3) PLANNING THE NEXT TRIP

3.1 INTRODUCTION

Before deciding on what changes to the current waste management system are appropriate, consideration must be given to:

- What waste is composed of now and in the future
- The current and future role of the City of London
- The role of other public and private organizations
- New, emerging and next generation technologies

3.2 WASTE COMPOSITION NOW AND IN THE FUTURE

The waste stream is constantly changing due to industry introducing new packaging or modifying existing packaging, changing consumer habits and new products in the marketplace. Some of the changes that have occurred over the last five years were previously listed.

These trends coupled with the waste diversion programs implemented under the Road Map to Maximize Waste Diversion means what is being collected for recycling and for disposal is different today than in 2007 and will be different in the future.

Details of current and projected waste quantities are presented in Appendix B. What is currently in the garbage is shown on the next page and discussed below.

**Single Family Households**

Single families make up about 70% of London’s households and generate approximately 60,000 tonnes of the residential garbage each year that is landfilled. A large percentage of this waste could be composted or recycled.

A breakdown of what is in the typical garbage bag is illustrated on the page 12. About 10% of single family household garbage is material that should have been placed in the Blue Box. A further 10% of the garbage, including renovation materials and electronics, could have been taken to a Community EnviroDepot and recycled. It may be possible to capture more of these materials with enhanced education programs.
An expanded Blue Box program that accepted additional items such as mixed polycoat (e.g. coffee cups, ice cream containers), metal cookware, batteries, blister packaging (e.g. rigid plastic around toys, hardware), film plastic (e.g. plastic bags) and foam polystyrene “EPS” (e.g. meat trays) could reduce garbage a further 5%.

About 45% of landfill garbage is compostable (i.e. organics such as food scraps and non-recyclable paper such as paper towel, paper napkins). Expanding our current organics program of grass, leaves and yard waste to include one or more programs focused on the expanded list of organics by reducing the amount created, composting separated materials and/or recovering the energy content would significantly increase diversion, source reduction, and provide other environmental benefits.

Multi-Residential Households

About 30% of London’s households live in multi-residential (apartment/condo) buildings and generate approximately 22,000 tonnes of garbage per year. A breakdown of the garbage collected from multi-residential buildings is presented on page 13.

The garbage from multi-residential buildings is similar to the garbage from single family households. The main difference is a higher percentage of recyclables in the garbage (22% versus 10% for single family) but less of the garbage is compostable (36% versus 45% for single family).

3.3 Current and Future Role of the City of London

The City of London is the main service provider for the delivery of solid waste collection, processing and disposal services for the residential waste stream in London. The responsibility for management of some residential waste materials is shared with industry as required under the Waste Diversion Act (WDA). The WDA has established a framework for partial funding of designated material groups, which includes Blue Box program materials, electronics, household hazardous waste, and tires. The City also provides some waste management services to the Institutional, Commercial & Industrial (IC&I) sector. In addition to providing services, the City plays a role through input in provincial processes that will have an impact on how we deliver and pay for our programs and services.

The role of the City in the future will be determined in part by a new Ontario Waste Reduction Act and Waste Diversion Strategy. The direction of the new WRA if approved is for industry to play a larger role in waste management. This could result in more funding for City programs or industry delivered services, or a blending of both options. City staff will continue to follow the process of the proposed revised WDA at the provincial legislature.
What’s in the Garbage Bag?

Most of what we put in the garbage could be diverted from the landfill through existing and new programs that are discussed in this document. The composition diagrams below and on the next page show just how much – whether you put your garbage out to the curb, or down the chute into a garbage bin.

Curbside Collection

For the average London household with curbside collection 70% of materials in the garbage bag could be diverted.

Compared to 2007, this is a 5% improvement to the composition found in the garbage bag.
What’s in the Garbage Bin?

Multi-Residential Collection

For the average London household with bulk bin collection, **70%** of materials in the bin could be diverted.

Compared to 2007, this is a **7%** improvement to the composition found in the bulk bin.
3.4 **ROLE OF OTHER PUBLIC AND PRIVATE ORGANIZATIONS**

There are many other organizations that have a role in diverting residential waste generated in the city. The role of these organizations and the potential for partnership opportunities with the City must be taken into consideration when looking at new initiatives.

**Community Organizations**

There are numerous community organizations that share the City’s interest in waste reduction and diversion. These include organizations such as Goodwill, Thames Region Ecological Association (TREA), Waste Free World, Habitat for Humanity Restore and Youth Opportunities Unlimited (YOU) Recycling Services. Working with these groups helps keep the City in touch with resident concerns and provides an opportunity to promote our programs through a wider community network. The City will continue to explore opportunities to build relationships and partnership initiatives.

**Local Business**

London businesses represent a large source of waste and resource materials. Their level of engagement in responsible waste management practices will have an impact on some City programs and facilities, such as our landfill lifespan and potential throughput of materials received at waste diversion facilities (e.g. EnviroDepots, Materials Recovery Facility, Household Special Waste Depot).

Through their internal policies and actions, businesses can play an important role in the London community to encourage and support a culture of waste minimization and waste diversion. Londoners are increasingly conscientious about how much waste they are creating as they go about their daily routines, at work, at school, as they shop, dine out, etc. As consumers of products and services Londoners want to have options to minimize their waste. The proposed Waste Reduction Act, which is before the Ontario Government for approval, will have a significant impact on requiring businesses to increase waste diversion activities. There is a potential for the City to play a role to assist with this positive transition.
Waste Management Service Providers

London has many private sector companies that specialize in waste management and waste diversion services. These companies provide services to different levels of government, directly to local businesses and often provide services without charge (or minimal charge) to charity and not-for-profit groups. These companies also represent the opportunity for innovation and creativity with respect to higher levels of waste diversion and resource recovery. Most importantly, these companies contribute to the local economy in the form of job creation and purchase of local goods and services.

Provincial Government

The Ontario Ministry of the Environment (MOE) is responsible for all legislation pertaining to waste management within the Province. Key legislation includes the 3Rs Regulations (under the Environmental Protection Act) and the Waste Diversion Act (WDA).

Ontario’s 3Rs Regulations were passed in 1994 and outline specific minimum waste management requirements for municipalities, industry and institutions. In 2002, under the Waste Diversion Act, Waste Diversion Ontario (WDO) was created to support the development, implementation and operation of waste diversion programs for materials including Blue Box Recyclables, Used Tires, Used Oil, Household Special Waste (HSW) and Waste Electronic and Electrical Equipment (WEEE). WDO also develops industry stewardship models for handling the materials and/or funding of the programs. The City of London is actively involved with WDO programs (i.e., policy reviews, program evaluations).

In early 2013, Bill 91 was introduced into the provincial Legislature. Bill 91 proposes to replace the existing Waste Diversion Act, 2002 with the proposed Waste Reduction Act, 2013 (WRA). The Province is also proposing a new Waste Reduction Strategy (WRS). If passed by the Legislature, the WRA and accompanying WRS will result in significant changes to how recyclables, organics and residential waste (garbage) are to be managed in Ontario. These changes and proposed direction have the potential to impact all aspects of London’s residential waste management system (generally under the implementation responsibility of Municipal Council) and strongly influence how Industrial, Commercial & Institutional (IC&I) waste is managed by businesses and private waste management companies.

The proposed WRA and WRS for Ontario have a strong vision to divert more waste resources from landfill to the benefit of the Ontario economy and environment. The WRS is an outcomes based strategy that will promote Individual Producer Responsibility (IPR) and internalize the costs of recycling in the price of products. The WRS highlights why a transformation is needed and provides some specific facts and figures.
Recognizing challenges and opportunities from other municipalities is key to designing a sustainable waste management system for London. The MOE continues to be an important technical resource and is the regulatory authority on most waste management matters in the Province. City staff will continue to consult with them on appropriate matters.

**Industry**

Industry can play an important role in waste diversion by designing products and packaging with waste minimization in mind. If identified as a priority, industry’s innovative nature can have a significant positive impact on waste reduction. For example, plastic beverage bottles have seen a light-weighting trend and the quantity of plastic required has been steadily reduced.

**Federal Government**

At the Federal level, Environment Canada is moving forward with two key approaches to promote waste reduction and diversion (sometimes referred to as waste minimization):

1. Extended Producer Responsibility (EPR): means that the responsibility of a consumer product at the end of its lifecycle (i.e., when it is being disposed) is shifted to the producer of the product, away from municipalities, and

2. Packaging Stewardship: recognizes the need for product packaging to be designed to have a minimum impact on the environment.

In October 2009, Canadian Council of Ministers of the Environment (CCME) approved the *Canada-Wide Action Plan for Extended Producer Responsibility* and a *Canada-Wide Strategy for Sustainable Packaging*.

As noted on their website, the broad mandate of the CCME is to protect Canada’s environment, ‘by focusing on issues that are national in scope and that require collective attention by a number of governments’ (provincial, federal, territorial).

The CCME Waste Management Task Group reviews and develops positions on government policy and advancements in the area of waste management in Canada. In addition to EPR and Packaging, other areas of work for the Task Group include: Compost, Electrical Waste, Hazardous Waste and Biosolids.

EPR at the Federal level is very logical as it builds on economies of scale plus the fact that products and packages flow regularly from one Province to the next. Harmonization of regulation will benefit consumers, taxpayers and businesses. City staff will continue to follow the progress with the CCME and Environment Canada.
3.5 **NEW AND EMERGING TECHNOLOGIES**

Staff continue to review developments with aerobic composting, anaerobic digestion, mechanical biological treatment (MBT) processes, advanced thermal treatment (ATT) and other technologies (including new, next generation and emerging technologies) that could assist in optimizing materials recovery and creating renewable energy while moving from the City’s current diversion rate of approximately 44% towards the Provincial goal of 60%.

Some of these new, next generation and emerging technologies are currently being investigated or used in other Ontario municipalities and are shown below.

- **Gasification Pilot Project (Plasco)**
  Ottawa
- **Anaerobic Digestion Facilities**
  Toronto
- **Refused Derived Fuel (Dongara)**
  York Region
- **Gasification Pilot Project (Elementa)**
  Sault St. Marie
- **Durham York Energy Centre (Covanta)**
  Durham Region (Artist’s Rending)
A report on alternative technologies and the role they might play in the future in London’s waste management system is underway with a planned completion in early 2014.

Capital and operating cost estimates for new, emerging and next generation technologies are not widely available in North America and even less information is specifically available in Canada. Table 3 contains data derived from a number of sources. As noted, further details are being compiled for these types of technologies. Also shown in Table 3 is the cost for managing Green Bin materials (aerobic composting) and expansion of the W12A landfill (landfilling) for comparison purposes.

Table 3 – Approximate Costs and Cost Ranges for Alternative Resource Recovery Technologies

<table>
<thead>
<tr>
<th>Technology</th>
<th>Approximate Cost</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Capital ($ per annual tonne capacity)a</td>
<td>Operating ($/tonne)</td>
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<tr>
<td>New Emerging and Next Generation Technologies</td>
<td></td>
<td></td>
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<tr>
<td>Anaerobic Digestionb</td>
<td>$600 to $800</td>
<td>$50 to $80</td>
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<tr>
<td>Energy-from-Wasteb</td>
<td>$700 to $900</td>
<td>$60 to $90</td>
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<tr>
<td>Gasificationb</td>
<td>$800 to $1,000</td>
<td>$60 to $90</td>
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<tr>
<td>Refused Derived Fuelc</td>
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<tr>
<td>Conventional Technologies</td>
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<tr>
<td>Aerobic Compostingd</td>
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<tr>
<td>Landfillinge</td>
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Notes
a) For London, assume a facility that processes between 75,000 and 150,000 tonnes; therefore capital cost could range between $60 million to $120 million; of which London could produce feedstock for 25% to 50% of the capacity.
b) Cost information adapted from Waste Resource Strategy Update (Stantec, 2013) and other similar engineering consultant studies
c) Cost estimate based on Dongara facility in Region of York
d) Cost estimate based on various municipal contracts in Ontario.
e) Preliminary estimated overall cost for expansion of the City of London W12A landfill.