability, promoting diversion and maintaining a clean city*"

and their vision is;

"*To be an International Leader in the Operation of an Innovative and Sustainable Solid Waste Management Utility*".

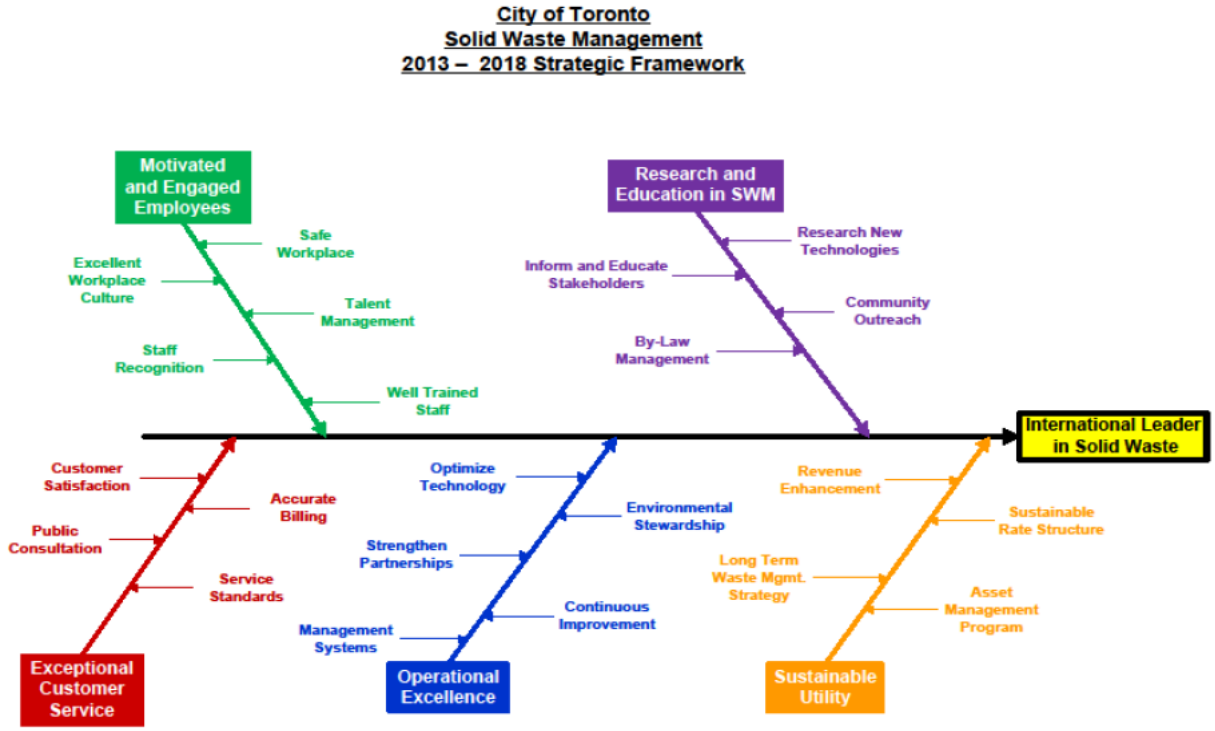
The SWMS strategic plan has five primary objectives that guide the SWMS division.

The Five Primary Objectives are as follows:

1. Provide exceptional customer service
2. Ensure motivated and engaged employees
3. Operate a sustainable utility

4. Strive for operational excellence
5. Leadership in research and education

The following framework shows the five Primary Objectives with corresponding Secondary Objectives and how meeting these objectives will eventually allow the division to reach its overall vision.



Since 2013 and the formation of the Strategic Framework, SWMS have been tracking their objectives and monitoring the completion of each primary objective, their secondary objectives and the operational objectives. To date, the SWMS Division initiated a re-structuring in order to provide better customer service, to more efficiently implement waste diversion initiatives in the multi-residential sector and to deliver on the five primary objectives identified in the 2013 Strategic Plan. SWMS have initiated and completed several objectives and is working towards completing several more before the year 2018, including this Strategy which forms part of the sustainable utility.

1.4.5 Solid Waste Management Services Information Technology Strategy

Toronto's SWMS Information Technology (IT) Strategy was developed in 2013. for the next five to ten years in support of the SWMS Strategic Plan. IT strategic alignment with the business strategic plan is integral to SWMS success. Among the priorities stated in the 2013-2018 SWMS Strategic Plan, there is a continuous focus on customer satisfaction through service standards, public consultation tracking and reporting, revenue enhancement and operating sustainable assets. It was recognized that there is an increased need for up-to-date business information to enable decision-making. The IT Strategic Initiatives identified address the Division's IT needs for the next five to ten years. The IT Strategy details the

implementation sequence of these initiatives. The IT Strategy will be revisited every year to ensure continuous alignment with the SWMS Strategic Plan, as well as to review and revise timeline and funding requirements.

The SWMS IT Strategy goals and objectives have been developed according to guidelines provided by the City's corporate Information & Technology Strategic Planning and Architecture group (I&T). These goals and objectives are designed to enable performance measures for SWMS IT service providers such as corporate I&T as well as outside contractors. As part of the IT strategy, the IT Strategic Initiatives are checked against the SWMS Principal Objectives and SWMS IT Goals to ensure alignment. In addition all of the objectives are tracked for status and completion. Table 3 shows the IT strategy objectives.

Table 3: IT Strategy Objectives

Strategic Plan Goals/Objectives	IT Strategy Objectives
Improve Decision Making Support	• Improve information quality • Increase analytical capability • Improve information availability
Improve workforce enablement	• Improve use of IT to accomplish work • Improve business processes • Increase use of mobile technology • Increase use of common business systems • Improve system integration
Improve responsiveness to change	• Improve and enhance partner relationships • Improve IT practices • Establish IT governance

1.4.6 Target 70

Another important waste management policy document is the Target 70 Plan. In June 2007, Council approved the Target 70 Plan which outlined the initiatives contributing to achieving the City's diversion goal of 70% diversion by 2010. The Target 70 plan included the following wide-ranging programs and initiatives:

- Packaging source reduction and consumer purchasing change initiative;
- Implementation of Green Bin organics collection in multi-residential buildings on a City-wide basis;
- Encouragement of behavioural change through user-pay type financial incentives including implementation of a volume based rate structure;
- Enforcement of mandatory diversion by-law;
- Identification of new materials for recycling;
- Change from Blue Box system to carts to increase the capture of recyclables, reduce blowing litter and reduce injury claims by automation of collection;
- Reuse/disassembly of durable goods for recycling including establishment of reuse facilities across the City;
- Provision of door to door collection to townhouses;

- Review and assessment of emerging source separation techniques; and
- Increase processing capacity.

While many of these initiatives have been implemented and have contributed to increased diversion in the City, some elements of the Target 70 Plan have evolved and been impacted by external factors and resource constraints. In particular:

- A Province-wide shortage of organic waste processing capacity and the time required for the City to expand its own processing facilities has impacted the roll-out of Green Bin collection to multi-residential buildings;
- Efforts to expand diversion of durable goods have proven to be problematic and cost-prohibitive;
- Markets for recycling of new plastic materials have not become established although the City continues to develop markets for these materials;
- Mechanical/biological treatment has not been pursued due to market risk exposures;
- Lightweighting of products and reduced quantities of heavier materials (e.g. newspapers);
- Diversion for cart based program, volume based rate structure and curbside townhouse collection was lower than expected; and,
- Greater reuse through charities, online websites (e.g. Kijiji), garage/yard sales have contributed to less waste managed overall.

City staff continue to progress towards the fundamental objectives and advance many of the programs and initiatives of the Target 70 Plan with a focus on:

- An enhanced, more aggressive strategy for the multi-residential sector now that the issues around processing capacity are well on their way to being addressed;
- Continuation of the durable goods program;
- Investigation of new ways to sort and bring additional recyclable materials to the market which in turn will allow these materials to be added to the Blue Bin program;
- Procurement and roll out of the next generation of Green Bins;
- Expansion of Green Bin organics processing capacity;
- Inclusion of other City waste generator sources such as schools and Agencies and Corporations in expanded diversion opportunities.

1.4.7 Toronto Green Standard

The Toronto Green Standard (TGS) is a two-tier set of performance measures with supporting guidelines related to sustainable site and building design for new public and private development. The standards are designed to work with the regular development approvals and inspections process. Each version contains:

- Tier 1 (mandatory) and Tier 2 (voluntary) performance measures;
- Detailed specifications, definitions, and resources; and
- Examples of strategies to implement the TGS.

New planning applications, including Zoning By-law amendments, Site Plan Control and Plan of Subdivision approvals, are required to meet Tier 1 of the environmental performance measures.

Developers may also choose to meet Tier 2, the voluntary, higher level of environmental performance. Achieving the requirements of the TGS contributes towards LEED[9] certification. Developments that meet both Tier 1 and 2 of the TGS are eligible for a partial refund on development charges paid to the City.

The new version of the TGS includes improved measures for LEED as well as new solid waste requirements that are consistent with City guidelines for multi-residential buildings. These new standards require buildings to have storage and collection of both recycling and organic waste and to have recycling room areas.

The following tables are relevant excerpts of how solid waste is addressed in the TGS.

Table 4: Solid Waste Toronto Green Standards for New Low-Rise Residential Development

Development Feature	Tier 1 – Required	Tier 2 - Voluntary
Storage and collection of recycling and organic waste to facilitate waste sorting and reduction	Provide an easily accessible dedicated area or areas for the collection and storage of materials for recycling for each dwelling unit. Materials must be consistent with the City of Toronto waste diversion programs.	Provide separated cabinet space in all kitchen suites for segregated collection of: • Recyclables • Organics • Waste
Construction waste management - recycle and/ or salvage non-hazardous construction and demolition debris		Recycle at least 75% of non-hazardous construction and demolition debris.
Regional materials - increase demand for building materials and products extracted, processed and manufactured in the region		Ensure that at least 20% of a project's building materials or products have been extracted, harvested, recovered or processed within 800 km (2400 km if moved by rail or water) of the final manufacturing site.

[9] Leadership in Energy and Environmental Design

Table 5: Solid Waste Toronto Green Standards for New Mid to High-Rise Residential Development and IC&I Development.

Development Feature	Tier 1 – Required	Tier 2 - Voluntary
Storage and Collection of Recycling and Organic Waste	Provide a waste sorting system using a single chute with a tri-sorter or two chutes, one with a bi-sorter.	Provide three separate chutes for collection of each of the three waste streams on all floors.
Facilitate waste sorting and reduction	Provide an easily accessible waste storage room with a minimum floor space of 25 m^2 for the first 50 units plus an additional 13 m^2 for each additional 50 units. Provide a minimum of 10 m^2 for bulky items and additional diversion programs.	Provide separated cabinet space in all kitchen suites for segregated collection of: • Recyclables • Organics • Garbage OR Provide a dedicated area or areas within the building for the collection and storage of recycling and organics. Household hazardous waste Provide a dedicated collection area or room for the collection of household hazardous waste and/or electronic waste.
Building Reuse - Maintain existing walls, floors and roof		Maintain at least 55% of the existing building structure (including structural floors and roof decking) and envelope.
Construction Waste Management - Recycle and/or salvage non-hazardous construction and demolition debris		Recycle at least 75% of non-hazardous construction and demolition debris.
Recycled Content - Reduce demand for new materials and increase market for recycled materials		Ensure that at least 20% of a project's construction materials (based on value) comprise recycled content.

Development Feature	Tier 1 – Required	Tier 2 - Voluntary
Regional Materials - Increase demand for building materials and products extracted, processed and manufactured in the region		Ensure that at least 20% of a project's building materials or products have been extracted, harvested, recovered or processed within 800 km (2400 km if moved by rail or water) of the final manufacturing site

1.5 Other Policy Influences

The following sections outline several programs and organizations related to solid waste management policies and programs. Several of these organizations provide funding for waste management projects and/or help shape waste management policy.

Ontario Deposit Return Program

The Ontario Deposit Return Program was launched on February 5, 2007 by the Province of Ontario in partnership with the Liquor Control Board of Ontario (LCBO) and The Beer Store. Under the program, almost all beverage alcohol containers purchased in Ontario can be returned to The Beer Store, or other select return locations, for a full deposit refund. This includes glass bottles, bag-in-box, Tetra Pak containers, plastic bottles (PET), and aluminum and steel containers on which deposits have been charged.

Association of Municipalities of Ontario

The Association of Municipalities of Ontario (AMO) is a non-profit organization representing many of Ontario's municipal governments and develops joint positions on issues of municipal interest. While Toronto is not currently a member of AMO, representatives of the City work alongside representatives of AMO on many important waste management issues in the Province. It is important to be aware of AMO's influential role and the positions it takes on waste management issues. Recently AMO and Toronto have jointly weighed in on several waste management issues including:

- Arbitration regarding Stewardship Ontario's obligation to pay 50% of the costs of the Blue Box program (Toronto was an equal partner at the negotiation table with AMO);
- Promotion and education regarding packaging and waste diversion;
- Proposed Bill 91, the Waste Reduction Act and the Waste Reduction Strategy;
- Increased producer responsibility for products and packaging; and,
- Increased funding for municipal infrastructure.

The City of Toronto has a working relationship with AMO, and where appropriate partners with AMO to help influence policy change when required.

Regional Public Works Commissioners of Ontario

Regional Public Works Commissioners of Ontario's (RPWCO) membership includes senior public works leaders from 16 of Ontario's larger municipalities, representing nearly 80% of the Province's population. RPWCO advocates for its membership on key public works and municipal infrastructure issues in the following areas:

- Waste;
- Roads and transit;
- Water and wastewater; and,
- Strategic matters.

RPWCO's mostly recent actions in the area of solid waste management include presentation of positions to the Ontario Ministry of the Environment regarding extended/individual producer responsibility for waste, ISPs, new products attempting to be introduced to the market and joint communications with AMO and others regarding review of the Waste Reduction Act and Bill 91 (along with AMO and MWA).

The City of Toronto is an active member in RPWCO and is currently the co-chair of the Waste Subcommittee.

Municipal Waste Association

The Municipal Waste Association (MWA) is a not-for-profit organization for Ontario waste management professionals to share information and experiences as well as to provide input and insight on policy making. The City of Toronto's committee membership includes Board of Directors, Organics Committee, P&E Committee, MR Committee, and the MHSW Committee.

SWANA

The Solid Waste Association of North America (SWANA) provides training, technical assistance and educational opportunities to its members, and advocates for environmentally and economically sound solid waste legislation and regulations. The majority of members are from the public sector; the remainder organizations providing equipment, technologies, systems and consulting services. There are seven technical divisions within SWANA, and within the Canadian division, there are four chapters, including an Ontario chapter.

Joint AMO-MWA Technical Advisory Group on Waste (JAMTAG)

AMO has formed a technical committee to advise the AMO Waste Management Task Force about waste management and waste diversion programs from a municipal technical-professional perspective.

OWMA

The Ontario Waste Management Association represents private sector companies, municipalities, organizations and individuals involved in the waste management sector in Ontario. The OWMA is an active participant in the development and implementation of waste management regulations and policies that affect its membership.

Waste Diversion Ontario (WDO)

Waste Diversion Ontario (WDO) provides oversight and monitoring for the development, implementation, and operation of diversion programs for waste designated by the Minister of the Environment. Created in 2002 through the Waste Diversion Act the WDO is funded by Industry Funding Organizations (IFOs) who are responsible for operating the programs. IFOs in turn are funded by the industry whose products are being diverted from Ontario landfills. WDO works to engage and communicate with stakeholders and works to find best practices for waste diversion.

The WDO oversees four waste diversion programs:

1. Blue Box
2. Electrical and Electronic Equipment
3. Hazardous Materials
4. Used Tires

Continuous Improvement Fund (CIF)

Developed through a partnership with WDO, AMO, the City of Toronto and Stewardship Ontario, the Continuous Improvement Fund (CIF) works to improve the effectiveness and efficiency of Ontario's Municipal Blue Box Program. CIF helps to provide funding, technical support and training for municipalities and works to find best practices, technological and market based solutions associated to the Blue Box Program. Funding for CIF is sourced from industry stewards.

Green Municipal Fund (GMF)

The Green Municipal Fund (GMF) is an organization within the Federation of Canadian Municipalities (FCM) that works to fund sustainable municipal development. Through the GMF the FCM is able to fund three types of municipal environmental initiatives including:

1. Plans: Grants to develop plans
2. Studies: Grants to conduct feasibility studies and field tests
3. Projects: Below-market loans, usually in combination with grants to implement capital projects.

The funding is allocated in five sectors of municipal activity including: brownfields, energy, transportation, waste and water. The GMF funding is available to all municipal governments and their partners in eligible projects. A competitive selection process is used to identify the projects that will receive funding. Since 2000, FCM has committed to provide $735 million to support 1,040 green initiatives in 495 communities across Canada. Examples of funding the City of Toronto has received include;

- $60,000 in 2001/2002 to examine the feasibility of building a cogeneration plant at the site of the Dufferin Transfer Station, where a small biogas facility will process mixed waste and organic material.
- $30,000.00 in 2001/2002 to investigate the feasibility of biodigesting the animal wastes in enclosed digesters to collect bioenergy in the form of methane, and then using the nutrients in the sludge residue for the various pavilions and horticultural areas at the Toronto Zoo.

C

Historical Tonnes Managed and Diverted

Appendix C– Historical Tonnes Managed and Diverted

Table 1: 2014 Tonnage Map

	2010 Actuals	2011 Actuals	2012 Actuals	2013 Actuals	2014 Actuals
Total (TS -Waste & Diversion Services)	958,400	940,281	923,473	946,015	978,099
Garbage Quantities					
Curbside Collection (Single family, non-residential, schools, non-profits)	150,257	144,724	135,805	137,154	136,935
Front-end Collection (Multi-residential, schools, Agencies & Corporations)	217,170	199,817	190,561	189,582	181,382
Multi-residential - Contracted	217,128	199,669	190,440		
Curbside Collection (Multi-residential)	28,841	26,863	27,893	22,970	24,310
Multi-residential Total	*246,011*	*226,680*	*218,454*	*212,552*	*205,692*
Commercial	5,000	4,862	4,641	13,720	13,470
Litter Bins	3,119	2,585	2,491	2,631	4,921
Collection - Parks	754	2,970	3,194	3,474	3,240
Total Collection	*405,141*	*381,821*	*364,584*	*369,531*	*364,258*
Agencies & Corporations/Non-Profit Drop-Offs	23,177	27,578	20,988	16,890	16,329
Street Sweepings collected by Transportation Department				14,071	20,125
Garbage from Residential and Non-Residential Drop-off (Paid Tonnes)	67,699	63,201	64,927	68,554	77,411
Total Waste (TS) Inbound	*496,017*	*472,600*	*450,499*	*469,046*	*478,123*
Total Processing Residue	55,894	51,932	51,019	56,110	47,166
Total Waste (TS) Inbd incl. residue	*551,911*	*524,532*	*501,517*	*525,155*	*525,289*
Difference between Inbound and Outbound	8,327	1,219	437	517	840
Total Waste (TS) Outbound	*560,238*	*525,752*	*501,954*	*525,672*	*524,449*

Appendix C– Historical Tonnes Managed and Diverted

Table 1: 2014 Tonnage Map

	2010 Actuals	2011 Actuals	2012 Actuals	2013 Actuals	2014 Actuals
Blue Bin Recycling Quantities					
Curbside Collection (Single family, non-residential, schools, non-profits)	153,680	144,915	140,258	140,171	137,205
Front-end Collection (Multi-residential, schools, Agencies & Corporations)	44,518	48,621	53,786	55,415	55,776
Curbside Collection (Multi-residential)	12,979	11,802	7,055	7,946	8,104
Total Residential - Blue Bin Recycling	***211,177***	***205,338***	***201,099***	***203,550***	***201,085***
Commercial (including Special Events)	12,000	9,843	8,521	8,070	10,255
Litter Bins	1,346	2,123	2,216	2,242	1,883
Blue Bin Recycling Collected by Parks Department	69	496	508	878	890
Total Non-Residential -Blue Bin Recycling	***13,415***	***12,462***	***11,245***	***11,190***	***13,028***
Agencies & Corporations/Non-Profit Drop-Offs	868	640	606	561	635
Paid Tonnes at Transfer Stations	808	737	729	797	941
Total Blue Bin Recycling at Transfer Stations	***1,676***	***1,377***	***1,335***	***1,358***	***215,689***
Total Blue Bin Recycling Collected	***226,268***	***219,177***	***213,679***	***216,098***	***213,671***
Blue Bin Recycling - Processed Tonnes Paid		***167,595***	***184,635***	***188,897***	***199,629,***
Blue Bin Recycling - Tonnes Marketed	***168,702***	***167,595***	***169,137***	***163,835***	***163,988***

Green Bin Organics Quantities					
Curbside Collection (Single family, non-residential, schools, non-profits)	105,178	112,716	116,033	118,597	111,364
Front-end Collection (Multi-residential, schools, Agencies & Corporations)	2,969	4,850	6,549	8,067	9,963
Curbside Collection (Multi-residential)	930	876	1,525	4,923	3,427
Multi-residential Total	*3,899*	*5,726*	*8,074*	*12,990*	*13,390*
Commercial (including Special Events)	9,423	14,067	12,663	12,291	13,586
Total Collection	*118,500*	*132,509*	*136,770*	143,878	138,340

Appendix C– Historical Tonnes Managed and Diverted

Table 1: 2014 Tonnage Map

	2010 Actuals	2011 Actuals	2012 Actuals	2013 Actuals	2014 Actuals
Total Green Bin Organics at Transfer Stations	*118,500*	*132,509*	*136,770*	*143,878*	*138,340*
Total Green Bin Organics Processed	*108,331*	*125,614*	*129,129*	*131,751*	*130,970*
Yard waste Quantities					
Total Curbside Collection	67,022	68,333	70,385	74,850	90,438
Other Munic/ Agencies & Corporations Drop-offs/ Non Profit	15,985	14,867	19,052	20,356	22,688
Paid Tonnes at TS	4,628	5,660	7,830	8,373	13,098
Asian Longhorn Beetle (ALHB)	12,855	10,754	10,500		7,122
Total Leaf & Yard Waste (L&YW @ TS)	*100,490*	*99,614*	*107,767*	*103,580*	*133,346*
Total Yard Waste Processed (incl. ALHB)	*98,423*	*94,567*	*106,147*	*99,755*	*124,472*
Electronics					
Residential Curbside (including Multi-residential)	840	798	178	288	40
Multi-residential (Contracted)	13	52	27		54
Depots/Environment Days	994	905	774	566	843
Total Electronics	*1,847*	*1,755*	*979*	*854*	*937*
Durable Goods					
Porcelain	229	578	316	554	377
Carpet			72	66	
Mattresses	1,330	1,814	1,468	2,731	1,119
Clean Wood	9	10	14	1	
Plastic Bins	119	22	26	23	30
Bulky Rigid Plastic	68	96	54	45	58

Appendix C– Historical Tonnes Managed and Diverted

Table 1: 2014 Tonnage Map

	2010 Actuals	2011 Actuals	2012 Actuals	2013 Actuals	2014 Actuals
Total Durable Goods Collected	*5,521*	*5,787*	*5,708*	*4,434*	*3,068*
Total Durable Goods Marketed	*1,755*	*2,520*	*1,950*	*3,422*	*1,584*
Depot and Other					
Drywall		630	574	642	512
OCC Nights	815	5,427	5,338	5,037	5,206
White Goods/Scrap Metal (Res. curbside, Multi-residential In-house, Direct delivery to TS)	5,827	2,563	2,021	2,350	2,733
White Goods/Scrap Metal (Multi-residential - Contracted)	3,015	38	23		
Election Signs	12	3			38
Books	12	34	7		
Roofing Materials	76				
Tires (including E-Days)		143	109	98	107
Total Other Material Collected (Drywall, OCC Nights, WG/SM etc)	*9,757*	*8,838*	*8,072*	*8,126*	*8,596*
Diversion Rate					
Diversion Rate calculated according to GAP- includes tonnes not identified on tonnage map (e.g.,grasscycling, deposit return, SSO residue from external processors, etc.)	47%	49%	52%	53%	53%
Green Lane Landfill					
Other Municipal	152,070	65,068	60,016	53,392	37,877
Paid Private	105,062	117,022	143,927	71,816	1,840
Paid Private (Displacing Aggregates)		14,076	24,227	33,437	15,001
Toronto WW	17,853	22,852	14,313	11,194	11,979
Toronto SWMS	560,238	525,752	501,954	511,602	524,449

Table 1: 2014 Tonnage Map

	2010 Actuals	2011 Actuals	2012 Actuals	2013 Actuals	2014 Actuals
Street Sweepings Transportation				14,071	20,125
Disco SSO Processing Residue					11,322
Dufferin SSO Processing Grits					654
Other (ice storm from Parks)					617
Total Green Lane	*835,223*	*744,769*	*744,437*	*695,511*	*603,739*
Inert Non-Waste Materials/Redirecting to Other Landfills	*4,983*	*4,045*	*1,997*	*12,626*	*132,778*
Net Green Lane Landfilled Material	*830,240*	*740,724*	*742,440*	*682,885*	*470,961*

Table 2: City of Toronto Residential Diversion Numbers

	Households	Garbage	Blue Bin	L&YM	Green Bin	Other	Total Diversion	Diversion Rate
2014								
Single Family Residential	460,303	181,404	102,204,	91,265	94,659	65,113	353,241	66%
Multi-Family Residential	416,815	199,148	39,002	4,803	11,381	15,390	70,576	26%
Total Residential		**380,552**	**141,206**	**96,068**	**106,040**	**80,503**	**423,817**	**53%**
2013								
Single Family Residential	459,441	176,427	103,882	94,831	100,807	67,474	366,994	68%
Multi-Family Residential	421,740	208,094	40,053	4,991	11,041	16,142	72,227	26%
Total Residential		**384,521**	**143,935**	**99,822**	**111,848**	**83,616**	**439,221**	**53%**
2012								
Single Family Residential	459,511	181,409	109,503	87,850	98,628	62,985	358,966	66%
Multi-Family Residential	419,824	209,853	38,833	4,624	6,863	14,902	65,222	24%
Total Residential		**391,262**	**148,336**	**92,474**	**105,491**	**77,887**	**424,188**	**52%**
2011								
Single Family Residential	457,257	189,539	109,354	80,082	95,809	50,288	335,533	64%
Multi-Family Residential	425,011	218,663	37,184	4,215	4,854	9,824	56,077	20%
Total Residential		**408,202**	**146,538**	**84,297**	**100,663**	**60,112**	**391,610**	**49%**
2010								
Single Family Residential	453,048	194,246	112,589	78,347	89,401	48,903	329,240	63%
Multi-Family Residential	441,058	238,293	34,647	4,123	3,314	9,566	51,650	18%
Total Residential		**432,539**	**147,236**	**82,470**	**92,715**	**58,469**	**380,890**	**47%**
2009								
Single Family Residential	444,480	213,311	104,569	77,980	83,713	49,744	316,006	60%
Multi-Family Residential	499,314	257,068	35,188	4,104	961	7,632	47,885	16%
Total Residential		**470,379**	**139,757**	**82,084**	**84,674**	**57,376**	**363,891**	**44%**
2008								
Single Family Residential	442,546	238,363	124,839	78,266	93,801	45,412	342,318	59%
Multi-Family Residential	554,347	256,176	33,908	4,500	400	6,572	45,380	15%
Total Residential		**494,539**	**158,747**	**82,766**	**94,201**	**51,984**	**387,698**	**44%**

Appendix C– Historical Tonnes Managed and Diverted

	Households	Garbage	Blue Bin	L&YM	Green Bin	Other	Total Diversion	Diversion Rate
2007								
Single Family Residential	525,846	226,787	124,720	73,209	85,156	43,228	326,313	59%
Multi-Family Residential	540,467	271,022	30,079	4,300	396	6,203	40,978	13%
Total Residential		**497,809**	**154,799**	**77,509**	**85,552**	**49,431**	**367,291**	**42%**
2006								
Single Family Residential	525,846	247,601	134,076	75,629	87,410	40,879	337,994	58%
Multi-Family Residential	524,724	261,802	29,309	4,440	95	3,783	37,627	13%
Total Residential		**509,403**	**163,385**	**80,069**	**87,505**	**44,662**	**375,621**	**42%**
2005								
Single Family Residential	511,034	270,444	129,212	77,495	60,273	42,282	309,262	53%
Multi-Family Residential	492,632	257,434	28,904	4,079		3,905	36,888	13%
Total Residential		**527,878**	**158,116**	**81,574**	**60,273**	**46,187**	346,150	40%
2004								
Single Family Residential	506,800	290,842	120,544	76,066	35,808	42,398	274,816	49%
Multi-Family Residential	473,372	275,068	28,792	4,003		3,947	36,742	12%
Total Residential		**565,910**	**149,336**	**80,069**	**35,808**	**46,345**	311,558	36%
2003								
Single Family Residential	497,000	330,474	113,173	74,668	21,929	37,580	247,350	43%
Multi-Family Residential	461,979	290,848	30,680	3,930	0	4,875	39,485	12%
Total Residential		**621,322**	**143,853**	**78,598**	**21,929**	**42,455**	**286,835**	32%
2002								
Single Family Residential		350,944	106,288	66,289	2,966	36,455	211,998	38%
Multi-Family Residential		288,499	28,335	3,489	10	3,527	35,361	11%
Total Residential		**639,443**	**134,623**	**69,778**	**2,976**	**39,982**	**247,359**	28%
2001								
Single Family Residential		395,034	110,534	65,668		37,180	213,382	35%
Multi-Family Residential		276,028	23,388	3,456		3,575	30,419	10%
Total Residential		**671,062**	**133,922**	**69,124**		**40,756**	**243,802**	27%

Table 3: Year over Year Comparison of Residential Diversion (tonnes)

Residential waste diversion	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Blue Bin Program	133,922	134,623	143,853	147,936	158,116	163,385	154,799	158,747	139,757	147,236	146,538	148,336	143,935	141,206
L&YM/Xmas trees	69,124	69,778	78,598	80,069	81,574	80,069	77,509	82,766	82,084	82,470	84,297	92,474	99,822	96,068
Backyard Composting	17,340	17,791	18,171	18,324	18,460	18,554	18,652	18,739	18,826	18,899	18,970	19,045	19,120	19,179
Green Bin		2,976	21,929	35,808	60,273	87,505	85,552	94,201	84,674	92,715	100,663	105,491	111,848	106,040
Environment Days/Depots	2,184	2,112	2,408	2,858	843	768	860	900	1,455	1,992	2,713	2,119	3,610	1,681
WEEE								910	1,095	1,834	1,719	979	849	937
Large Appliances/Scrap Metal	3,504	2,678	2,773	6,036	7,450	5,908	4,422	4,837	4,983	4,238	3,641	2,860	3,290	3,826
Grasscycling	10,051	10,085	11,650	11,635	11,936	11,680	11,296	12,085	15,977	16,054	17,166	18,095	19,964	19,214
MHSW	1,220	781	865	863	808	1,015	1,086	1,162	1,175	1,563	1,544	1,531	1,622	1,844
Beer Store Deposit Return	6,457	6,535	6,588	6,629	6,690	6,737	6,545	13,841	13,865	13,889	14,409	14,532	14,655	14,779
LCBO Deposit Return							6,570							
Tires												18,726	20,507	19,043
Diversion in Tonnes	243,802	247,359	286,835	310,158	346,150	375,621	367,291	388,188	363,891	380,890	391,660	424,188	439,222	423,817
Waste	671,062	639,443	621,322	565,910	527,878	509,403	497,809	494,539	470,379	432,539	408,202	391,262	384,521	380,552
Diversion and Waste	914,864	886,802	908,157	876,068	874,028	885,024	865,100	882,727	834,270	813,429	799,862	815,450	823,743	804,369
Overall Diversion Rate	27%	28%	32%	35%	40%	42%	42%	44%	44%	47%	49%	52%	53%	53%

D

Promotion and Education

The City offers comprehensive promotion and educational tools and resources to its customers. The following highlight some examples of these resources and industry recognition SWMS has received for its efforts.

1 Online Resources

The Solid Waste Management Services website houses general information on the City's garbage, Blue Bin recycling, Green Bin organics, HHW, electronics, drop-off depots, rates etc. for single family, multi-residential and non-residential customers. The website provides Google translation into 51 languages. The following provides an overview of the material on the SWMS website.

1.1 Overview of the SWMS Website

The City's website (http://www.toronto.ca/garbage) contains a variety of promotion and educational information for Houses, Apartments and Condos, Non-Residential (including CIROs, schools, Agencies and Corporations and commercial businesses) and Drop-Off Depots. The website is laid out with a general overview section and a "what goes where" section which provides information on acceptable and non-acceptable materials for garbage, Blue and Green Bins, as well as information on how to safely dispose of HHW and WEEE through City services. Detailed lists of acceptable and prohibited materials and information on collection and/or drop-off are available by clicking on the appropriate tab. The following sections provide an overview of the information available on each tab on the City's website, with a hyperlink to the appropriate tab.

1.1.1 Houses

This section (SWMS: Houses) provides the following: alerts (e.g., solid waste rates and fees), headlines (e.g., information on changes to programs, reminders about programs), collection schedules, collection information (e.g., bin sizes and fees, how to properly set out bins), information on drop-off depots and information on how to manage Blue Bin and Green Bin organics, garbage, HHW, WEEE and oversized items.

1.1.2 Apartments and Condos

This section (SWMS: Apartments & Condos) provides the following:

- links to campaign posters, recycling calendar etc.;
- information targeted towards:
    - building management (collection, fees, policies and programs, printed resources and a waste diversion handbook);
    - residents (tips and information, information on drop-off depots and information on how to manage Blue Bin and Green Bin organics, garbage, HHW, WEEE); and
    - residents living in apartments above stores (collection schedules, bag and bin programs, FAQs, information on drop-off depots and information on how to manage Blue Bin and Green Bin organics, garbage, HHW, and WEEE).
- contact information;

- 3Rs Ambassador Volunteer Program; and,
- related information (e.g., HHW, Community Environment Days).

1.1.3 Non-Residential

This section (SWMS: Non-Residential) provides the following: alerts (e.g. solid waste rates and fees), headlines (e.g., garbage tag/yellow bag requirements, site visits, donating to charitable organizations), and information directed at the different types of customers (e.g., fees, collection information, printed resources).

1.1.4 Drop-Off Depots

This section (SWMS: Drop-off Depots) provides information on location and hours of depots, materials accepted and fees and regulations for accepted materials.

1.2 Printed Resources

At present, the City's Printed Resources section on the website contains links to large and small posters, sorting guides for the Blue Bin and Green Bin organics programs, stickers for multi-residential building waste bins, pamphlets on how to dispose of HHW and tips for multi-residential building tenants. The resources can be printed from the website or hard copies can be ordered by calling 311. The Green Bin sorting guide is currently available in 17 languages. The Printed Resources content is generally geared towards multi-residential building tenants and covers the following subjects: 3Rs Ambassador program, batteries, Community Environment Days, electronics collection, Green Bin tips, waste reduction, Toxic Taxi and the Waste Wizard.

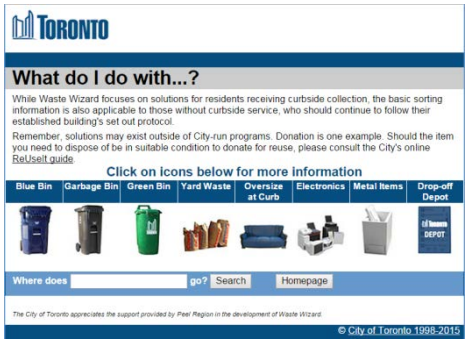
1.3 Examples of Promotional and Educational Activities

Brief descriptions of some promotional and educational activities and campaigns that the City of Toronto has been involved with are provided below.

We Want It! Chuck and Vince videos - Six videos featuring two characters playing City of Toronto Solid Waste staff conveying messages about sorting and disposing of recyclables, garbage, electronics and household chemicals were featured on the City's YouTube site from 2010 to 2013.

Collection calendars – Prepared for single family residences and multi-residential buildings and for apartments above stores. Single family households receive a full 12 month calendar that outlines the collection day for Green Bins, Blue Bins, garbage bins and yard waste for each city district, how to set out the bins, and the times residents should put their bins out. Approximately 459,000 copies of the single family calendar were delivered. The multi-residential calendar is a full 12-month calendar that provides information on waste management programs (e.g., 3Rs Ambassador, Drop-Off Depots, HHW, and Community Environment Days) and tips to residents. The calendars were delivered to 555,000 multi-residences including those not on City service. The calendar for RUAC (9,500 copies) is an eight-page document that contains the collection schedule, information on waste management programs and how to set out waste for collection.

Waste Wizard – An online database that helps Toronto residents better manage their waste materials. The database lists more than 1,500 items and shows what bin an item goes into or if an item needs to be dropped off at a depot. On average in 2014, the City had about 6,800 hits per month on Waste Wizard. (Waste Wizard)



ReUseIt – The City of Toronto promotes "ReUseIt" on its website, offering information on how to make a donation of reusable items to a not-for-profit agency and tips on reusing and reducing before recycling.

Live Green Community Animators – Live Green Toronto promotes and supports the greening of Toronto by offering grants, expertise and a website including resources, rebates, tips and tools to help residents and businesses take action to reduce emissions and combat climate change (www.toronto.ca/livegreen). Launched in 2007, Live Green is a component of the City's Climate Change, Clean Air and Sustainable Energy Action Plan. Live Green Toronto's community animation program, which helped Toronto residents and community groups take action to make their communities and neighbourhoods more sustainable, concluded on December 31, 2012. Residents were able to contact their Live Green Toronto Community Animator to help get them organized and provide information, advice and support for Green projects in the community. EcoSpark and ACORN are the organizations that provided community animation services on behalf of the City of Toronto. Grants are still available through Live Green to help community groups take action to green our neighbourhoods.

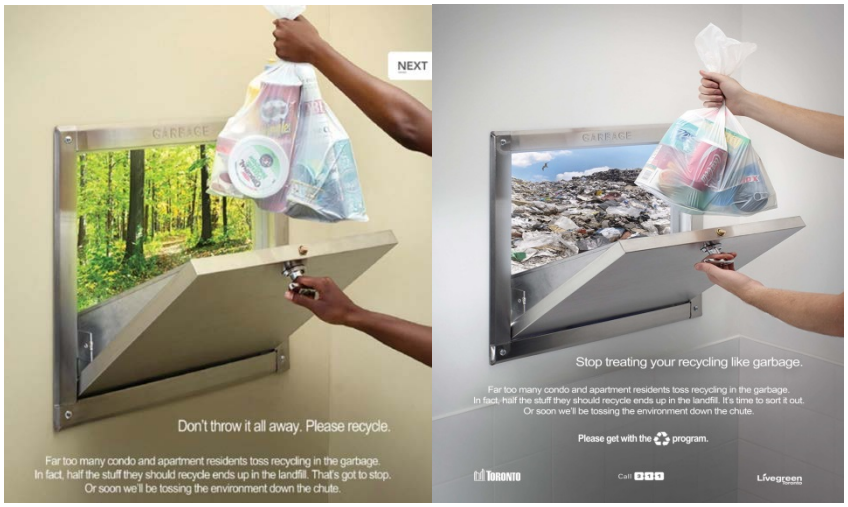
311 – The 311 telephone number and Knowledge Base provides access to non-emergency City services and information. This includes the ability to lodge self-service requests related to waste collection and bins and ordering printed resources. The online 311 Knowledge Base offers a key word or question search enabling users to find up-to-date answers about City services and programs, including solid waste management services. This is a City service and is not managed by SWMS.

3Rs Ambassador Volunteer Program – Volunteers within multi-residential buildings coordinate education and outreach campaigns focused on the 3Rs with support from City staff.

Community Events – City staff attend various community events (e.g. Live Green Toronto Festival, Live Green Show, Home and Garden Show) across Toronto to promote and educate people on waste management programs and practices. Hard copies of printed resources are provided to interested participants.

Various speaking engagements – City staff attend and participate in various workshops and seminars (e.g. PM Expo, SWANA events, Canadian Waste Sector Symposium) to promote and educate about SWMS activities and programs. City staff also attended four English as a Second Language (ESL) classes in 2014 to promote waste diversion.

Targeted Campaigns and Advertisements – Campaigns targeted towards certain audiences are developed to assist with specific messaging. For example, the most recent campaign "Please get with the recycling program" was developed to increase awareness about the lack of recycling in apartments and condos. The same campaign is currently re-running with the addition of a direct mail piece sent to every resident living in an apartment or condo building. The mail piece is sized differently than traditional mail and intrigues the resident to read it by opening the 'garbage chute'.



Ads geared towards residents in apartments and condos were placed on streetcars and buses to also raise awareness about the amount of waste sent to landfill that could have been diverted.

Targeted Ads for Streetcars and Buses

Targeted Ad for Campaign to Reduce Volume of Plastic Bags

Multi-residential Outreach - The City conducts outreach to multi-residential buildings through site visits and lobby presentations prior to initiation of the Green Bin organics program in buildings.

1.4 Educational Tools

To assist residents in following the City waste set-outs and guidelines and ensuring proper waste management is promoted, the City has created several educational tools and notices. In instances where customers might not have followed the correct set-out for their garbage and Blue Bin recycling they may get a notice from the collection crew on their bins informing them of the issues with collection tips and reminders. Residents are also able to download online the Recycling (Blue Bin) and Green Bin Guides as reference materials. Examples of these notices are shown below.

Some examples of these ads and alerts include the following:

Overflow Recycling Bin Sticky Note

THANK YOU FOR RECYCLING!

The City's automated Blue Bin collection requires all recycling to fit into your bin.

You got this notice for one or more of the following reasons:

- Overflow (extra) recycling did not fit in the bin for automated collection. Please make sure it is cut, or in a clear bag, to a size that the operator can fit into your bin to empty again automatically.
- We notice you continuously have overflow and request you upsize your bin or order an extra bin.
- Your bin is too damaged for automated collection (e.g. cracked, broken handle / wheel).

Collection reminders:

- Avoid overloading; make sure the lid will close to prevent blowing litter.
- If your bin is damaged, contact us to have it repaired/replaced.
- Leave 0.5 metres of space around the bin so the automated truck can pick up the bin. Avoid setting the bin behind parked cars where possible.

If you "regularly" have overflow recycling, please upsize your Blue Bin or order an extra Blue Bin free of charge.

For free exchange, repair or additional Blue Bin:

311 311@toronto.ca
TTY: 416-338-0889

TORONTO

Garbage Bin Sticker

Important Notice

These items were not collected because:

The item/bag does **not** have a City issued Garbage Bag Tag attached.

or

Is **not** in a City of Toronto Garbage Bin.

or

Is **not** in a City issued Commercial Yellow Bag. (For businesses only)

City of Toronto Garbage Bag Tags and Yellow Bags can be purchased at Toronto Canadian Tire stores.

TTY service for hearing impaired: 416-338-0889

TORONTO 311

Collection Notice Bin Hangers for Grey Bins

TORONTO

IMPORTANT NOTICE

Items were left at the curb because:

- ❑ 1. Materials not out by 7 a.m. (day collection)/ or by 9 p.m. (night collection)
- ❑ 2. Overweight
- ❑ 3. Oversized
- ❑ 4. Overflow (extra) garbage
- ❑ 5. Household Hazardous Waste (HHW). Remove immediately and call 311
- ❑ 6. Prohibited material
- ❑ 7. Recyclable materials not in Blue Bin
- ❑ 8. Not accepted in recycling program
- ❑ 9. Not accepted in yard waste program
- ❑ 10. Contaminated material
- ❑ 11. Tie downs not removed
- ❑ 12. Inaccessible location/Snow condition set out
- ❑ 13. Organic material loose
- ❑ 14. Wrong week to put out this material
- ❑ 15. Bin could not be collected
- ❑ 16. Other

_____
_____
_____
_____
_____
_____
_____

See reverse for more details.

For more information:
E-mail: 311@toronto.ca
Call: 311
(311 offers information in more than 180 languages using interpreters.)

Address: _____
Violation No. _____
Comments: _____
_____

TORONTO

Collection Reminders:

1. **Day time collection:** Set out before 7 a.m. on collection day. **Night time collection:** Set out after 6 p.m. and before 9 p.m. on collection day.
2. Each Green Bin, bag or bundle must not weigh more than 20 kg (44 lbs).
3. Garbage and yard waste must be cut down and tied in bundles less than 0.6 m (2 ft) in diameter and 1.2 m (4 ft) in length.
4. All garbage must be set out for collection in a City-issued Garbage Bin (with the lid closed) or regular size garbage bag (66 cm x 91 cm) affixed with a City of Toronto Garbage Bag Tag (available at Canadian Tire). Extra garbage (if doesn t fit in bin with the lid closed or set out beside bin) must have a Garbage Bag Tag attached.
5. We do not collect Household Hazardous Waste (HHW) such as pesticides, propane or helium cylinders/tanks, batteries, fluorescent tubes, compact fluorescent lamps (CFLs), etc., as part of our regular garbage or recycling pick-up. HHW information: Collection Calendar • toronto.ca/recycle • 311.
6. We do not collect grass clippings, sod, dirt or construction/ renovation waste.
7. All recycling, including newspapers, magazines and cardboard (broken down/flattened), must fit in your Blue Bin with the lid closed. Keep excess material until your next Blue Bin collection or exchange your Blue Bin for a larger size. Exchange Self-service Requests can be made online at toronto.ca/311 or call 311.
8. Check Collection Calendar • toronto.ca/recycle for a list of recyclable items. If you need a calendar, call 311.
9. Grass clippings, sod, dirt and plastic plant containers are not accepted in the yard waste program. Use kraft paper bags or rigid open top containers for yard waste. Please use a container with a capacity of not less than 20 litres and no more than 125 litres, with an external height no less than 55 cm and no greater than 95 cm; that is capable of supporting 20 kg when lifted and with handles set above the midpoint of the container.
10. Yard waste cannot be mixed with garbage or recycling. Recycling cannot be mixed with garbage. Garbage cannot be mixed with recycling. Prohibited waste (e.g. HHW) cannot be mixed with material placed out for collection.
11. All tie downs on bins and containers must be removed prior to collection (e.g. bungee cords).
12. Place materials in an easily accessible location for pick-up. Please do not place on top of or behind snow banks/ridges. Shovel out a spot for your bins. To avoid having an overnight snowstorm bury your materials and cause you to miss your collection, please put your materials at the curb on the morning of scheduled collection day before 7 a.m. Check Collection Calendar for proper set out.
13. Line either your indoor container or outdoor Green Bin (do not line both) with a plastic bag or a kraft paper bag. No special plastic bag is required for either collection container. Place excess organic material in a clear plastic bag beside your Green Bin. Kraft bags cannot be used for excess. Green Bin purchase locations: Collection Calendar • toronto.ca/greenbin • 311.
14. Refer to your Collection Calendar for the proper/correct collection schedule.
15. a) Bin requires repairs/replacement (e.g. no locking bar on bin, bin has no wheels, bin is cracked, etc.). Repair/replacement Self-service Requests can be made online at toronto.ca/311 or call 311.
    b) Improper set out. Place bins out to the curbside so that the opening of the lid faces the street and the handles and wheels face your house.

Downloadable Recycling Guide

WHAT GOES IN THE
BLUE BIN?

Recycling tips

- Remove food and liquids.
- Put items in the Blue Bin **loose** and not bagged (except for plastic bags and shredded paper).
- Remove plastic covers and over-wrap from newspapers, flyers, magazines, catalogues and pop/water cases. Put plastic covers and over-wrap in garbage.

WASTE WIZARD
Lists over 1,500 waste items and how to properly dispose of them. Search it at toronto.ca/recycle

RECYCLING – YES

Beverage and food containers
Rinse clean and recycle

- **Clear plastic food containers** (e.g. fruit, vegetables, salad, eggs, bakery items, takeout; with or without hinged lids)
- **Disposable plastic plates and cups** (clear or coloured)
- **Plastic bottles, jugs** (lids screwed on tight)
- **Milk/juice cartons and boxes** (put straws in garbage)
- **Glass bottles and jars** (put lids in garbage)
- **Aluminum cans**
- **Plastic food jars, tubs and lids**
- **Metal cans** (place lid inside can and pinch closed)
- **Cardboard cans** (e.g. frozen juice, refrigerated dough, chips, nuts, powdered drink mix – put plastic pull-off strips in garbage; place metal ends inside cardboard can and pinch closed)
- **Aluminum trays, burner liners, pie plates and roasting pans**

Note: Black plastic items cannot be recycled (put in garbage)

Home and personal product containers
Rinse clean and recycle

- **Plastic bottles** (lids and sprayers screwed on tight)
- **Plastic kitty litter tubs with plastic handles**
- **Plastic laundry detergent tubs and lids**
- **Aerosol cans** (empty; put caps in garbage)
- **Metal paint cans** (empty; separate lids from cans)
- **Clear compact disk cases** (empty)

Foam polystyrene and plastic retail shopping bags
Rinse clean and recycle

- **Foam food and protective packaging** (e.g. drinking cups, egg cartons, meat trays, takeout food containers, electronics packaging)
- **Plastic grocery and retail shopping bags without drawstrings, metal detailing or hard plastic handles** (remove receipts; place all plastic bags in one retail or grocery plastic bag and tie handles together)

Paper
Not contaminated with food or chemicals

- **Bags, rolls, junk mail, writing/computer paper, envelopes, window envelopes**
- **Shredded paper** (put in clear plastic bag and tie closed)
- **Gift wrap, cards** (no ribbons, bows, foil wrap)
- **Newspapers, flyers, telephone directories, magazines, catalogues, soft/hardcover books** (remove plastic covers, liners, over-wrap and put in garbage)
- **Boxboard boxes** (e.g. cereal, tissue, detergent – flatten; remove liners, plastic windows and put in garbage)
- **Corrugated cardboard** (clean, unwaxed, flattened; pizza boxes must be empty; remove plastic over-wrap from pop/water cases and put in garbage)

toronto.ca/recycle

Call 311

Downloadable Green Bin Guide

1.5 Industry Awards

Waste management industry awards are part of the City of Toronto's Solid Waste Management Services Strategic Plan. The following is a list of some of the recent awards the City has won.

- 2011 Solid Waste Association of North America (SWANA) Excellence Awards – Bronze – (Marketing) - for the "We Want It!" E-waste campaign
- 2011 SWANA Excellence Awards – Gold – (Communications) - for the City's communications efforts related to reducing the volume of plastic retail shopping bags. A sample of a print ad created for transit shelter signage submitted as part of the winning SWANA award is shown in Appendix F.
- 2013 Municipal Waste Association - Bronze (P&E) - for the "We Want It!" campaign
- 2013 Ontario Public Works Association Management Innovation Award for the "Green Bin Implementation for Multi-Residential Properties" program.

3 By-laws

The following provides an overview of the by-laws relevant to the Strategy.

3.1 Toronto Municipal Code – Chapter 548 – Littering and Dumping of Refuse

The Toronto Municipal Code "Littering and Dumpling of Refuse (Chapter 548) includes the following;

Table 1: Toronto By-laws Relevant to the Strategy

Section / Title	Description of By Law
548-3	Littering and depositing refuse prohibited - defines the prohibition of littering and depositing of refuse on any land or high ways
548-4	Waste dumping prohibited - defines the prohibition of depositing or dumping any quantity of waste on any land (not including buildings) expect what is required or permitted under Chapter 841
548-5	Cleaning and clearing - defines how the owner of land on which refuse has been thrown, placed, dumped or deposited must immediately clean and clear the refuse from the land.
548-6	Draining and filling of depression or hole (section 548-6) - defines if the owner has been advised (by the Medical Officer of Health) that a health hazard exists or may exist as a result of water or other liquid collecting on land they must immediately drain the area and prevent accumulation of water in unused pools.
Notice of Intent	Defines the terms a notice may be received from an officer and the time allowed (72 hours) for a reply to be received.
Failure to comply; recovery of expenses	Defines the costs recovered including interest if a person is served with a notice informing them to take any action within a specified time period.
Offences	Defines any person who is convicted of littering and depositing of refuse, failing to immediately clean and clear refuse, and/or drain and fill depressions or holes on their land is guilty of an offence and is liable to a maximum fine of $5,000. Any person, who is convicted of dumping waste, is liable to a maximum fine of $10,000 for a first conviction and $25,000 for any subsequent conviction. A corporation that is convicted of dumping waste is liable to a maximum fine of $50,000 for a first conviction and $100,000 for any subsequent conviction. Littering, which includes improper disposal of a cigarette

3.2 Toronto Municipal Code – Chapter 841 – Waste Collection, Commercial Properties

The Toronto Municipal Code on "Waste Collection, Commercial Properties" (Chapter 841) includes the following;

- Collection Services:
  - Eligibility for services
  - Frequency of waste collection services

    - Collection of prohibited waste
    - Fees; penalties for unpaid bills and cheques not honoured
- Requirements for Regulation Containers:
    - Garbage, recycling, organics containers
    - Residential/commercial mixed use properties
- Setting out garbage, recyclable materials and organic materials:
    - General requirements
    - Times for setting out garbage, recyclable materials and organic materials
    - Preparation of recyclable materials and organic materials for collection
    - Specially equipped buildings
- Prohibited acts; charging expenses against property; penalties:
    - Prohibited Acts
    - Charging expenses against property
    - Offences
    - Discontinuance of service
- Restrictions on City collection; powers and duties of General Manager:
    - Restrictions on City collection

3.3 Toronto Municipal Code, Chapter 844, Waste Collection, Residential Properties

The Toronto Municipal Code on "Waste Collection, Residential Properties" (Chapter 844) includes the following;

- Collection Services:
    - Eligibility for services
    - Frequency of garbage, recycling, yard waste and organics collection services
    - Special collection services
    - Collection of prohibited waste
- Requirements for Regulation Containers:
    - Garbage, recycling, yard waste, organics containers
    - Sufficient regulation containers
    - Garbage and recycling bins
- Setting out garbage, recyclable materials, organic materials, special collection services items and yard waste:
    - General requirements
    - Times for setting out garbage, recyclable materials, yard waste and organic materials
    - Preparation of recyclable materials, yard waste and organic materials for collection
    - Specially equipped buildings
    - Exemptions
- Prohibited acts; charging expenses against property; penalties:
    - Prohibited Acts
    - Charging expenses against property
    - Offences; discontinuance of service
    - Inspection under power of entry

- Restrictions on City collection; powers and duties of General Manager:
  - Restrictions on City collection
  - Powers and duties of General Manager
- Rates and Rebates:
  - Residential curbside collection fees
  - Residential front-end collection fees
  - Annual garbage rebates
  - Due date
  - Garbage tags
  - Fee for residential curbside bag-only customers
- Closure of Garbage Chutes:
  - Permit application
  - Eligibility requirements
  - Poll, vote
  - Issuance of permit; denial of permit
  - Permit conditions
  - Revocation of permit

3.4 Toronto Municipal Code – Chapter 846 – Waste Transfer Stations

The Toronto Municipal Code on "Waste Transfer Stations" (Chapter 846) includes the following;

- Waste type separation, owner identification – defines regulations for a list of prohibited materials at transfer stations.
- Weigh scale requirements - defines regulations for vehicles driving onto the weigh scale and identifying the waste material type and source.
- Operations at transfer station sites - defines how loads should be covered and road rules when entering a transfer station.
- Prohibited activities – include knowingly delivering Schedule B Prohibited Waste for disposal, entering with an unsafe load, scavenging at sites and smoking in an unloading area.
- Operating area restrictions – states that all persons using a transfer station must comply with operating area requirements including the use of personal protective equipment.
- Failure to comply – states that any person who commits three violations of the requirements and may be denied entry to all City transfer stations.
- Offences – states that any person who is guilty of an offence and is liable for a fine based on the conviction.
- Schedule A to Ch. 846, Recyclable Materials, Yard Waste, and Organic Materials – defines the items deemed to be recyclable materials, yard waste and organics in the chapter.
- Schedule B to Ch. 846, Prohibited Waste – defines the items deemed to be prohibited waste in the chapter.

E

SWMS Program Information

Blue Bin Recycling - Acceptable Materials

Table 1: Acceptable Blue Bin Recycling Materials

Containers	Fibres
• Plastic bottles and jugs • Milk/juice cartons and boxes • Glass bottles and jars • Aluminum cans • Plastic food jars, tubs and lids (e.g. margarine, yogurt, ice cream, sour cream containers) • Metal cans • Cardboard cans (e.g. frozen juice, refrigerated dough, chips, nuts, powdered drink mix) • Aluminum trays, pie plates and roasting pans • Plastic bottles) • Plastic kitty litter tubs with plastic handles • Plastic laundry detergent tubs and lids • Aerosol cans • Metal paint cans & lids • Foam polystyrene • Plastic retail shopping bags • Foam food and protective packaging (e.g. drinking cups, egg cartons, meat trays, takeout food containers, electronics packaging) • Plastic retail shopping bags without drawstrings, metal detailing or hard plastic handles	• Bags • Rolls • Junk mail, • Writing/computer paper, • Envelopes, window envelopes, • Shredded paper • Gift wrap, cards (no ribbons, bows, foil wrap), • Newspapers, • Flyers, • Telephone directories, • Magazines, catalogues, • Soft/ hardcover books • Boxboard boxes • Corrugated cardboard

Green Bin Organics - Acceptable Materials

Table 2: Acceptable Green Bin Organic Materials

Accepted in the Green Bin Organics Program	Not accepted in the Green Bin Organics Program
• Meat, poultry, fish products • Pasta, bread, cereals, rice • Dairy products, eggs and shells • Coffee grounds/filters, tea bags • Cake, cookies, candy • Diapers, sanitary products • Animal waste, bedding, cat litter • House plants, including soil • Paper – soiled • Food packaging, ice cream containers, popcorn, flour and sugar bags • Tissues, napkins, paper towels (not soiled with chemicals such as cleaning products	Packaging • Plastic or foil bags/wrap/trays • Outer packaging • Foam polystyrene meat trays and liners • Plastic food containers, glass jars, pop cans • Hot drink cups, lids, sleeves General garbage • Dryer sheets, baby wipes, make-up pads, cotton tipped swabs, dental floss • Hair, pet fur, feathers, wax, wood pieces, cigarette butts, wine corks, vacuum bags/ contents, fireplace and BBQ ashes

Yard Waste

Residents may put out yard waste for collection in rigid open-top containers or in Kraft paper bags only. Yard waste collection from multi-residential buildings is available upon request. Curbside collection of yard waste is provided every other week, on garbage collection day, from mid-March into December.

Yard waste is also accepted at the drop-off depots including; leaves, branches (less than 7.5cm/3" diameter and 120 cm/48" in length), hedge and plant trimmings, and twigs; however no grass is accepted. Tree limbs, trunks and stumps are not collected or accepted at City's drop-off depots if the diameter of the wood exceeds 7.5 cm (3 inches).

Durable Goods

Residents are allowed to put the following items out for collection at the curb on their regular collection day without any tags or appointments:

- Oversize items (i.e. items that are larger than the garbage bin such as box springs, furniture, lamps, luggage, mattresses, patio furniture, skis, toilets etc.);
- Metal (e.g. appliances, BBQs, bed frames, bicycles, water heaters); and,
- Carpeting, underpad, and linoleum (tied in rolls no longer than 1.2 m (4 ft) and weighing less than 20kg (44 lbs).

WEEE – Acceptable Materials

Table 3: Examples of Acceptable WEEE Materials

Acceptable items include, but are not limited to:	
• cell phones and home phones, • computer cables and accessories, • laptop computers, • keyboards, • VCR/DVD players, • hand-held computers, • pagers, • radios, • cameras, • video recorders, • TVs,	• desktop computers, • monitors, • printers, • scanners, • copiers, • typewriters, • fax machines, • stereos, • tuners, • turntables, • receivers and speakers.

There is a limit of 10 combined units of monitors, televisions and desktop computers per day. There is no limit on small items such as keyboards and peripherals at the drop-off depots and Community Environment Days.

Toxic Taxi Program

The City of Toronto offers residents a very convenient option for the disposal of hazardous waste through its Toxic Taxi program where hazardous waste is picked up from residences. Residents need only make a service request online or by telephoning 311. HHW is collected free of charge through this service from single family residences and multi-residential buildings receiving City-provided garbage collection; it is not available to non-residential customers. Certain conditions must be met for eligibility (e.g. between 10L and 50L, minimum number of fluorescent tubes) and only certain materials will be collected (e.g. fluorescent light bulbs, cooking oil, sharps, batteries, paint etc.).

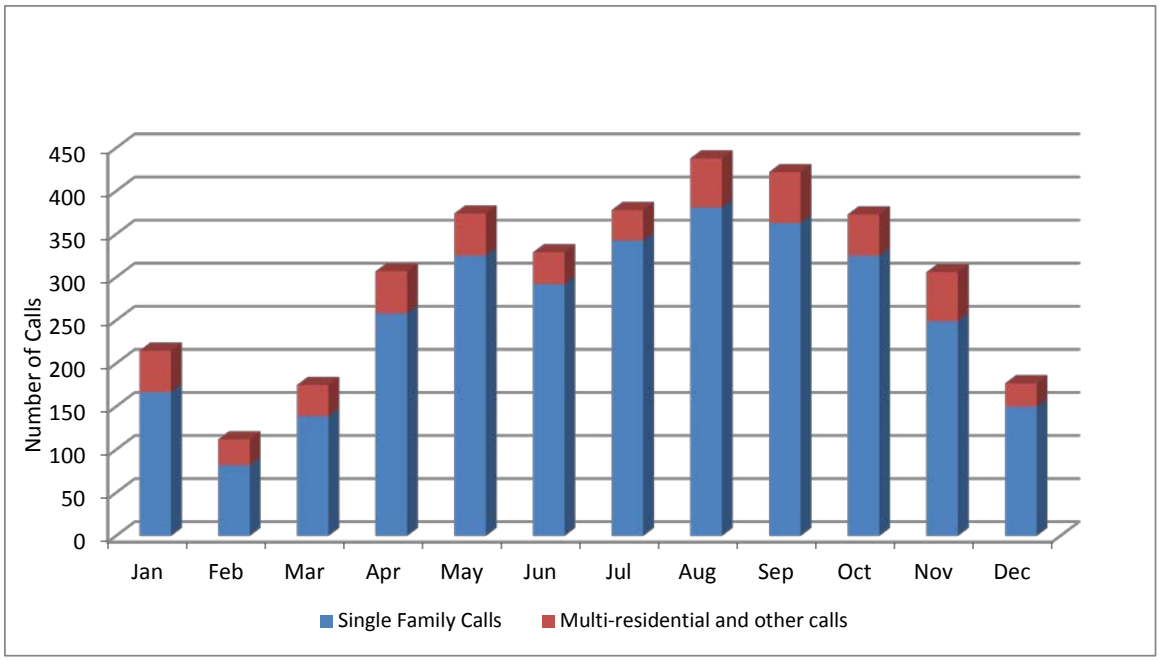
The Toxic Taxi typically operates from Tuesday to Friday, however, if there is a low volume of calls, pickups will be deferred until the next operating day. During some weeks, the City may only do HHW pick up on two days. As a general rule, the call volume is substantially lower on Fridays.

In 2013, on average, there were 20 calls per pickup day, with an average of 17 pickups from single family residences per day and 3-4 pickups from multi-residential buildings and other locations such as Fire Halls, City locations, churches etc. Collections from single family residences comprise 83% of the total number of calls with the remaining 17% from multi-residential buildings and other locations[1]. In 2013, there were 3,587 pickups of HHW by the Toxic Taxi; approximately 173 tonnes of HHW was collected in 2013 through this program.

[1] Information from City of Toronto. This data was obtained by reviewing each call on the daily Toxic Taxi schedule (as opposed to using booking information from TMMS).

Figure 1 presents a comparison of the number of requests by month for Toxic Taxi service for single family residences and multi-residential buildings. Toxic Taxi requests appear to have a seasonal component, with higher volumes of requests in late summer/early fall.

Figure 1: Number of Toxic Taxi Requests by Month (2013)



Source: *City of Toronto*

A mobile pickup service for HHW is not a common occurrence in Canada; the vast majority of municipalities require residents to drop off HHW at depots or special collection events. In an urban centre where many residents do not own or have access to a vehicle, this service provides a convenient, no-cost option to dispose of hazardous waste; which if it wasn't offered, could result in HHW being disposed of in the regular garbage.

The City uses City-contracted service providers to transport and process HHW. The City has a number of secondary contracts for materials such as cooking oil, lead acid batteries, motor oil, and WEEE which generate revenues. The City has other agreements with Stewardship Ontario approved service providers for mixed HHW plastics, propane cylinders etc. Details of these contracts can be found in Appendix E.

Tires

Tires are accepted at drop-off depots only and are not collected at the curb. Only tires with rims removed are accepted; heavy truck, forklift and large off-road tires are not accepted. Bermondsey, Commissioners and Ingram transfer stations accept up to five tires per load. Larger quantities of tires are accepted at the Dufferin transfer station only.

Community Environment Days

Community Environment Days are events which provide residents with alternative means to drop off reusable materials and safely dispose of HHW. One event is held in each ward annually from April through to August on Saturdays or Sundays from 10 am to 2 pm or on Thursdays from 4 pm to 8 pm. 43 Community Environment Days were held in 2014 (one event was held jointly for 2 wards) and were attended by approximately 30,000 people. The total budgeted amount for these events in 2014 was $715,000 or approximately $16,000 per event.

Community Environment Days have partnered with Live Green Toronto (www.toronto.ca/livegreen/index.htm) and are also registered collectors in provincial programs developed by Waste Diversion Ontario (WDO) in cooperation with Ontario Electronic Stewardship and Stewardship Ontario. The events are also partnered with Orange Drop, an industry-funded recycling program. These organizations facilitate the safe handling and proper disposal of any HHW collected during the events.

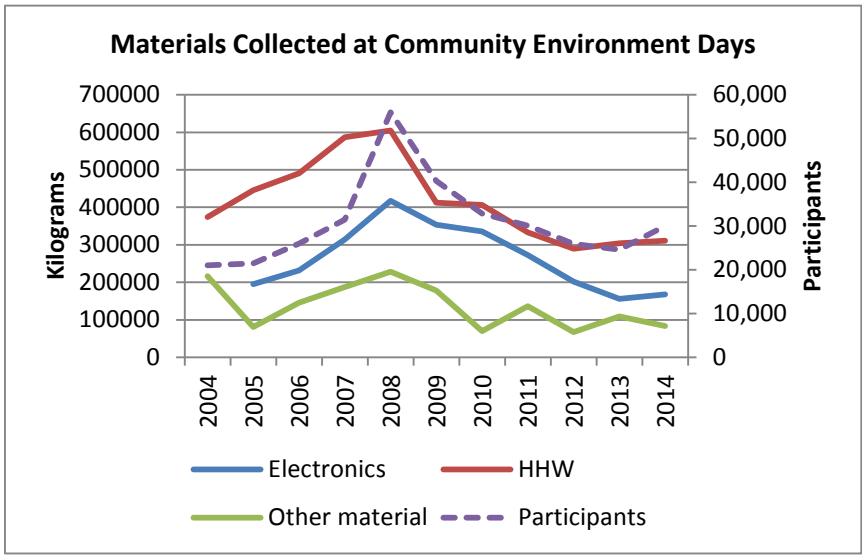
Community Environment Days are an important vehicle to educate residents and promote SWMS programs. The events provide the following opportunities:

- Proper disposal of WEEE and HHW (e.g., computer equipment and peripherals, audio/visual equipment and peripherals, cleaning supplies, paint, batteries, residential cooking oil, etc.).
- Disposal of non-Blue Bin recycling materials, including donations for reuse or recycling (e.g., art supply materials for Artsjunktion[2], sporting goods, books, and small household items).
- Purchase/pick-up of backyard composters, Green Bins and kitchen containers.
- Pick-up of finished compost.
- Collection of non-perishable foods for donation to the food bank.
- Additional opportunities for City staff to promote and educate attendees about SWMS programs through face-to-face contact.
- In 2014, at total of 562 tonnes of material was diverted through these events.

In 2014, at total of 562 tonnes of material was diverted through these events. The following Figure 2 presents the number of participants and the amount of electronics, HHW, and other material collected at the Community Environment Days over the past 10 years. Overall, quantities collected and participation show a decline as other opportunities for diversion are provided through stewardship programs and retail outlets. Note that other materials include donations for reuse or recycling through community organizations and TDSB schools. Prior to 2009, other materials also included plastic shopping bags and polystyrene, which have since been included in the Blue Bin recycling program.

[2] Artsjunktion is a depot for receiving and distributing donated materials and supplies to be used in educational and creative programs within the Toronto District School Board.

Figure 2: Participation and Materials Collected at Community Environment Days (2004 – 2014)



Source: www.toronto.ca, City of Toronto

F

Approved 2014
Rates and Fees

Approved Solid Waste 2014 Rates and Fees

*(**Source:** City of Toronto Website)*

Effective January 1, 2014, City Council approved a 3% increase for all Solid Waste Management Services User Fees and Rates. City Council also voted to suspend the collection of solid waste user fees for 2014 from Non-Residential customers including charities and not-for-profit organizations.

Table 1: Single Family Rates

Bin Size	Annual Rates
Small	$230.72
Medium	$280.09
Large	$380.39
X Large	$441.21
Bag Only	$147.70

Table 2: Residential Units Above Commercial (RUAC) Rates

Bin Size	Annual Rates
Bi-Weekly	
Small	$230.72
Medium	$280.09
Large	$380.39
X Large	$441.21
Bag Only	$147.70
Weekly	
Small	$280.09
Medium	$380.39
Large	$539.39
X Large	$866.67
Bag Only	$197.07

The annual rebate per household for all the customers above will remain unchanged at $224.

Table 3: Yellow Bag/Tag Fee

Yellow Bag/Tag (ea)	$3.19

Table 4: Multi-Residential Rates

	Volume	Rates	
		Base/unit	Excess/yd^3
Uncompacted	1.917	$197.04	$13.67
Compacted	0.9585		$27.35

The annual rebate per unit for all customers above will remain unchanged at $185.

Table 5: Front End Collection Fees per lift

Customer Type	(per yd^3)	Rates			
		2014			
Commercial	Un-compacted	$11.42			
	Compacted	$22.85			
		2014 (25% Phased in)	2015 (50% Phased in)	2016 (75% Phased in)	2017 (100% Phased in)
Agencies & Corporations	Un-compacted	$7.02	$8.49	$9.95	$11.42
	Compacted	$14.04	$16.97	$19.91	$22.85
School Board	Un-compacted	$7.84	$9.04	$10.23	$11.42
	Compacted	$15.69	$18.07	$20.46	$22.85
*CIROs (Charities, Institutions and Religious Organizations)	Un-compacted	$2.86	$5.71	$8.57	$11.42
	Compacted	$5.71	$11.42	$17.13	$22.85

*Council suspended fees for CIROs for 2014

Table 6: Curbside Collection Fees per Bin

Customer Type	Frequency	Annual Rates			
		2014			
Commercial	Bi-Weekly	$415.09			
	Weekly	$830.18			
	Twice Weekly	$1,660.36			
	Yellow bag fee (ea)	$3.19			
		2014 (25% Phased in)	2015 (50% Phased in)	2016 (75% Phased in)	2017 (100% Phased in)
Agencies &	Bi-Weekly	$232.47	$293.35	$354.22	$415.09

Appendix F – Approved Solid Waste 2014 Rates and Fees

Customer Type	Frequency	Annual Rates			
		2014			
Corporations					
	Weekly	$464.95	$586.69	$708.44	$830.18
	Twice Weekly	$929.89	$1,173.38	$1,416.87	$1,660.36
	Yellow bag fee (ea)	$2.30	$2.60	$2.89	$3.19
School Board	Bi-Weekly	$314.37	$347.95	$381.52	$415.09
	Weekly	$628.75	$695.89	$763.04	$830.18
	Twice Weekly	$1,257.49	$1,391.78	$1,526.07	$1,660.36
	Yellow bag fee (ea)	$2.30	$2.60	$2.89	$3.19
*CIROs	Bi-Weekly				
	Small	$20.75	$41.51	$62.26	$83.02
	Medium	$41.51	$83.02	$124.53	$166.04
	Large	$62.26	$124.53	$186.79	$249.05
	Extra-Large	$103.77	$207.55	$311.32	$415.09
	Weekly				
	Small	$41.51	$83.02	$124.53	$166.04
	Medium	$83.02	$166.04	$249.05	$332.07
	Large	$124.53	$249.05	$373.58	$498.11
	Extra-Large	$207.55	$415.09	$622.64	$830.18
	Twice Weekly				
	Extra-Large	$415.09	$830.18	$1,245.27	$1,660.36
	Yellow bag fee (ea)	$0.80	$1.60	$2.39	$3.19

*Council suspended fees for CIROs for 2014

Table 7: Premium Organics Fees

Customer Type	Frequency**	Annual Rates			
		2014			
Commercial	2X/week per year	$329.60			
	5X/week per year	$1,236.00			
	6X/week per year	$1,648.00			
Agencies & Corporations	2X/week per year	$329.60			
	5X/week per year	$1,236.00			
	6X/week per year	$1,648.00			
School Board	2X/week per year	$329.60			
	5X/week per year	$1,236.00			
	6X/week per year	$1,648.00			
		2014 (25% Phased in)	2015 (50% Phased in)	2016 (75% Phased in)	2017 (100% Phased in)
*CIROs	2X/week per year	$82.40	$164.80	$247.20	$329.60
	5X/week per year	$309.00	$618.00	$927.00	$1,236.00
	6X/week per year	$412.00	$824.00	$1,236.00	$1,648.00

*Council suspended fees for CIROs for 2014

**once a week organics collection is included in garbage fees at not extra cost

Table 8: Tip Fees at City Transfer Stations

Customer Type	Fee per tonne	Rates			
		2014			
Commercial/ Private	Waste Loads	$103.00			
	Recyclable Material Loads	$77.25			
	Tire loads	$154.50			
		2014 (25% Phased in)	2015 (50% Phased in)	2016 (75% Phased in)	2017 (100% Phased in)
Agencies & Corporations s	Waste Loads	$73.75	$83.50	$93.25	$103.00
	Recyclable Material Loads	$19.31	$38.63	$57.94	$77.25
	Tire loads	$38.63	$77.25	$115.88	$154.50
School Boards	Waste Loads	$78.25	$86.50	$94.75	$103.00
	Recyclable	$19.31	$38.63	$57.94	$77.25

Customer Type	Fee per tonne	Rates			
		2014			
	Material Loads				
	Tire loads	$38.63	$77.25	$115.88	$154.50
*CIROs	Waste Loads	$25.75	$51.50	$77.25	$103.00
	Recyclable Material	$19.31	$38.63	$57.94	$77.25
	Tire loads	$38.63	$77.25	$115.88	$154.50

*Council suspended fees for CIROs for 2014

Table 9: Disposal Fees at Green Lane

Customer Type	Fee Per Tonne	Rates
		2014
Private/Commercial***	Waste Loads	$103.00
Asbestos	Waste Loads	$309.00
CFIA Waste	Waste Loads	$309.00
Special Handling	Waste Loads	$309.00
MOE Ordered Municipal Waste	Waste Loads	$309.00
MOE Ordered IC&I Waste	Waste Loads	$309.00

***Private/Commercial formerly known as Beneficial Materials, IC&I Waste, and Municipal Solid Waste Customers

G

Privately Managed Waste

1 Privately Managed Waste

In addition to the waste materials managed by the City (as outlined in other sections of this Technical Memo), a substantial quantity of waste sourced from the following three sectors is privately managed:

- Multi-residential;
- Industrial, Commercial and Institutional (IC&I); and
- Construction and Demolition (C&D).

This section provides an overview of private waste management services in Ontario and a description of the types of waste generated by multi-residential buildings, the IC&I sector and from C&D activities which may be privately managed with a discussion of the challenges and opportunities associated with managing waste from each sector.

Although the City is not obligated or mandated to provide collection to the sectors mentioned above, a portion of the waste stream generated by these sectors could potentially require management by the City. A discussion of privately managed waste is included in this Technical Memorandum in order to provide a complete picture of the waste currently managed by the City and other sources of waste which the City may either manage, or have some influence over in the future.

1.1 Overview of Private Waste Management Services

The private sector waste management industry in Ontario is very competitive, with a reported 483 businesses, ranging in size from single truck operations to large multi-national corporations. The sector employed almost 11,000 people in Ontario in 2010, according to the 2010 Waste Management Industry Survey conducted by Statistics Canada.

Private sector waste management firms operating in Toronto offer the following services:

- Waste collection;
- Recycling/processing;
- Transfer; and,
- Disposal

Private sector firms provide garbage, recycling and other services to municipalities as well as commercial customers in many cities, towns and villages in Ontario. In the Toronto area, there are more than 80 waste and recycling firms listed in the Yellow Pages.

Many private sector contractors do not use the City of Toronto transfer stations but rather take materials to their own transfer stations or other private sector transfer stations. There are at least 60 waste transfer stations and material recovery facilities in the Toronto area.[1]

1.2 Multi-residential Waste

The City's SWMS Division defines a multi-residential building as a residential building with nine or more dwelling units, which can include low-rise, mid-rise and high-rise buildings as well and some townhouse complexes. Many (but not all) multi-residential buildings within the City of Toronto receive waste management services from the City. Approximately 4,500 multi-residential buildings receive waste collection services from the City; with 2,775 multi-residential buildings receiving front-end bin waste collection services and 1,736 receiving curbside collection using 360L (95 gallon) bins.

Data provided by the City's Planning Department[2] indicates that multi-residential buildings (apartments and condominiums) account for approximately 55% of dwelling units in the City of Toronto, totaling 5,000 to 6,000 multi-residential buildings.[3] Based on the above it is assumed that between 500 and 1,500 buildings utilize private waste management services instead of City services. Multi-residential buildings that do not receive City waste management services are those where:

- The building management has opted out of the City's waste services; or,
- The building does not comply with the City's eligibility criteria to receive municipal waste collection services.

1.2.1 Multi-residential Buildings Opting Out of City Waste Management Services

In July 2008, the City of Toronto introduced the *Multi-Unit Residential Volume Based Solid Waste Management Fee* to provide a financial incentive for building owners to reduce waste, and to provide the financing to establish the infrastructure required to meet the City's 70% waste diversion objective. The program targeted all multi-residential buildings, with nine or more dwelling units that were receiving front-end bin garbage collection services.

The program was designed as an "all or nothing" approach. In order to receive garbage collection service from the City, buildings were required to participate in the City's waste diversion programs. Buildings that opted out of the garbage collection service were not eligible to receive the separate bulky waste, recycling and, later, organics diversion services from the City.

[1] Source: http://www.solidwastemag.com/videos/play/?plid=1000393204

[2] Communications with Michael Wright, Manager of Research and Information, Planning Division, City of Toronto on May 22, 2014.

[3] Toronto Tower Renewal RFP, March 31, 2011, Consulting Services to Conduct a Field Test of Strategies to Maximize Waste Diversion in Selected Tower Renewal Sites; and, City Planning Department estimates based on Municipal Property Assessment Corporation (MPAC) data and the City Planning Division's Land Use Information System.

Responding to the concern of its members, the Greater Toronto Apartment Association (GTAA) issued a tender in August 2009 for a collection contract that would provide the organization's members with an alternative waste and recycling collection option. By May 2010 an estimated 375 multi residential buildings had "opted out" of City of Toronto garbage collection services and had contracted with the private sector for service.

At the direction of Council, SWMS staff re-examined the multi-residential building rate structure and reported back to the Public Works and Infrastructure Committee in June 2010. Staff recommended that the City adopt a linear rate structure (i.e. a base service fee plus charges for additional volumes of waste disposed) similar to the rate structure used by the private sector for commercial waste collection services. The linear structure would simplify the levy fees by eliminating the four bin fee categories originally used. The multi-residential building linear rate structure was approved by Council and implemented on July 1, 2010. The new multi-residential building levy has been well received by building managers and the shift of multi-residential building managers opting to move to private sector waste collection services halted at around 500 buildings.

1.2.2 Eligibility Criteria for Buildings to Receive Waste Collection

In 2003, Council introduced design requirements for waste management systems in multi-residential buildings, stipulating that the collection of recyclables must be as convenient as garbage collection to residents. This standard was incorporated in the *City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments.* As part of the City's approval process for new residential developments, SWMS works with the Chief Planner to apply these requirements to the development proposals to determine eligibility to receive waste management collection services from the City. SWMS also applies the requirements to existing buildings seeking to move from private waste collection to City service.

New developments and existing buildings requesting City waste management services must submit site plans and other information to SWMS staff in order to determine if they meet the City's requirements. Buildings must meet the City's requirements for a number of factors relating to accessibility and waste diversion services, including:

- Access routes - All roads, driveways and private accesses leading to the collection points must be completed to at least base curb and base asphalt with no obstructions related to construction and move-ins.
- Truck turning radius - Turning radii onto the private street or mews must be a minimum of 9.5 metres inside and 14 metres outside.
- Loading facilities - Overhead clearance above the collection point must be a minimum of 4.4 metres.
- Storage requirements – A minimum of 1 metre wide by 3 metres in length by 1.5 metres in height is required to store one recycling bin, one organics collection container and one garbage bin.

Storage must be sufficient to store garbage and recyclable materials for a minimum of two weeks, organics for a minimum of one week, yard waste and bulky items/electronic waste as required.

- Willingness to provide recycling and organic diversion services.

Among numerous other requirements, the document also states that,

"*It is the responsibility of the Developer and Property Manager to provide and maintain a waste diversion system using one of the following methods subject to the approval by the General Manager:*

1. No chute provided that there is a central waste collection and waste diversion facility on the ground floor and subject to the approval by the General Manager;
2. Single chute with a tri-sorter;
3. Two separate chutes with one of the chutes equipped with a dual sorter; or
4. Three separate chutes".

This requirement affects all new multi-residential developments in the City of Toronto, regardless whether the building receives City or private waste collection services.

Buildings that do not meet the standards required by the City will not receive City collection services and therefore need to arrange for service from a private waste hauler. Private waste collection services do not have a mandated obligation to also provide Blue Bin and/or Green Bin services to the building (although in the buildings are required to separate Blue Bin recycling in a manner similar to what Solid Waste Management Services requires of its customers).

1.3 Industrial, Commercial and Institutional (IC&I) Waste

For the purpose of categorizing non-hazardous wastes by source, the industrial, commercial and institutional (IC&I) sector can be broadly defined as including:

- Businesses;
- Offices;
- Various industries (e.g. warehousing, storage or industrial, manufacturing or commercial processes or operations);
- Commercial/retail stores and other establishments;
- Hospitals; and,
- Private and Post-secondary educational institutions.

Establishing the precise quantity and composition of the IC&I waste stream generated within Toronto is problematic due to the absence of a comprehensive tracking and reporting system for IC&I waste. Based on its 2010 Waste Management Industry Survey (published in August 2013) Statistics Canada reported that 6 million tonnes of "non-residential" waste (which includes both IC&I and construction and demolition (C&D) waste) was disposed from non-residential sources in Ontario in 2010. If it is reasonable to assume that 70% of the non-residential waste is IC&I waste and 30% is C&D material, and Toronto

represents 20% of the provincial population; it may be calculated that up to 840,000 tonnes of IC&I waste and 360,000 tonnes of C&D waste could be disposed from Toronto sources annually.

The City of Toronto provides collection services to businesses on main city streets for a fee (the Yellow Bag program), as well as paid drop-off service at transfer stations. Consistent with the trend in overall quantities of privately managed waste dropped off at City transfer stations, the amount of IC&I waste received at City facilities has decreased sharply over the last few years. This is presumably as a result of higher tipping fees and more restricted hours of service in comparison to other private sector disposal alternatives.

Ontario provincial regulations (see Section 3.2.2) define portions of the IC&I sector requiring implementation of diversion programs as including the following:

- Educational institutions (more than 350 persons);
- Many types of public hospitals;
- Retail establishments and shopping complexes (more than 10,000 m^2);
- Hotels/motels (more than 75 units);
- Offices (more than 10,000 m^2);
- Restaurants (more than $3M in annual sales); and,
- Large manufacturing (more than 16,000 hours worked per month).

It is generally held that these regulations are not strongly enforced and many IC&I waste generators may not even be aware of their diversion obligations. The IC&I sector is reported to have low waste diversion rates; around 13%, although precise estimates are uncertain and the actual diversion rate may be higher.

Some IC&I generators in Toronto have waste diversion programs in place, particularly for valuable and easily recyclable materials such as cardboard and metal. Most of the IC&I waste generated in Toronto is managed through 29 privately-run transfer stations located within the City, as well as other private transfer stations located close to Toronto. Transfer stations have become an increasingly important part of the IC&I waste management infrastructure since export to the United States (U.S.) has become a significant component of the waste management system[4]. The regulatory oversight of these private sector facilities and flow of IC&I waste across the border is the responsibility of the Province of Ontario through the Ministry of the Environment.

Historically (i.e. 20 years ago) most IC&I waste generated in Ontario was disposed in local municipal landfills. In recent years, municipalities in Ontario and throughout Canada and much of the U.S. have adopted a “hands off” approach to IC&I waste management, as they consider IC&I waste to be adequately managed by private sector haulers and waste service providers.

[4] Private IC&I Waste Management System in Ontario. 2004. Prepared for Ontario Waste Management Association (OWMA) by RIS International Ltd

1.4 Construction and Demolition Waste

Wastes generated as a result of construction and demolition (C&D) activities come from various sources and can include a wide range of materials such as:

- Drywall;
- Wood;
- Steel;
- Renovation wastes;
- Bricks and concrete;
- Masonry, tile, glass;
- Soil and aggregates;
- Asphalt;
- Shingles;
- Wire; and,
- Other materials.

Roll-off containers are typically used for collection of C&D wastes as many of the materials are bulky, non-compactable wastes such as wood, concrete, brick construction waste, and cardboard. These bins can be used for source separated materials at the construction or renovation site or as mixed waste bins that are sent to C&D mixed waste recycling facilities or to waste transfer stations. Most C&D projects use private sector facilities to recycle or dispose of their waste. Some smaller renovation companies however, will access one of Toronto's seven transfer stations and drop-off depots.

The City of Toronto currently accepts only one type of material that falls under the C&D category (drywall) at its drop-off depots. C&D materials are not collected at the curbside and can only be disposed of at the City's Transfer Stations. The City's waste management by-laws define many C&D materials as prohibited for collection and drop-off at its transfer stations.

There are two private sector C&D processing and recycling facilities located in the Toronto area; one in Vaughan with a capacity of 91,000 tonnes (100,000 tons) of waste per year or about 20 percent of the market's construction and demolition debris[5] and the other in Toronto with an estimated capacity of 87,000 tonnes of C&D material. [6]

[5] Progressive Waste Solutions' New C&D MRF in Toronto. October 31, 2013 at http://www.progressivewaste.com/en/progressive/innovation/progressive-waste-solutions-new-cd-mrf-in-toronto

[6] WM to Open C&D Recycling Facility in Toronto. January 26, 2012.Recycling Today

H

Waste Management Facility Information

Figure 1: Location of Transfer Stations

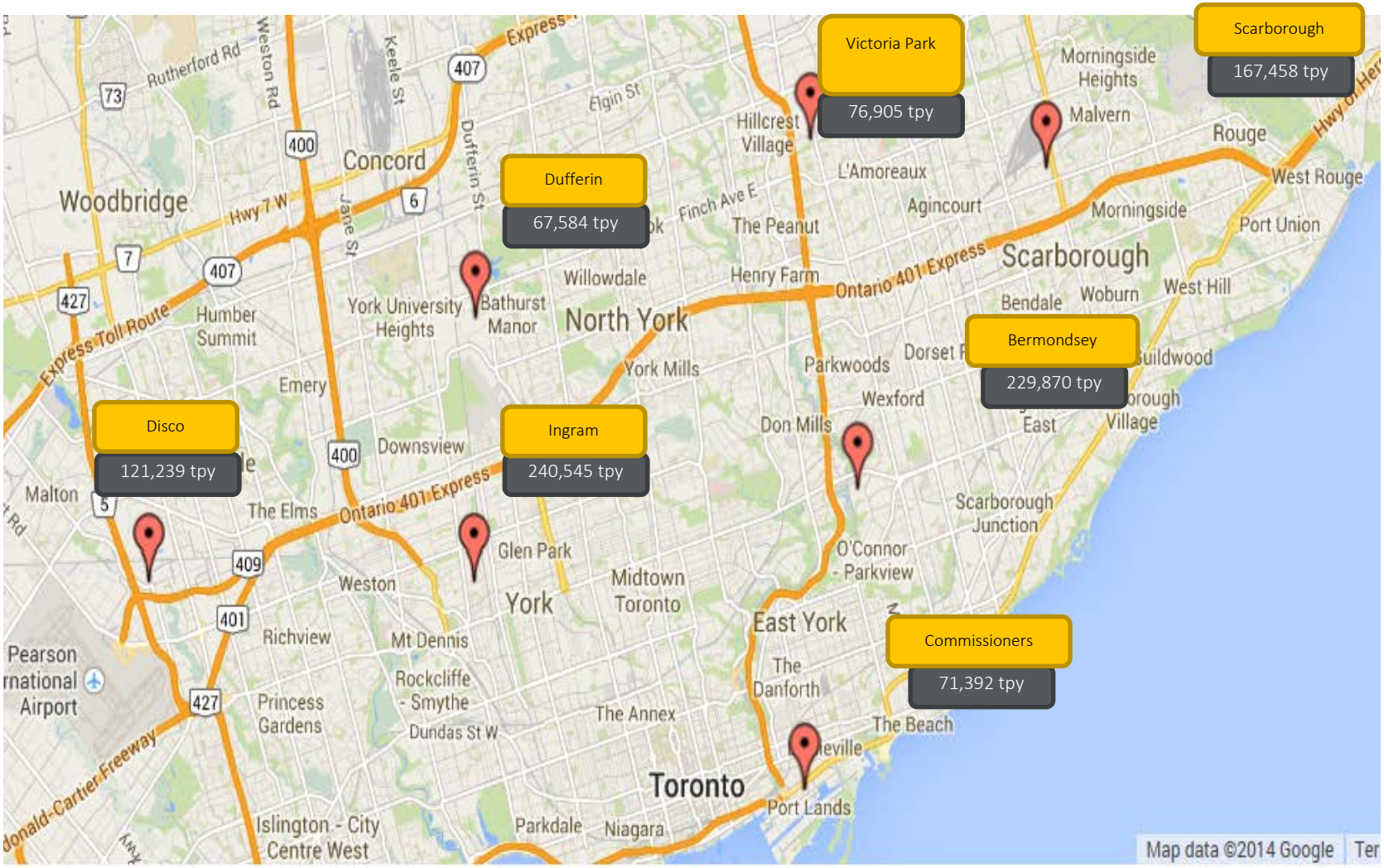


Table 1 - Transfer Station Location, Hours, Permitted Capacity and Tonnes Managed (2013)

Transfer Station Name and Location	Operating Hours	Items Accepted	ECA Conditions (Operating Hours and Permitted Capacity)	Tonnes Managed (2013)
Bermondsey (North York) **Address** 188 Bermondsey Rd., Toronto, ON M4A 1Y1	**Regular Hours** Monday - Friday: 6:00 a.m. - 7:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m. **HHW and Electronics disposal, HHW Reuse Centre:** Tuesday - Friday: 10:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m.	• Garbage • HHW • Electronic Waste • Yard Waste • Blue Bin recycling • Drywall (up to one tonne) • Tires (up to 5) • Scrap metal	The site may receive and process waste 24 hours a day, 7 days a week, 365 days per year. • Maximum combined total 2,000 tonnes per day, up to a maximum of 200,000 tonnes per year of residential and commercial non-hazardous, solid waste and Green Bin organics. • A maximum of 1,000 tonnes per day, up to a maximum of 50,000 tonnes per year of yard waste. • A maximum of 2.4 tonnes per day of WEEE. • A maximum of 1,000 tonnes per day, up to a maximum of 90,000 tonnes per year of Blue Bin recycling. • A maximum of 6 tonnes per day HHW.	229,870
Commissioners (Toronto) **Address** 400 Commissioners St., Toronto, ON M4M 3K2	**Regular Hours** Monday - Friday: 6:00 a.m. - 6:00 p.m. **HHW and Electronics disposal** Tuesday - Friday: 10:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m.	• Garbage • HHW • Electronic Waste • Yard Waste • Blue Bin recycling • Drywall (up to one tonne) • Tires (up to 5) • Scrap metal	The site is allowed to accept waste generated in the City of Toronto and the Regions of Durham, Peel and York. Loading operations may take place between the hours of 3 a.m. and 8 p.m. from Monday to Saturday and unloading operations may take place seven days a week, 24 hours a day. No more than 750 tonnes of waste per day can be accepted at the site and no more than 200,000 tonnes per year shall be received at the site. No more than 2,000 tonnes shall be stored or be present on-site at any time	71,392

Transfer Station Name and Location	Operating Hours	Items Accepted	ECA Conditions (Operating Hours and Permitted Capacity)	Tonnes Managed (2013)
Disco (Etobicoke) **Address** 120 Disco Rd., Toronto, ON M9W 1M4	**Regular Hours** Monday - Friday: 6:00 a.m. - 6:00 p.m. **HHW and Electronics disposal, HHW Reuse Centre** Tuesday - Friday: 10:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m.	• Garbage • HHW • Electronic Waste • Yard Waste • Blue Bin recycling	The site may receive and process waste 24 hours a day, 7 days a week, 365 days per year. The facility has a daily permitted capacity of 1,500 tonnes. The site is approved to receive (but not to exceed) waste in the quantities listed below • Green Bin organics – 90,000 tonnes • Garbage – 200,000 tonnes • Blue Bin recycling – 22,000 tonnes • HHW– 200 tonnes • Yard waste – 25,000 tonnes • WEEE - 70 tonnes	121,329
Dufferin (North York) **Address** 35 Vanley Crescent., Toronto, ON M3J 2B7	**Regular Hours** Monday - Friday: 6:00 a.m. - 6:00 p.m.	• Garbage (Automated vehicles only for waste drop-off) • Yard Waste • Tires	The site may receive and process waste 24 hours a day, 7 days a week, 365 days per year. The daily permitted capacity is 600 tonnes for the MRF, 300 tonnes for the Dufferin organics processing facility and 540 tonnes for the transfer station. The annual permitted capacity is: • Processing, temporary storage and transfer of blue box waste; the MRF may receive a maximum of 600 tonnes per day, and a maximum of 135,000 tonnes per year, the maximum amount stored on the tipping floor area shall be limited to 500 tonnes at any one time. The maximum amount of recyclable waste, residual waste and rejected waste generated from waste management activities, stored and present at the MRF shall not exceed 2,000 tonnes. No more than 1,620 tonnes of blue box waste shall be stored at the Fibre transfer building at any one time and the maximum storage time shall not exceed ninety days. • Transfer and processing by anaerobic digestion; the	67,584

Transfer Station Name and Location	Operating Hours	Items Accepted	ECA Conditions (Operating Hours and Permitted Capacity)	Tonnes Managed (2013)
			organics processing facility shall only receive a maximum of 300 tonnes per day and shall not receive greater than 42,120 tonnes per calendar year, no greater than 250 tonnes shall be stored on the tipping floor at any one time. The maximum amount of residual waste and rejected waste generated stored at the organics processing facility shall not exceed 30 tonnes. • The maximum quantity of solid non-hazardous waste accepted at the transfer station is 540 tonnes per day. The total amount of waste stored at the transfer station shall not exceed 1000 tonnes plus two fully loaded transfer trailers at any one time. • Temporary storage and transfer of L&YM – a combined maximum of 1,715 tonnes of L&YM and compost may be stored outdoors in the lower storage area. L&YM shall be removed from the site within 48 hours; during peak periods (spring and fall), L&YM may be stored for a maximum of seven days. • Temporary storage and transfer of Glass – a maximum of 525 tonnes may be stored on the lower storage area; a maximum of 150 tonnes of glass may be stored outdoors for a maximum of three months • Temporary storage and transfer of tires, white goods, scrap metal, glass and WEEE – a combined maximum of 630 tonnes may be stored in the upper storage area with the following restrictions: - a maximum of 60 tonnes of used tires - a maximum of 170 tonnes of combined white goods and scrap metal - a maximum of 6.25 tonnes of WEEE - a maximum of 85 tonnes of glass	

Transfer Station Name and Location	Operating Hours	Items Accepted	ECA Conditions (Operating Hours and Permitted Capacity)	Tonnes Managed (2013)
Ingram (North York) **Address** 50 Ingram Dr., Toronto, ON M6M 2L6	**24 Hour operation from Monday 6:00 a.m. Saturday 12:30 p.m.** (Closed Saturday 12:31 p.m. Monday 5:59 a.m.) **HHW and Electronics disposal, HHW Reuse Centre** Tuesday - Friday: 10:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m.	• Garbage • HHW • Electronic Waste • Yard Waste • Blue Bin recycling • Drywall (up to one tonne) • Tires (up to 5) • Scrap metal	The daily permitted capacity is 1000 tonnes (domestic) and 300 tonnes (commercial).	240,545
Scarborough **Address** 1 Transfer Place., Toronto, ON M1S 5H8	**Regular Hours** Monday - Friday: 6:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m. **HHW and Electronics disposal, HHW Reuse Centre** Tuesday - Friday: 10:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m.	• Garbage • HHW • Electronic Waste • Yard Waste • Blue Bin Recycling	The site is approved to operate 23 hours per day from 8 p.m. to 7 p.m.[1], 7 days per week. The peak daily permitted capacity of this transfer station is 1,725 tonnes with an average daily permitted capacity of 907 tonnes	167,458

[1] email correspondence from Annette Synowiec dated May 12, 2014

Transfer Station Name and Location	Operating Hours	Items Accepted	ECA Conditions (Operating Hours and Permitted Capacity)	Tonnes Managed (2013)
Victoria Park (North York) **Address** 3350 Victoria Park Ave., Toronto, ON M2H 3K5	**Regular Hours** Monday - Friday: 6:00 a.m. - 6:00 p.m. **HHW and Electronics disposal** Tuesday - Friday: 10:00 a.m. - 6:00 p.m. Saturday: 7:00 a.m. - 12:30 p.m.	• Garbage • HHW • Electronic Waste • Yard Waste • Blue Bin recycling	The site may receive and process waste 24 hours a day, 7 days a week, 365 days per year and is permitted to accept 690 tonnes per day.	76,905

Source: City of Toronto Website, Communication from SWMS staff

Bermondsey Transfer Station

The Bermondsey transfer station is a 7.2 hectare waste transfer and processing site located at 188 Bermondsey Road in North York. A ravine runs along the north and west sides of the site. The access road south of the reuse & recycling building runs along lands that are part of a grant of easement by Ontario Realty Corporation on hydro corridor lands.

The transfer station consists of several primary and ancillary facilities:

- Transfer station - At the transfer station, garbage and Green Bin materials are unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53' or 48') destined for landfill or an organics processing facility, respectively.
- WEEE and MHSW depot - The WEEE/MHSW depot accepts WEEE and MHSW dropped off by the public from residential sources only. These materials are consolidated and transferred off-site for recycling or disposal. This facility offers a MHSW reuse centre where the public can pick up items such as leftover paint at no charge.
- Covered bunker – The covered bunker is used for the receipt, temporary storage and transfer of recyclable materials, predominantly old corrugated cardboard (OCC), from curbside collection vehicles to a MRF.
- Reuse & recycling building –The east portion of the building is used for the receipt, temporary storage and transfer of L&YM. L&YM is accepted from residential and non-residential sources and is transferred off-site to one of the City's L&YW contractors for processing. A section of the L&YM area is currently used for the transfer of corrugated cardboard. The west portion of the building is an equipment service area.
- Outdoor bi-level recycling centre – This area is used as a public drop off area for the receipt, temporary storage and transfer of the following materials: drywall, tires, polystyrene, electronics, scrap metal, mixed recyclables, and garbage (small residential customers). An area at the outdoor bi-level recycling centre has been set aside for the

receipt of appliances (refrigerators, freezers, etc.) so that any CFCs can be removed prior to transfer. Around election time, one of the bins at the bi-level recycling centre is being designated for election signs.

- Scale house – Staff at the scale house provide traffic control for vehicles transporting garbage or other materials, record information on material movement into and out of the site and collect fees.

All vehicles with garbage, Blue Bin materials, Green Bin material, , L&YM, scrap metal (including appliances), drywall, tires, and polystyrene enter the site at 188 Bermondsey Road and proceed to the inbound weigh scale at the Scale House where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage and Green Bin materials are directed to the transfer station; vehicles containing L&YM are directed to the reuse & recycling building; vehicles containing recyclable materials are directed to the covered bunker (dedicated corrugated cardboard loads go to the reuse & recycling building). Vehicles with small loads of garbage are directed to the drop-off area, rather than the tipping floor.

Residential vehicles carrying WEEE or MHSW enter the site at 188 Bermondsey Road and proceed to the WEEE/Hazardous Waste depot (not required to weigh in and out).

The facility operates under the following ECAs:

- A280701, (Waste);
- 0774-6YVNN8 (Municipal & Private Sewage Works – for an oil/grit interceptor)

Commissioners Transfer Station

The Commissioners Transfer Station is a 2.5 hectare waste transfer and processing site located at 400 Commissioners Street in Toronto, near the waterfront.

The site includes several primary and ancillary facilities:

- Transfer station - At the transfer station, garbage is unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53’ or 48’) destined for landfill.
- WEEE and MHSW depot - The WEEE/MHSW depot accepts WEEE and MHSW dropped off by the public from residential sources. These materials are consolidated and transferred off-site for recycling or disposal.
- Outdoor L&YM bunker – The outdoor L&YM bunker is used for the receipt, temporary storage and transfer of L&YM. L&YM is accepted from the residential and non-residential sector and is transferred off-site to one of the City's L&YW contractors for processing.
- Scrap metal bunker/recycling depot – This area is used for the receipt and transfer of scrap metal (including appliances), drywall, recyclable materials, polystyrene, and tires from City forces, and the residential and non-residential sector for recycling. There is also an area at the south-east corner of the site used for the receipt and transfer of ceramics

for recycling. Some scrap metal is dropped off by the City's multi-residential contract hauler instead of at the Cherry Street reuse centre because they are required to weigh the materials separately at Commissioners Transfer Station anyway.

- Former MRF – A MRF operated at this site until May 15, 2005. The building is occasionally used for material audits.
- Free compost depot – The southern portion of the scrap metal bunker/recycling depot is used as a compost depot from April to October. Residents are able to pick up approximately one cubic meter of compost for free at the depot.
- Composter and container pick-up – Green Bins, kitchen containers and composters are available at this site.
- Scale house – Staff at the scale house provide traffic control for vehicles transporting waste or other materials, record information on material movement into and out of the site, and collect fees.

All vehicles with garbage, L&YM, compost and scrap metal/recycling depot materials (see above) enter the site off Bouchette Street and proceed to the inbound weigh scale at the Scale House where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage are directed to the transfer station; vehicles containing L&YM are directed to the outdoor L&YM bunker; vehicles containing scrap metal (including appliances) and recyclable materials are directed to the designated bunker.

Residential vehicles carrying WEEE or MHSW enter the site off Bouchette Street and proceed to the WEEE/Hazardous Waste Depot (not required to weigh in and out). Residents using the free compost depot also enter the site off Bouchette Street and proceed to the compost depot (not required to weigh in and out at the scales).

The facility operates under the following ECAs:

- A280203 - MHSW/WEEE Depot and L&YM.
- A210343 - former Materials Recovery Facility (MRF).
- A210615 - Transfer Station (recently consolidated).

Disco Road Transfer Station and Organics Processing Facility

The Disco Road Organics Processing Facility and Transfer Station is a 7.2 ha waste transfer and processing site located at 120 and part 150 Disco Road, Toronto. The Disco Road site is located on a former City of Etobicoke landfill that has been remediated and reused by the City of Toronto.

The primary facilities include:

- Transfer station - Garbage and Blue Bin materials are unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53' or 48') destined for the landfill or a MRF, respectively. Green Bin material may be received at the Disco Road transfer station when the Disco Road organics processing facility is unable to accept the material and then transferred to another organics processing facility.
- Organics processing facility - The Disco Road organics processing facility has been designed to process 75,000 tonnes of the City's Green Bin material annually through anaerobic digestion. The organics processing facility is owned by the City and operated by a private contractor. The processing end-products include digester solids, biogas, residue, and waste water. Digester solids (digestate) are transferred off-site and used as feedstock for the production of compost. Biogas is a combustible gas and potential source of renewable energy; however, it is uncertain at this time how the biogas will be utilized. Non-compostable Green Bin residues are transferred for disposal at a landfill,

and waste water is discharged to the sanitary sewer system. The Disco Road organics processing facility includes an office building and the main processing building.

- WEEE and MHSW Depot - The WEEE/MHSW depot is located on the lower level of the Disco Road transfer station and accepts WEEE and MHSW dropped off by the public from residential sources. These materials are consolidated and transferred off-site for recycling or disposal. This facility offers a MHSW reuse centre where the public can pick up items such as leftover paint at no charge.
- L&YM transfer area - The site has an outdoor storage pad for the receipt and transfer of L&YM. L&YM is accepted from residential and non-residential sources and is transferred off-site to one of the City's L&YW contractors for processing.
- Compost storage area - The site has a compost pick-up area which is accessible to the public. Compost is transferred to the site in transfer trailers and picked up by residents at designated times.

Ancillary facilities include:

- Scale house; employee parking areas; transfer trailer parking areas; site access roads, landfill gas and leachate collection system; and surface water management system (stormwater pond and dry pond).

All vehicles entering the site with garbage, Green Bin materials, Blue Bin materials, L&YM and compost enter the site at 120 Disco Road and proceed to the inbound weigh scale at the scale house where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage and recyclable materials are directed to the Disco Road transfer station; vehicles containing L&YM are directed to the outdoor L&YM transfer area; vehicles containing compost are directed to the compost bunker.

Residential vehicles carrying WEEE or MHSW enter the site at 120 Disco Road and proceed to the hazardous waste depot (not required to weigh in and out). Residential vehicles picking up compost also enter the site at 120 Disco Road (not required to weigh in and out).

The facility operates under the following ECAs:

- A280303 (Waste)
- 1042-9EHPAN (Air & Noise)
- 1627-782HXL (Municipal & Private Sewage Works)
- 3473-8HFKRH (Stormwater)
- 1371-8M7GQL (Air)
- 1184_681 Sewer By-law

Dufferin Waste Management Facility

The Dufferin Waste Management Facility is a 23.78 hectare waste transfer and processing site located at 35 and 75 Vanley Crescent, Toronto, Ontario, north of Highway 401, south of Finch Avenue, and between Dufferin Street and Keele Street. It consists of several primary and ancillary facilities. The No. 300, No. 500 and No. 700 buildings were originally constructed and operated until mid-1980 by the Province as the Dufferin Experimental Resource Recovery Centre. A portion of the area of the site is regulated by the Toronto and Region Conservation Authority (TRCA).

The primary facilities include:

- Transfer station - At the transfer station (No. 300 building), garbage is unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53' or 48') destined for landfill. Only automated collection vehicles are currently accepted at this site for garbage drop-off. As a general rule, residential and non-residential vehicles are not allowed to bring waste to this facility. There is also a PCB storage room on the lower level in the section referred to as the No. 400 building (MOE PCB site No.: 301-91A-050); the room is currently empty.

- Organics processing facility – The existing organics processing facility includes the No. 700 building and associated structures external to the building including portable trailers for administration and staff facilities, two anaerobic digester vessels and mixing compressors, the digester secondary containment structure, biogas flare and biofilter. Currently, the organics processing facility is permitted to receive up to 42,120 tonnes per year (maximum of 300 tpd) of Green Bin material from the City's Green Bin program. The organics processing facility is owned by the City of Toronto and is operated by a contractor. The organics processing facility shut down on March 31, 2014 to prepare for an expansion so that the facility can receive up to 55,000 tonnes per year of Green Bin material.
- MRF – The Dufferin MRF (No. 500 building) was used to process Blue Bin material collected from the City's recycling programs until November 2014 when it was shut down. There is a methane venting system under the west end of this building.
- Outdoor storage areas – The site currently has two main outdoor storage areas. The lower storage area is located north of the Dufferin organics processing facility and is used for the transfer of L&YM and compost. The upper storage area is located south of the scale house and is used for the transfer of used tires, scrap metal and white goods. Glass recovered at the Dufferin MRF was stored at either area when required. The lower storage area will be needed for the Dufferin organics processing facility expansion; the L&YM and compost transfer area will likely be relocated to 75 Vanley Crescent.
- Fibre transfer building – The fibre transfer building is located at 75 Vanley Crescent and is used for the temporary storage of Blue Bin materials collected from the City's recycling programs when there is not enough storage space on the Dufferin MRF tip floor. This material is transferred to the Dufferin MRF for processing when capacity is available. This building also contains the offices for the Facilities & Equipment Maintenance Group (ID&AM). An incinerator operated at this location until the early 1980s. Ash from the incinerator was used to fill in portions of the site. The nature and extent of buried waste on-site is unknown; boreholes drilled at the site found mostly ash with bits of other material (e.g. wood) so which may not have fully decomposed and still generate trace amounts of methane.
- Personnel building – The personnel building (No. 250 building) contains offices, change rooms and lunch rooms for staff. There is a methane detection system monitoring gas underneath this building.

Ancillary Facilities include:

- Portable office – There is also a portable office building (No. 275 building) located between the personnel building and the transfer station that contains offices for Infrastructure Development & Asset Management (ID&AM) staff.

- Scale house – The scale house provides traffic control for vehicles transporting waste or other materials, records information on material movement into and out of the site, and collects fees. The scale house is also equipped with a methane gas detection alarm.
- Radiation detection system;
- Employee parking areas;
- Transfer trailer parking areas;
- Site access roads; and
- Stormwater management system.

The primary vehicles accessing this site are automated collection vehicles with garbage, and other collection vehicles delivering Blue Bin materials, Green Bin materials, L&YM, compost, tires and scrap metal which enter the site by the main entrance off 35 Vanley Crescent and proceed to the inbound weigh scale at the scale house where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage are directed to the transfer station; vehicles containing Blue Bin materials are directed to the MRF; vehicles containing Green Bin materials are directed to the organics processing facility; vehicles containing L&YM and compost are directed to the lower storage area; vehicles containing tires and scrap metal are directed to the upper storage area. The drop-off centre at this site only accepts L&YM, and tires; on occasion, small amounts of garbage are accepted.

The organics processing facility is permitted under Ministry of Environment ECAs A280709 (Waste); 5459-8CSRVT (Air – Organics Processing Facility); and 0104-6K5KH9 (Air – Materials Recovery Facility).

Ingram Transfer Station

The Ingram transfer station is a 7.6 hectare waste transfer and processing site located at 50 Ingram Drive in North York. The City's main haulage operations office is also located at the Ingram transfer station.

The site includes primary and ancillary facilities:

- Transfer station - At the transfer station, garbage, Blue Bin materials and Green Bin materials are unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53' or 48') destined for landfill, MRF and organics processing facilities, respectively.
- WEEE and MHSW Depot - The WEEE/MHSW Depot is located on the lower level of the Ingram transfer station building and accepts WEEE and MHSW dropped off by the public from residential sources. These materials are consolidated and transferred off-site for recycling or disposal. This facility offers a MHSW reuse centre where the public can pick up items such as leftover paint at no charge.

- Outdoor L&YM bunker – The outdoor L&YM bunker is used for the receipt, temporary storage and transfer of L&YM. L&YM is accepted from the residential and non-residential sector and is transferred off-site to one of the City's L&YM contractors for processing.
- Outdoor bi-level recycling depot – This area is used as a public drop off area for the receipt, temporary storage and transfer of recyclables. Currently, the following materials are accepted at the bi-level recycling depot: drywall, tires, polystyrene, electronics, scrap metal, recyclables and garbage (small residential customers only). There is an area at the west end of the depot for appliances (refrigerators, freezers, etc.) so that any CFCs can be removed prior to transfer. Around election time, one of the bins at the bi-level recycling centre is designated for election signs.
- Mattress trailers – Designated trailers are parked at this site (along the north roadway) for the drop-off of mattresses and boxsprings by the City's multi-residential collections contractor for recycling.
- Composter and container pick-up – Green Bins, kitchen containers and composters are available at this site.
- Scale house – Staff at the scale house provide traffic control for vehicles transporting waste or other materials, record information on material movement into and out of the site, and collect fees.

All vehicles with garbage, Blue Bin materials, Green Bin materials, L&YM, mattresses and recyclable materials enter the site by the main entrance off Ingram Drive and proceed to the inbound weigh scale at the scale house where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage, Blue Bin materials and Green Bin materials are directed to the transfer station; vehicles containing L&YM are directed to the outdoor L&YM bunker; vehicles containing recyclable materials are directed to the designated area; vehicles containing mattresses are directed to the mattress trailers.

Residential vehicles carrying WEEE or MHSW enter the site by the roadway directly east of the main entrance off Ingram Drive and proceed to the WEEE/Hazardous waste depot (not required to weigh in and out).

The facility operates under the following ECAs:

- A280703 (Waste);
- 8-3081-85-006 (Air)

Scarborough Transfer Station

The Scarborough transfer station is a 7.3 hectare waste transfer and processing site located at 1 Transfer Place in Toronto.

The site includes primary and ancillary facilities:

- Transfer station - At the transfer station, garbage and Green Bin materials are unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53’ or 48’) destined for landfill and organics processing facilities, respectively.
- WEEE and MHSW Depot - The WEEE/MHSW depot is located on the lower level of the Scarborough transfer station building and accepts WEEE and MHSW dropped off by the public from residential sources. These materials are consolidated and transferred off-site for recycling or disposal. This facility offers a MHSW reuse centre where the public can pick up items such as leftover paint at no charge.
- Outdoor L&YM bunker – The outdoor L&YM bunker is used for the receipt, temporary storage and transfer of L&YM. L&YM is accepted from the residential and non-residential sector and is transferred off-site to one of the City's compost contractors for processing.
- Covered bunker – The covered bunker is used for the receipt of Blue Bin materials from curbside collection vehicles, residential and non-residential vehicles, temporary storage and transfer of Blue Bin materials to a MRF.

- Free compost depot – The southern portion of the parking area along the west side of the transfer station is used as a compost depot from April to October. Residents are able to pick up approximately one cubic metre of compost for free at the depot.
- Mattress trailers – Designated trailers are parked at this site (north east corner) for the drop off of mattresses and box springs by the City's multi-residential collections contractor for recycling.
- Composter and container pick-up – Green Bins, kitchen containers and composters are available at this site.
- Scale house – Staff at the scale house provide traffic control for vehicles transporting waste or other materials, record information on material movement into and out of the site, and collect fees.

All vehicles with garbage, Blue Bin materials, Green Bin materials, L&YM, mattresses and compost enter the site by the main entrance off Transfer Place (via Nugget Ave.) and proceed to the inbound weigh scale at the scale house where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage and Green Bin materials are directed to the transfer station; vehicles containing L&YM are directed to the outdoor L&YM bunker; vehicles containing Blue Bin materials are directed to the covered bunker; vehicles containing compost are directed to the free compost depot; vehicles containing mattresses are directed to the mattress trailers.

Residential vehicles carrying WEEE or MHSW enter the site off Transfer Place (via Nugget Ave.) and proceed to the WEEE/Hazardous waste depot (not required to weigh in and out). Residents using the free compost depot also enter the site off Transfer Place (via Nugget Ave.) and proceed to the compost depot (not required to weigh in and out at the scales).

The facility operates under the following ECAs:

- A280408 (Waste);
- 8-3055-79-006 (Air)

Victoria Park Transfer Station

The Victoria Park transfer station is a 2.3 hectare waste transfer and processing site located at 3350 Victoria Park Avenue in North York.

The site includes primary and ancillary facilities:

- Transfer station - At the transfer station, garbage, Blue Bin materials, Green Bin materials and L&YM are unloaded from small curbside collection vehicles and re-loaded into larger, long-haul transfer trailers (53' or 48') destined for landfill, MRFs, organics processing facilities, and L&YM processing facilities, respectively.
- WEEE and MHSW Depot - The WEEE/MHSW depot is located along the west side of the site and accepts WEEE and MHSW dropped off by the public from residential sources. These materials are consolidated and transferred off-site for recycling or disposal.
- Community Environment Days Area – Community Environment Days staff use a portion of the lower level of the transfer station for the storage of materials used at the City's Community Environment Days Events. Community Environment Days trailers are backed up to two of the bays; Goodwill trailers are parked in the lower yard when not in use during Community Environment Days season.
- Mattress trailers – Designated trailers are parked at this site for the drop off of mattresses and box springs by the City's multi-residential collections contractor for recycling.

- Free compost depot – An area of the parking lot along the west wall of the transfer station between the entrance and exit doorways to the tipping floor is used as a compost depot from April to October. Residents are able to pick up to approximately one cubic metre of compost for free at the depot.
- Scale house – Staff at the scale house provide traffic control for vehicles transporting waste or other materials, record information on material movement into and out of the site, and collect fees.

All vehicles with garbage, Blue Bin materials, Green Bin materials, L&YM, mattresses and compost enter the site by the main entrance off Victoria Park Ave. and proceed to the inbound weigh scale at the scale house where they are weighed and directed to the appropriate receiving area. Vehicles containing garbage, Blue Bin materials, Green Bin materials and L&YM are directed to the transfer station; vehicles containing compost are directed to the free compost depot; vehicles containing mattresses are directed to the mattress trailers.

Residential vehicles carrying WEEE or MHSW enter the site off Victoria Park Ave. and proceed to the WEEE/Hazardous waste depot (not required to weigh in and out). Residents using the free compost depot also enter the site off Victoria Park Ave. and proceed to the compost depot (not required to weigh in and out at the scales).

The facility operates under the following ECA:

- A280707 (Waste)

Cherry St. Reuse Centre/Durable Goods Recycle Centre

The Cherry St. Reuse Centre/ Durable Goods Recycle Center is located at 242 Cherry St. in Toronto. The facility is approximately 4,800 m^2 (51,700 sq. ft.) and is rented from the Toronto Port Lands.

All incoming collections vehicles with materials designated for the Reuse Centre located on Cherry Street are weighed at the nearby City of Toronto Commissioners Street Transfer Station prior to arrival at the Reuse Centre. Trucks access the Reuse Centre via Commissioners Street.

Upon delivery to the Reuse Centre, materials are manually unloaded from the vehicles and sorted by the Reuse Centre staff. Up to 100 tonnes of the durable goods and electronics material streams are received from incoming collections vehicles on a weekly basis. Incoming materials accepted at the Reuse Centre include: mattresses, scrap metal, plastics, electronics, ceramics, clean wood, polystyrene and Blue Bin materials.

Materials are sorted into containers, rolloff bins or stacks (mattresses) prior to being shipped for processing.

The Reuse Centre is operated by the City under C of A - Number 2689-7Huntr.

Table 2 - City of Toronto Collection Yards

Yard Address	Function
1008 Yonge St	Litter Bins - collect Blue Bin recycling/garbage from litter bins located on sidewalks.
	Manual Collection of Litter on City sidewalks - Bag and Broom
	Mechanical Collection (power vacs) - of litter on sidewalks and near curb
	Street Sweepers used to clean laneways
86 Ingram Drive	Manage residential and multi-residential contracts
	Customer Service & Waste Diversion Implementation. - Administer Commercial Collection, multi-residential roll-out and customer support, bin investigations, manage Rehrig and Orbis contracts, etc.
	Parks Bin - material collection West of Yonge Street
	Mechanical Collection (power vacs) - of litter on sidewalks and near curb
2000 Midland Ave Bldg A	District 4 Curbside Collection
	Mechanical Collection (power vacs) - of litter on sidewalks and near curb
25 Old Eglinton Ave	Parks Bins - material collection East of Yonge Street
	Night Collection - Commercial RUAC and Curbside
	District 3 Curbside Collection

Green Lane Landfill

Green Lane Landfill (GLL) is located in Southwold Township in the County of Elgin (near London and St. Thomas), about 200 km from downtown Toronto. The site is located about 8 kilometres from the Highway 4 exit from Highway 401.

Background

GLL has been operational since 1978 under Provisional Certificate of Approval No. A051601 issued on April 28, 1978. GLL currently operates under amended Certificate of Approval) Number A0510601 for a Waste Disposal Site issued to the City in July 2007.

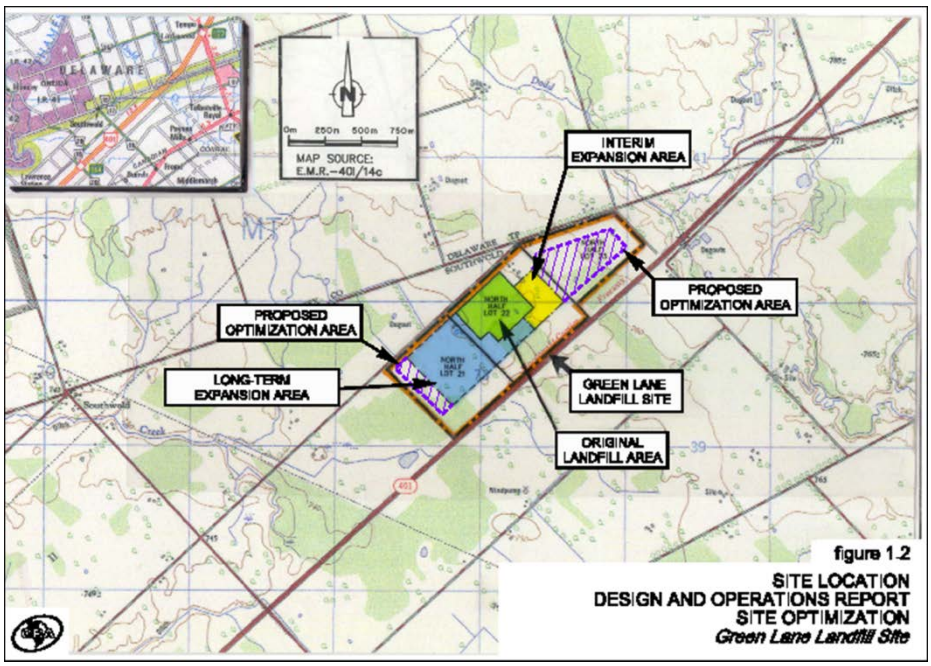
The approved landfilling site is 71 hectares within a total site area of 130 hectares. The City also owns approximately 1,200 acres of buffer lands in the vicinity of the GLL.

Historical site Certificates of Approvals (Cs of As) allowed the site to accept municipal, domestic, commercial and solid non-hazardous industrial waste from municipalities in the County of Elgin, the City of St. Thomas and from parts of the County of Middlesex excluding the City of London. In 1999, the amended C of A for the long-term expansion permitted the site to receive waste generated anywhere within Ontario.

GLL was a division of St. Thomas Sanitary Collection Service Limited Partnership. Between 1978 and 2006 approximately 3.1 million tonnes of solid waste was disposed of at GLL. Since the City's purchase in 2007, another 3.9 million tonnes have been landfilled. Prior to the City's purchase of GLL, the site was developed in the phases as shown below;

- original landfill area from 1978 to 1991,
- interim expansion area from February 1994 to February 1999,
- long-term expansion area (plus unused interim expansion capacity) in February 1995 and,
- site optimization areas (plus unused long-term expansion capacity) from September 2006 to present.

Figure 2: Historical Site Development of Green Lane Landfill



Source: Design and Operations (D&O) Report for The Optimization of the Green Lane Landfill Site (Conestoga-Rovers & Associates CRA, - July 2006).

Design and Site Features

GLL is an engineered landfill with a number of important site and design features. The hydrogeology setting for the site is composed of a fine-grained (clayey silt) glacial deposit with a very low hydraulic conductivity. Bedrock (limestone) is located approximately 80 m below grade. The design approach implemented at the GLL is known as a "hydraulic trap" and is illustrated in Figure 6-3. The Design and Operations (D&O) Report for the Optimization of the Green Lane Landfill Site (CRA, July 2006) defines the hydraulic trap design as:

The design and operation of a landfill such that the level of leachate is maintained at an elevation lower than the potentiometric elevations of the underlying hydrogeologic units. This creates an upward fluid potential gradient between the underlying hydrogeologic unit's potentiometric surfaces and the leachate elevation within the landfill, which prevents the potential downward migration of leachate.

This means that the Site is designed to operate with inward and upward gradient to contain the leachate for collection and treatment. Monitoring is done to confirm the Site is operating as designed.

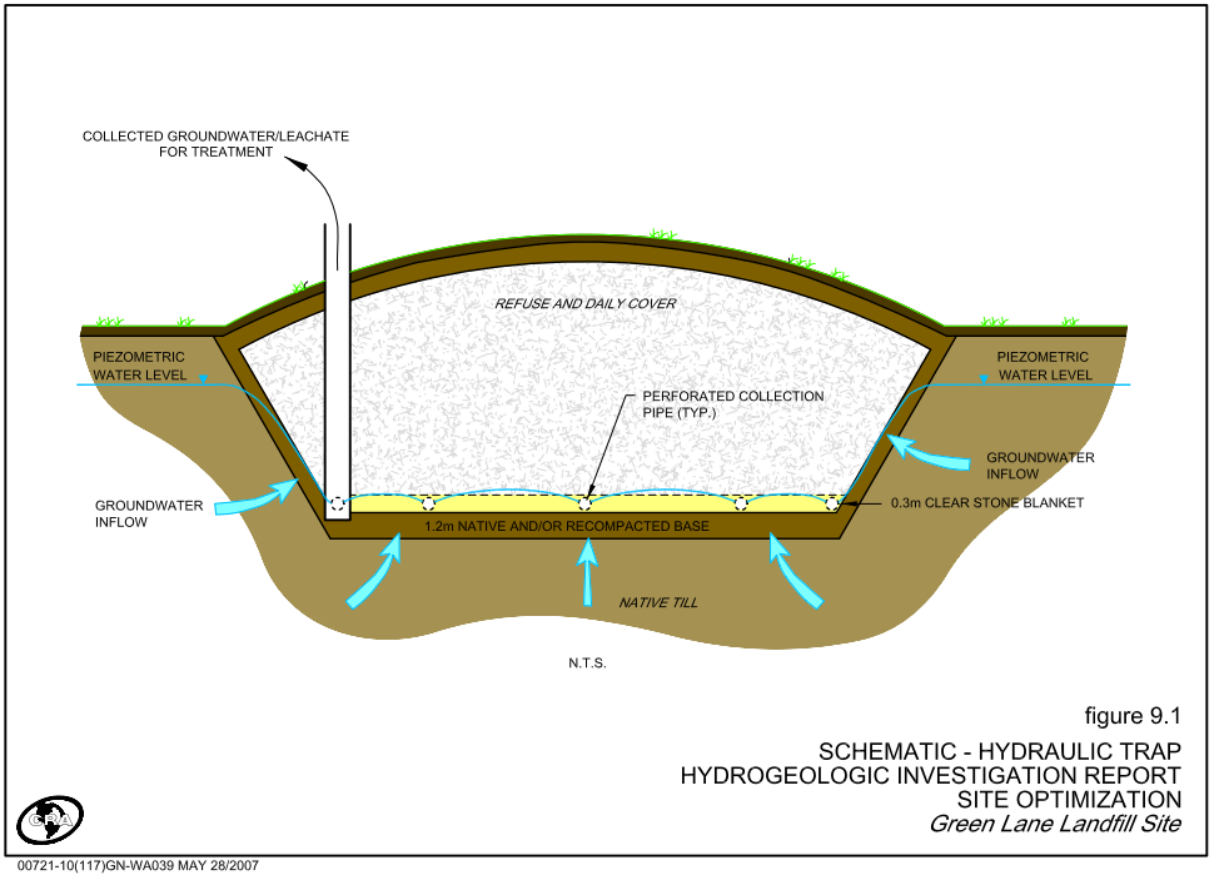
Groundwater quality and surface water quality have been monitored since the landfill opened in 1978. Historical and current monitoring data confirm that there are no off-site adverse impacts

to the natural environment due to landfill operations. The 2014 Annual Progress Report for Green Lane Landfill January 2014-December 2014 (WSP Canada Inc,2015, page 31) states:

The 2014 boundary impact assessment indicates that the Site is in compliance with Regulation 232/98. Acceptable concentrations of chloride and boron were measured at all downgradient locations, and the remaining trigger level parameters (chromium, benzene ethylbenzene, and vinyl chloride) were at non-detectable concentrations in all downgradient wells.

Based on the 2014 surface water monitoring results and surface water chemistry assessments, Dodd Creek is not being impacted by landfilling activities, including the discharge of on-site surface water and treated leachate effluent via the polishing basin discharge outlet.

Figure 3: Schematic of Hydraulic Trap Design at Green Lane Landfill



Source: Hydrogeological Investigation Report for the Optimization of the Green Lane Landfill Site, CRA, July 2006

Other design features of the GLL include a landfill gas collection and flaring system, leachate collection and on-site leachate treatment plant. The landfill gas collection infrastructure is comprised of vertical collection wells and horizontal collection trenches and, currently, two flares with capacities of destroying landfill gas at the rates of 1,600 cfm (cubic feet per minute) and 3,200 cfm, respectively. Both Flares 1 and 2 are currently being used . It is presently anticipated that the planned third flare will be installed in 2016. In total, there may be up to five flares required to manage the quantities of landfill gas produced during the operating life of the Site. Landfill gas is currently flared but options are presently under review to develop a landfill gas utilization strategy.

Environmental monitoring programs take place on a monthly, quarterly, semi-annual and annual basis in connection with groundwater quality, surface water quality, hydraulic trap monitoring, leachate, and landfill gas. Monitoring results along with information on site operations, management and conformance with the EAA Approval conditions are summarized in Annual Progress Reports submitted to the MOECC for review and which are posted on the City's website.

GLL Community Initiatives

GLL has a number of community programs in place, as summarized below:

- Host Community Agreement (April 2007)
  - Continues the Green Lane Community Trust Fund (non-share capital corporation) first established in 1999. The City contributes a percentage of gross landfill revenues to the Trust managed by a Board of Directors. Trust funds are granted to applicants to undertake projects that meet eligibility criteria.
- First Nations Community Benefits Agreement (March 2007)
  - Participating First Nations are the Oneida Nation of the Thames and the Chippewas of the Thames First Nation
  - First Nations Community Trust Fund - the City contributes a percentage of gross landfill revenues.
- Green Lane Landfill Public Liaison Committee (PLC)
  - The PLC, established in 1994, continues to meet quarterly. The PLC reviews and exchanges information and monitoring results relevant to the operation of the landfill. Meetings are open to the public to participate. PLC members include representatives from Southwold Township, Elgin County, St. Thomas, Middlesex Centre Township, MOECC and local area residents.
- First Nations Liaison Committee (FNLC)
  - The FNLC meets on a regular basis. It is presently comprised of elected representatives from the Oneida Nation of the Thames and the Chippewas of the Thames First Nation. Discussions include providing information in connection with any potential environmental concerns related to the site operation.
- Other First Nations
  - The City is available to engage in discussions if any communications are received.
- Property Value Protection Plan (PVPP)

  - The PVPP offers assurance to eligible property owners in the vicinity that they will suffer no financial loss due to potential diminution in the value of their real estate because of proximity to the operating landfill. Under the PVPP, the City has the option to purchase and add the property to its buffer land holdings.
- Habitat Restoration Project
  - The City has provided access to a buffer land parcel to the Kettle Creek Conservation Authority. KCCA created and maintains a wetland area to restore the natural habitat for wildlife and vegetation. This also enhances the quality of the surface water in the local subwatershed.

Closed Landfills

Post-closure care activities for the City's closed landfills range from simple annual site inspections and routine site maintenance to extensive year round environmental monitoring, reporting and remediation activities (if required). Post-closure activities are completed by two staffing groups: 1) monitoring and 2) construction and maintenance. In addition to SWMS staff, other City divisional staff (Facilities and Maintenance, Engineering, Water and Legal) assists in post-closure activities. The closed landfill program is funded by SWMS's capital program for the Perpetual Care of Landfills. Closed landfills are characterized by one of three levels of priority: primary, secondary and tertiary.

Table 3: Prioritization of Landfills

Type of Site	Level of Priority	Number of Sites
Primary	High - require routine monitoring and reporting as a condition of the Environmental Compliance Approval (ECA).	3 primary sites: Beare Road, Brock West,Keele Valley - each with an ECA for Waste Disposal Site and Air
Secondary	Medium - potential for subsurface migration of landfill gas and its accumulation in confined spaces and the external seepage of leachate and its contamination of surface water	41 secondary sites with four that have an ECA for a Waste Disposal Site, ten that have an ECA for Air and two that have an ECA for Municipal and Private Sewage Works
Tertiary	Low - no landfill gas or leachate issues have been identified at those locations	116 tertiary sites with five that have an ECA for Waste Disposal Site and/or Air

Contract Information for Collection, Processing, Transport and Disposal of Waste

Table 1: Contracts for Collection, Processing and Disposal (as of March 1, 2015)

Service Provider	Service Provided	Materials Managed	Length of Contract	Start Date	End Date	Potential Extensions
Waste Collection						
Waste Management of Canada Contract 47016285	Contingency collection, transportation and off-loading of of Garbage, Recyclable Materials, Organic Materials and/or Yard Waste from residential curbside collected areas on an as-needed basis	Garbage, Blue Bin material, Green Bin material, L&YM, bulk, WEEE	5 years	September 26, 2011	September 25, 2016.	
Miller Waste Systems Contract 47013545	Collection of multi-family waste City wide; front end bins only	Garbage, Blue Bin material, Green Bin material, bulk, WEEE	8 years	Phased in - February 1, 2008 (NY, Scarb), July 1, 2008 (EY, TO, ET, York)	June 30, 2016	No extension
Miller Waste Systems Contract 47018841	Collection, transportation and off-loading of Garbage, Recyclable Materials, Organic Materials, Bulky Items, items for which Special Collection Services are provided and Yard Waste from Single family homes, Multi-residential locations, Commercial locations, Non-residential locations (Charities, Institutions and Religious Organizations) and Agencies and Corporations (ACs) that receive Curbside Collection (Etobicoke Area - District 1)	Garbage, Blue Bin material, Green Bin material, L&YM, bulk, WEEE	6 years	July 1, 2015	June 30, 2021	Two (2) additional one (1) year periods
GFL Environmental Inc. Contract 47017550	Collection of waste in District 1	Garbage, Blue Bin material, Green Bin material, L&YM, bulk, WEEE	7 years	July 1, 2008	June 30, 2015	2 years - 2 - one year periods years - ending June 30, 2016 or June 30, 2017
GFL Environmental Inc. Contract 47017543	Collection of waste in District 2	Garbage, Blue Bin material, Green Bin	7 years	August 7, 2012	August 2, 2019	2 years - 2 - one year periods years -

Service Provider	Service Provided	Materials Managed	Length of Contract	Start Date	End Date	Potential Extensions
		material, L&YM, bulk, WEEE				ending July 31, 2020 or August 6, 2021
L&YM Processing						
Miller Waste Systems Contract 47017149	Processing up to 10,000 tpy of L&YM	L&YM	5 years	January 1, 2013	December 31, 2017	optional extension years in 2018 and 2019
Orgaworld Canada Contract 47013486	Processing up to 20,000 tpy of L&YM	L&YM	5 years	June 1, 2008	May 31, 2013	Option to renew for two (2) separate one (1) year periods
Gro-Bark (Ontario) Ltd. Contract 47017150	Processing up to 10,000 tpy of L&YM	L&YM	5 years	January 1, 2013	December 31, 2017	optional extension years in 2018 and 2019
All Treat Farms Ltd. Contract 47017148	Processing services for up to 40,000 tpy of L&YM	L&YM	10 years	January 1, 2013	December 31, 2022	optional extension years in 2023 and 2024
Courtice Auto Wreckers Ltd. Contract 47018552	Processing services for up to 20,000 tpy of L&YM	L&YM	2 years	September 19, 2014	September 18, 2015	Option to renew for one (1) year period
Walker Environmental Group Inc. Contract 47018290	Processing services for up to 30,000 tpy of L&YM	L&YM	48 months	May 22, 2014	May 31, 2018	Option to renew for one (1) year period
Waste Management Contract 47018075	Drop and Load for curbside collected YW from District 1	L&YM	18 months	January 1, 2014	June 30, 2015	NA
Try Recycling Inc. Contract 47018470	Grinding approximately 7,500 tpy of Asian Long-Horned Beetle (ALHB) Material at Disco Transfer Station	L&YM	1 year	August 1, 2014	July 21, 2015	Two (2) additional separate one year periods
Courtice Auto Wreckers Contract 47018281	Grinding approximately 2,000 tpy of Asian Long Horned Beetle (ALHB) material at the City of Toronto, Disco Transfer Station	L&YM		May 21, 2014	March 31, 2016	Two (2) additional separate one (1) year periods
Green Bin Organics Processing						
All Treat Farms Ltd. Contract 47017148	Processing services for up to 30,000 tpy of digestate	Digestate	10 years	January 1, 2013	December 31, 2022	optional extension years in 2023 and 2024
Orgaworld Canada	Processing capacity for Green	Green Bin material	5 years	June 1, 2008	May 31, 2013	Optional year 1

Service Provider	Service Provided	Materials Managed	Length of Contract	Start Date	End Date	Potential Extensions
Contract 47013486	Bin material - Minimum tonnage: 35,000 tpy,Maximum tonnage: 50,000 tpy					exercised (June 1, 2013 – May 31, 2014). Option year 2: June 1, 2014 – May 31, 2015)
Lafleche Environmental Contract 47015167	Haulage and Processing SSO Materials and Processing of Digester Solids Maximum tonnage: 25,500 tpy (Tonnage varies/year – max 30,000 tpy)	Digestate	4 years	June 1, 2010	May 31, 2013	2 extensions Option year 1: May 31, 2013 to May 31, 2014 Option year 2: May 31, 2014 to May 31, 2015 with seven one-month period extensions for up to 20,000 - still being determined if it will be exercised.
Courtice Industries Contract 47012783	Processing capacity Maximum tonnage: 10,000 tpy	Green Bin material	10 years	July 1, 2007	December 31, 2017	Two (2) additional separate one (1) year periods
Aecom Canada Inc. Contract 47018469	Operating the Disco Source Separated Organics (SSO) material Processing Facility for up to 90,000 tonnes per year for the initial three (3) operating year at Disco SSO Processing Facility, 120 Disco Road	Green bin material	3 years	July 31, 2014	June 30, 2017	Two (2) additional separate one (1) year periods
Blue Bin Recycling Processing						
Canada Fibers Ltd. Contract 47017448	Processing capacity for Blue Bin material for a minimum tonnage: 110,000 tpy, maximum tonnage: 140,000 tpy	Blue Bin material	7 years	April 29, 2013	April 28, 2020	One (1) additional option period of up to 2 years
Canada Fibers Ltd. Contract 47018726	Single Stream Recyclable Materials (SSRM) Processing	Blue Bin material	7 years	December 1, 2014	November 30, 2021	Two (2) additional separate one (1)

Service Provider	Service Provided	Materials Managed	Length of Contract	Start Date	End Date	Potential Extensions
	Services up to 120,000 tonnes per year					year periods
Canada Fibers Ltd. Contract 47017442 OTP 9203-13-3058	Removal of Polystyrene Material	Blue Bin material	1 year	May 1, 2014	April 30, 2015	Exercising Final Option Year New OTP 9203-15-3049 in progress and closes on March 18, 2015
Other Waste Collection and Processing						
Hotz Environmental Service Inc. Contract 47016319	Removal of MHSW from the City's Depots, Community Environment Days, and MRFs - provision of all labour, materials and equipment required to remove MHSW from City facilities.	MHSW	2 years	January 1, 2012	December 31, 2013	One additional two year period from January 1, 2014 to December 31, 2015
Sims Recycling Solutions	Recycle Phase 1 & 2 WEEE material Purchase, pickup, transport, processing and recycling of WEEE.	WEEE	2 years	October 1, 2011	September 30, 2015. Currently executing the 2-yr extension	One 2 year extension. The contract with Sims was cancelled on July 11, 2014 with no further material going to Sims after this date
OTS (Ontario Tire Stewardship)	Process/recycle tires	Tires	Unknown Will continue to proceed with OTS until further notice	Unknown Will continue to proceed with OTS until further notice	Unknown Will continue to proceed with OTS until further notice	Unknown Will continue to proceed with OTS until further notice
Recyc-Mattresses Inc. P.O. 6039393	mattress recycling	Mattresses	Undetermined	June 12, 2014	Undetermined	Undetermined
Try Recycling Inc. Contract 47017184	Processing services to recycle up to 1,000 tpy of ceramics and provide haulage services.	Ceramics	1 year	December 14, 2012	December 13, 2013	Exercising final option which will conclude on Dec. 13, 2015
New West Gypsum Recycling Ont. Contract 47018223 9217-14-3043	Removal of drywall from Ingram transfer station for recycling, either picked up or delivered.	Drywall	1 year	April 1, 2014	March 31, 2015	Two (2) one (1) year periods

Service Provider	Service Provided	Materials Managed	Length of Contract	Start Date	End Date	Potential Extensions
Green Oil Inc. OTP 6033-14-3079	Collection from depots and processing of cooking oil from the public and depots.	Cooking Oil	1 year	May 30, 2014	April 30, 2015	Two one year extensions
East Penn Canada OTP 9202-14-3110	Collection from depots and processing of lead acid batteries collected from the public and depots.	Lead Acid Batteries	1 year	June 18, 2014	Aug. 31, 2015	Two one year extensions
Safety Kleen Canada OTP 6906-14-3105	Collection from depots and processing of motor oil collected from the public and depots.	Used Motor Oil	2 years	Aug. 14, 2014	June 1, 2016	One additional two year period
Various (Propane Expert,Photech , Hotz (E-Days))	Collection from depots and processing of propane cylinders collected from the public, depots and environment days.	Propane Cylinders	Contracts with Propane Expert and Photech on going until SO program changes	Hotz contract starts January 1, 2012 - Dec 31 2015	Hotz contract ends December 31, 2015	
Pnewko Bros.	Collection from depots and processing of mixed MHSW plastics collected from the public and depots.	Mixed MHSW plastics	On going until SO program Changes			
Nexcycle Industries Ltd. Contract 47018727	Haulage and Recycling Services for Mixed Broken Glass (MBG)	Materials Recovery Facilities (MRF's)	48 months	January 1, 2015	December 31, 2018	Additional twelve (12) months
Total Home Comfort Contract 47018458	Extraction and removal of Refrigerants (CFCs) and/or Mercury Switches from household and commercial appliances	HHW	2 years	July 29, 2014	July 28, 2016	One (1) additional separate two (2) year period
Stuart Hunt and Associates Ltd. Contract 47017283	Identification and Removal Services for Radioactive materials	HHW	2 years	March 1, 2013	February 28, 2015	One (1) additional two (2) year period
A&F DiCarlo Construction Inc. Contract 47016511	Mechanical Litter Removal from around the perimeter of street fixtures in Area A	Litter Removal	5 years	March 1, 2012	December 31, 2016	NA
Pave-Tar Construction Ltd. Contract 47106507	Mechanical Litter Removal from around the perimeter of street fixtures in Area B	Litter Removal	5 years	March 1, 2012	December 31, 2016	NA
Sidcon Contracting Ltd. Contract 47018672	Mechanical Litter Removal Area 1 Downtown Core	Litter Removal	5 years	January 1, 2015	December 31, 2019	NA

Service Provider	Service Provided	Materials Managed	Length of Contract	Start Date	End Date	Potential Extensions
Garbage Transport and Disposal						
Verspeeten Cartage Ltd. Contract 47014859	Haulage to Green Lane Landfill & Contingency Sites	Garbage	7 years	January 1, 2011	December 31, 2017	Three additional one-year periods
CRA Landfill Operations Limited Contract 47018086	Operation, maintenance and construction services at Green Lane Landfill.	Garbage	7 years	March 1, 2014	March 31, 2021	Two (2) additional one (1) year periods
Lafleche Environmental Contract 47016412	Contingency Disposal to Moose Creek Landfill for up to 75,000 tpy	Garbage	5 years	September 1, 2011	August 31, 2016	Option to renew for an additional 5 year period
Waste Management of Canada Contract 47016409	Contingency disposal capacity for garbage at the Petrolia, Ontario / Warwick Township, Ontario for up to 3,705 tonnes/day or 200,000 tpy	Garbage	5 years	September 1, 2011	August 31, 2016	Option to renew for an additional 5 year period
Walker Environmental (Integrated Municipal Services) - Niagara Waste Systems Contract 47018439	Disposal capacity for garbage at the South Landfill for up to 50,000 tpy	Garbage	5 years	September 1, 2011	August 31, 2016	Option to renew for an additional 5 year period
WSP Canada Inc. Contract 47018443	Engineering Services, including monitoring, oversight and reporting of the operations, design, maintenance and construction of new cells and related facilities of the Green Lane Landfill	Green Lane Landfill Site	8 years	March 1, 2013	March 31, 2021	Two (2) additional one (1) year terms

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Progress and Performance Monitoring

1 Progress and Performance Monitoring

"You can't manage what you can't measure". This adage certainly holds true for the City of Toronto and SWMS. In an effort to continually improve upon the current system, the City goes to great lengths to measure and monitor all aspects of the system. This work can include everything from sophisticated real-time data collection and management systems on trucks and at facilities, to annual performance reviews and other longer-term benchmarking activities. The following sections provide an overview of the ways the City measures and monitors progress and performance, particularly for SWMS.

1.1 City of Toronto Progress and Performance Monitoring

Currently, there are two key reports issued by the City Manager's Office that are used to report on Toronto's progress and performance:

- The annual Performance Measurement and Benchmarking Report; and,
- The quarterly Management Information Dashboard.

These two reports are discussed in greater detail in the sections below.

1.1.1 Performance Measurement and Benchmarking Report

The Performance Measurement and Benchmarking Report is produced every year and provides detailed information about 33 service areas. The latest report available on the City's website was published in 2013 and provides a comparison of City's programs and performance to other municipalities for the year 2011.

The City's Performance and Benchmarking Reports offer the following benefits:

- Fulfills a fundamental business practice and a basic expectation in today's fiscal environment;
- Provides a tool to manage and monitor operations;
- Comparison to others adds credibility to the City's own data;
- Demonstrates accountability and transparency to residents;
- Supports a culture of continuous improvement;
- Points to areas to review for potential better practices; and,
- Builds a network of experts to exchange ideas and information between cities

Several major waste management performance indicators are examined in the annual Performance Measurement and Benchmarking Reports including the following:

Community Impact Measures:

- How much solid waste is recycled/diverted away from landfill sites?
- How much waste from houses is recycled/diverted away from landfill sites?
- How much waste from apartments is recycled/diverted away from landfill sites?

Customer Service Measures:

- How many garbage collection complaints are received?

Efficiency Measures:

- How much does it cost to collect a tonne of garbage?
- How much does it cost to dispose of a tonne of garbage?
- How much does it cost to recycle a tonne of solid waste?

The City's Performance and Benchmarking Report documents approximately 230 service/activity level indicators and performance measurement results. Up to eleven years of Toronto's historical data are included to examine short- and long-term internal trends, and results are compared externally to 15 other municipalities through the Ontario Municipal CAO's Benchmarking Initiative (OMBI). The annual data collection process for the Performance Measurement and Benchmarking Reports is a joint effort completed with other OMBI municipalities. At the time of writing of this Technical Memorandum, the 2012 data was not publicly available. The following is a summary of the results pertaining to solid waste management derived from the City's 2011

Performance Measurement and Benchmarking Report:

Overall, the efficiency and performance of Toronto's Solid Waste Management services increased in 2011 compared to 2010. Efficiencies and increased performance were seen by the overall increases in waste diversion rates for single family and multi-residential homes. In addition the total cost of waste collection decreased as well as the operating and disposal costs. The one area where there was no improvement in services was the Customer Service section. It was reported that the rate of complaints received regarding garbage collection increased since 2010.

The 2011 Performance Measurement and Benchmarking Report noted several 2012 Achievements and 2013 Planned Initiatives that are expected to further improve the effectiveness and efficiency of SWMS.

2012 Initiatives Completed/Achievements:

- Increased the residential diversion rate in 2012 to 50% from 49%.
  - Multi-residential diversion rate rose to 25% from 20%.
  - Single family residential diversion rate remained stable at 64%.
- Continued providing in-unit recycling containers to increase the recovery of recyclable material in multi-residential buildings.
- Expanded the collection of mattresses for recycling.
- Included mixed rigid plastics in the City's recycling program that will result in diverting an additional approximately 825 tonnes.
- Implemented successful contracting out of residential curbside collection in District 2 to achieve an equal split of 50% in-house and contracted services, with no impact on service levels and standards.
- Processed the following tonnages of materials in 2012:
  - Green Bin organics – 132,000 tonnes;
  - Blue Bin recycling – 210,000 tonnes;
  - Yard waste – 102,000 tonnes; and,
  - Garbage sent to landfill – 491,200 tonnes.

Table 1: Status of Planned Initiatives

2013 Initiatives Planned	Status as of End of 2014
Continue to move towards 70% overall waste diversion.	Ongoing
Commission the Disco organics processing facility to provide the capacity required to process the City's Green Bin organics.	Substantial completion at 75,000 tonnes/ year (equivalent) granted July 1, 2014, to allow transition to the initial operations stage (2014-2017)
Complete the procurement for the roll-out of the "next generation" Green Bin.	Ongoing, expected to be complete in 2015
Complete the roll-out of Green Bin organics collection in multi-residential buildings, a portion of the non-residential sectors, schools and City buildings.	Ongoing
Proceed with the study of a Mechanical and Biological Treatment facility at the Green Lane Landfill Site.	Completed. 2013:Q1
Implement Phase 2 promotion and education campaign for the collection of mixed rigid plastics.	Completed.

1.1.3 Toronto's Management Information Dashboard

Toronto's Management Information Dashboard provides information to assess trends and directions of key indicators for Toronto as a whole and for City of Toronto services. It includes the most recent data available for 2013 and compares it to previous periods, previous years and any targets that had been established for those indicators.

Indicators used to monitor performance are divided into three parts:

Part 1- Indicators for the City of Toronto as a whole, which includes sections on the health of Toronto's economy, development and construction, and community vulnerability including:

- Industrial and Office Vacancy Rates
- Personal and Business Bankruptcies in Ontario
- Unemployment, Employment and Participation Rates
- Employed Torontonians
- Number of Employment Insurance (EI) beneficiaries
- Home Sales and Prices
- Value of Ontario Product Exports to U.S.
- Retail Sales in the Toronto CMA
- Toronto CMA Consumer Price Index – CPI
- Business Licenses – Re-Issues, New Issues
- TTC Ridership Levels

Part 2 – Indicators for City of Toronto services, including divisional statistics indicative of the economy, community vulnerability, key City revenue sources and other operations including:

- Waste Management Revenues
- Planning Applications
- Constructions Value of Building Permits Issues
- Building Permit Fees
- City cost of social assistance
- Construction Value of Building Permits Received
- TTC User Fees
- Water Revenues Billed
- Land Transfer Tax
- Planning Application Fees
- Ontario Mortgages in Arrears
- Food Bank Usage
- Wait list for Social Housing Units
- Social Assistance Caseload
- Emergency Shelter Use
- Waiting list for Child Care Fee Subsidy
- Registered Program Enrolment
- Priority Centre for Registered Program Enrolment
- Library Use

Part 3 - key categories of crime statistics. The indicators include:

- Total criminal incidents in seven crime categories
- Individual Crime categories
- Domestic Violence

The latest version of Toronto's Management Information Dashboard for Quarter 4 of 2013 concluded that waste management revenues from the sale of recycled materials were up 2.7% as of December 2013 compared to 2012 levels however, revenues remain well below 2011 levels, reflecting lower market commodity prices.

1.2 Other Forms of Performance and Progress Review

Over the past several years the City has conducted several studies and implemented reporting processes to assess the performance and efficiency of various components of SWMS operations and processes as discussed below.

1.2.1 Service Review Program

In 2011, the City of Toronto conducted a Service Review Program. In consultation with the public, the program reviewed all of the City's services including: Court Services; Facilities; Fleet Services; Municipal Licensing and Standards; City Planning; Parks; Forestry and Recreation; Shelter, Support and Housing; Solid Waste Management; and Transportation Services.

The Service Review Program had three parts:

- The Core Service Review identified what services the City should be delivering. These include services the City must legally provide and those the City should provide as a government. The review considered what it takes to meet the needs of Torontonians, what is important to people on a day-to-day basis, and what it takes to run the largest city government in Canada.
- The Service Efficiency Studies make sure that services do not cost more than they should. The studies took a closer look at how certain services are delivered to identify new and more efficient ways to deliver them at a lower cost.
- The User Fee Review examine how the City's services are paid for. Most services for the general public are paid for through property taxes. Individual or organizations that choose to use other services pay for them through user fees. The User Fee Review developed guidelines on how user fees are set.

1.2.1.1 Core Service Review

As one component of the City's overall service review program, core waste management services in the City were examined and several areas were identified where service could be improved. The study listed the following 'options and opportunities' to improve service efficiency in the City:

- Eliminating the Toxic Taxi program and Community Environment Days, requiring residents to deliver toxic goods to permanent drop-off sites;
- Consider further contracting out of collection services;
- Consider reducing the target rate for diversion and / or setting target rates by category of waste producer (to expand landfill life);
- Consider eliminating the (4) free garbage tag program;

- Consider elimination of small commercial waste collection; and,
- Expansion of "Drop and Load" at transfer stations.

Since the review was first published, Council developed a report outlining the status of Council decisions on the Core Service Review. Council made decisions to reduce or eliminate some services, including for example, the four free garbage tags program. Council also referred a range of recommendations to the 2012 budget process to reduce or eliminate services which have been reflected in the recommended 2012 Operating Budget. Council actions related to the service review conclusions for waste management include the following:

- Consider outsourcing waste diversion enforcement (under review);
- Consider reducing the target rate for diversion and / or setting target rates by category of waste producer (under review);
- Elimination of the 4 free garbage tag program (included in 2012 budget); and,
- Eliminate Community Environment Days (included in 2012 budget).
-

To-date, the four free garbage tag program has been eliminated; residents must purchase tags for additional garbage bags. Community Environment Days have not been eliminated.

1.2.1.2 Service Efficiency Study

In 2011, Ernst and Young LLP were selected by the City of Toronto to conduct a service efficiency study of the SWMS Division. This Study was the next phase in the Core Service Review process. The study was to identify efficiency savings within solid waste collection, transfer stations operations, processing and disposal, and several additional City-run programs including the garbage tags program, Community Environment Days program, overflow recycling, charities and the drop and load program.

The study found that a total of $10.9 million could be saved through service efficiency ($7.1 million) and additional savings identified in other programs areas in the SWMS division ($3.8 million). Generally, Ernst and Young grouped opportunities and savings into three phases of various initiatives as follows:

Phase 1: Initiatives that are expected to be quick/easy to implement yet deliver quantifiable benefits such as:

- Reducing the number of supervisors;
- Balancing the span of control across the organization including balanced routes to ensure even distribution of work, balance collection to minimize line-up at transfer stations during peak times.

Phase 2: Initiatives that target improvement to operational efficiencies within collections such as:

- Lengthening the collection routes;
- Filling trucks to capacity before visits to transfer stations; and
- Re-balancing the off-loading at transfer stations to minimize wait times.

Phase 3: Initiatives that target continuous improvement within City of Toronto SWMS to transfer the organization into an industry leader such as:

- Improving unload times at transfer stations

The report identified a number of areas which may result in potential savings as well as service efficiencies. However, it was recommended that further studies should be undertaken to refine the analysis and to determine exact cost efficiencies. Some of the savings identified or validated by the study were included in the SWMS 2012 budget including modifications of collection routes, some consolidation of staff responsibilities, discontinuing four free garbage tags, pursuing additional revenue generation through fee-for-service charge for CIROs and a review of the drop and load service.

1.2.2 Collections and Operations Report

In 2011 City Council directed SWMS to report quarterly and annually on the performance of the District 2 collection contractor (Green For Life Environmental East Corporation). In these reports the contractor's performance is measured against the Division's key performance indicators, including:

- Customer satisfaction (number of complaints);
- Diversion targets (must meet or exceed City standards);
- Contract costs (within budget/scope);
- Contract compliance monitoring; and,
- Performance monitoring (health and safety, accidents, spills and contamination, contractor obligations and violations, labour compliance, fines and penalties).

The annual report provides a comprehensive look at the overall performance of the contractor, and also provides the ongoing quarterly updated information in the four collection districts.

1.3 Data Based Performance Monitoring

SWMS has two data-based performance monitoring tools to measure the success of their diversion programs; waste audits and the annual WDO Datacall process. Both systems provide the City with hard data about the effect of any major change to the program (e.g. expansion of the Green Bin organics program to multi-residential buildings), materials that are not be diverted which may require some added promotion and education and how the City compares to other municipalities.

1.3.1 Waste Audits

In order to adequately plan for and manage residential garbage, Blue Bin recycling and Green Bin organics; organizations and municipalities like the City of Toronto need to understand and monitor how the current system is performing. Waste audits are an integral part of performance monitoring and are a way to understand the waste composition, total tonnages and how City programs are performing. The results of waste audits are integral for providing adequate waste services and to continuously increase waste diversion.

To date, the City of Toronto has undertaken waste audits on various elements of the waste management system including:

- Total households serviced
- Total waste quantities (all streams)
- Multi-residential quantity and composition audits
- Single family quantity and composition audits
- Total waste diverted (all streams)
- Transfer station tonnages
- Electronics tonnages
- Household hazardous waste tonnages
- Toxics Taxi tonnages
- Tire tonnages
- Reuse centre tonnages
- Community Environment Days (total kg collected)

The City has not completed any waste audits in the commercial waste sector (businesses that participate in the Yellow Bag Program); however, the City will be undertaking a waste composition study on this sector later in 2015.

The waste audits completed to date provide a baseline understanding of the City's current system and its services to manage the system and will formulate and feed into the baseline for the LTWMS. This baseline will be critical in informing Solid Waste Management staff on where potential opportunities and gaps may exist in the system.

1.3.2 Waste Diversion Ontario Datacall Reporting

Each year, Waste Diversion Ontario (WDO) requires municipalities to complete the Municipal Datacall in order to be eligible for funding for the Blue Box Program. The Municipal Datacall is Ontario's comprehensive reporting system and database for residential waste that is managed by WDO. It is a recycling report card that helps municipalities to measure their residents' progress with local recycling initiatives. It is also a goldmine of statistics that can help WDO and others to discover recycling trends and better understand recycling behaviours.

Every year since 2003, municipalities have used the Municipal Datacall to submit data to WDO on the waste diversion activities. This data focuses on Blue Box program tonnage and operating costs, but starting in the 2006 reporting year, WDO expanded the Datacall to incorporate the diversion of other waste materials and calculate the overall residential waste diversion rate. In addition to Blue Box information, the system also tracks such statistics as tonnes collected of garbage through residential collection programs, organics, WEEE, HHW, and other recyclables such as scrap metal.

Municipalities submit the previous year's statistics on their waste diversion progress in March and April. About 400 Ontario municipalities currently report data, either on their own, or as part of a group of

municipalities. WDO then verifies the data to ensure accurate reporting and to obtain more information on recycling trends. In the fall, WDO collates and posts information on the amount of material diverted and overall residential diversion rates for each municipality, as well as financial information for the Blue Box program. WDO also publishes the Blue Box funding amount for each reporting municipality received from Blue Box stewards (through Stewardship Ontario) for the following year. Reporting municipalities each receive a portion of the net residential Blue Box costs of the province. Municipalities must complete the Datacall to be eligible for this funding.

The WDO Municipal Datacall collects information on the following:

- Population/households served
- Set out limits
- Promotion and education
- Services received/provided
- Contracts and municipal services
- Blue Box tonnes
- Blue Box costs
- Other recyclables
- Organics
- HHW
- WEEE
- Garbage
- Historical data
- Year over year variances
- Progress and Performance Monitoring