



Report on

Town of The Blue Mountains Waste Diversion Plan

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Executive Summary

This waste diversion plan document provides an overview of the Town's waste management system, the current conditions and identifies and recommends opportunities to improve waste diversion within the Town.

Reduction, reuse and recycling of waste materials are positive actions that reduce our impact on the earth's natural systems. These actions have environmental, societal and economic benefits and are fundamental tenets of a sustainable community.

The Town's waste disposal site currently has a limited capacity, with approximately 4 years of disposal space remaining. The existing waste management system includes traditional curbside waste and recyclables collection (the blue and grey box) augmented by a variety of depot based diversion programs offered at the Landfill. These programs include:

- Cardboard, plastic, metal and paper recycling (blue and grey box)
- Household hazardous waste diversion
- Electronics recycling
- Used tire recycling
- Leaf, yard and brush composting
- Wood / lumber recycling
- White goods and scrap metal recycling
- Concrete and asphalt recycling

The Town diverted 39.2% of residential waste from landfill in 2011. The Town's residential diversion rate has remained steady, at approximately 42% over the past four years.

This plan establishes the following goal and targets:

'Sustainably manage waste within the community as locally as possible' and 'Become a community that supports a movement towards a zero waste society' with targets to achieve a 'residential diversion rate of 60% by 2015, 75% by 2025 and 85% by 2050.'

In order to achieve 60% residential diversion by 2015, additional action must be taken. There is an estimated 1,500 tonnes of divertible material present within the residential waste stream, providing a tremendous opportunity to improve the Town's waste diversion efforts. The following highlight the priority recommendations required to achieve 60% waste diversion:

- Establish a curbside source separated organics program
- Strengthen the user pay curbside waste management system
- Modify the disposal fee structures
- Develop promotion and education material specific to multi-unit and condominium cart recycling and diversion
- Performance and target monitoring and reporting

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Appendix A – Source Separated Organics Justification Report

1. Introduction

This Waste Diversion Plan (WDP) outlines the strategies to increase the efficiency and effectiveness of The Blue Mountains' diversion programs and maximize the amount of material diverted from landfill. Specifically, the purpose of this plan is to:

- Establish a municipal diversion target
- Enhance public participation rates in all diversion programs
- Identify new waste diversion programs
- Improve net cost and maximize funding revenues

The Town faces a number of waste management challenges - shrinking disposal capacity, population growth, cost pressures, providing services that meet the needs of both permanent and seasonal residents - which the WDP will help address.

The WDP builds upon The Blue Mountains' Solid Waste Solution completed in 2008 that assessed the Town's waste management system, potential options to enhance waste diversion and possible waste disposal strategies.

This document was developed with support from the Continuous Investment Fund's *Guidebook for Creating a Municipal Waste Recycling Strategy*.

2. Background

The Town owns and operates a Waste Disposal Site (Landfill) that accepts residential, institutional, commercial and industrial waste. The existing capacity of the Landfill is dwindling and at current deposition rates, it is anticipated the Landfill will reach capacity within 4 years.

2.1 The Blue Mountains' Solid Waste Solution

The Blue Mountains' Solid Waste Solution was completed to ensure that adequate waste management capacity is available for the Town's residential, agricultural, industrial, commercial, institutional, construction and demolition sectors for the next 20 – 30 years.

The Blue Mountains' Solid Waste Solution outlined the following waste diversion goal and recommendations:

Goal: "To define a system and criteria that will allow the Town to achieve or exceed the Provincial waste diversion target of 60%"

Recommendations:

- Enhance the current Blue and Grey box program to include additional materials and increase capture rates
- Implement a residential curbside collection and processing Source Separated Organics (SSO) program including the receipt of institutional, commercial and industrial (IC&I) organic waste material at the Town's composting facility
- Enhance construction and demolition (C&D) recycling

Based on these recommendations the Town expanded the types of materials accepted at the curbside, augmented the traditional curbside recycling program with a number of diversion programs at the Waste Disposal Site, upgraded the waste disposal receiving area, conducted a curbside organics collections and processing feasibility study and completed an environmental screening process to expand the landfill capacity.

2.2 The Blue Mountains' Sustainable Path

In 2010, The Blue Mountains Sustainable Path was completed, a long-term plan that steers the community towards a sustainable future. This plan was created collaboratively with participation from local organizations, businesses, institutions, residents and volunteer groups. The Plan focuses upon three pillars; environmental integrity, community vibrancy and economic prosperity. Waste management is an integral component of the plan. The Sustainable Path outlined a number of goals, strategies and actions that provide direction for the WDP as follows:

- Assume full responsibility for the management of our waste within regional borders
- Sustainably manage waste generated within the community as locally as possible
- Become a community that supports a movement towards a zero waste society
- Reduce solid and hazardous waste generation in the community
- Increase the Town's diversion rate through implementation of various reduce, reuse and recycle programs
- Update the Town's Waste Reduction Action Plan with residential diversion rate targets of 60% by 2015, 75% by 2025 and 85% by 2050
- Implement a permanent curbside organics program in urban areas throughout the municipality
- Develop local and regional waste diversion services specific to industrial, institutional and commercial sectors

The Blue Mountains' Solid Waste Solution and The Sustainable Path have provided the Town with an over-arching direction moving forward. These plans are reflected in the goals, actions and initiatives outlined in the WDP.

3. Existing Waste Management System

The Town provides an integrated waste management service to dispose and divert waste generated within the community. Waste is generated from three sectors;

1. Residential (single-unit and multi-unit residences),
2. Institutional, Commercial and Industrial (IC&I) facilities,
3. Construction and Demolition (C&D) activities.

A number of diversion initiatives have been implemented in recent years to augment the traditional waste management services offered by the Town. The improvement to the waste receiving area and establishing new diversion programs - Household Hazardous Waste Depot, Electronics Recycling Depot, Used Tire Recycling Depot - at the Landfill provide residents with additional options to divert household waste.

The Town's waste management system services a permanent population of 6,453 that can swell significantly on weekends or holidays during peak tourist season. Approximately 46% of the dwellings are occupied by full-time residents with the remaining 54% occupied by part-time, occasional residents. A permanent and non-permanent population has been calculated to be 16,515 in 2012.

Two waste collection contractors service the community. Mid-Ontario Disposal is responsible for curbside collection of 4,668 residential and light commercial units within the Town while Miller Waste services 1,299 multi-unit dwellings (at 60 locations) throughout the Town.

The existing waste management system consists of the following components:

- Curbside waste collection and disposal
- Curbside recycling (blue and grey box) program
- Backyard composting
- Landfill diversion programs, including:
 - Cardboard, plastic, metal and paper recycling depot
 - Household hazardous waste depot
 - Electronic recycling depot
 - Leaf, yard and brush waste composting program
 - Used tire recycling depot
 - Wood and lumber waste recycling
 - White goods and scrap metal recycling
 - Asphalt and concrete recycling

These programs are described in the following sections.

3.1 Waste Disposal

The Town established a combined curbside waste collection and recycling service for residents in September 2003. Residential and multi-residential waste collection services are provided by a private contractor. The contractor records the tonnage of recyclables, residential garbage and multi-unit residential garbage collected daily.

Single family residential households are limited to a weekly maximum of one bag as part of the service and a second bag which must contain a visible 'bag tag'. Bag tags are available for purchase from the Town office and selected retailers for \$1.00 a piece. Residents are required to place their bags at the curbside Monday to Thursday. Residents living in multi-unit properties (condominiums, townhouses, attached units) place their garbage in centralized garbage containers that are collected weekly by the contractor.

Residential and IC&I wastes collected by the Town's contractors are disposed at the Town's Solid Waste Disposal Site (Landfill). Residents may also take waste directly to the Landfill for disposal.

3.2 Waste Diversion

The Town supports a variety of waste diversion and recycling initiatives.

3.2.1 Blue and Grey Box Curbside Collection

Residential recyclable materials are collected through the blue and grey box system. Single family households receive blue and grey boxes while multi-unit residences are supplied with blue and grey recycling carts.

Materials included in the residential recyclables program are outlined in Table 3. Recyclables are collected weekly and no limit is placed on the amount of recyclables that a household can set out for collection.

Table 3: Accepted Curbside Recyclable Materials

Blue Box	Grey Box	
<ul style="list-style-type: none"> • Glass bottles and jars • Aluminum pop cans • Clean rigid foil containers • Clean aluminum foil • Metal cans • Spiral wound containers • Household post-consumer plastic containers types 1 -7 (Except type 3 PVC, currently) 	<ul style="list-style-type: none"> • Paper • Newspaper • TV guides • Magazines • Fax/printer paper • Catalogues • Paperback books • Egg cartons 	<ul style="list-style-type: none"> • Box board • Cereal boxes • Non-corrugated box board • Juice and milk cartons • Tetra-boxes • Cardboard • Coloured paper • Junk mail

3.2.2 Holiday Tree Collection

Following the holiday season, the Town collects trees at the curb, free of charge. The trees are transported to the Landfill where they are processed for on-site composting.

3.2.3 Backyard Composting

Backyard composting is promoted by the Town in an effort to reduce waste at the source. Backyard composting removes organic waste from the garbage stream reducing the weight and volume of material placed curbside for disposal. Composters are available at a subsidized price of \$30 per unit.

3.2.4 Landfill Diversion Programs

The waste disposal site offers a variety of diversion programs for residents and the IC&I sector. These programs include:

- Household recyclables depot (blue & grey box materials)
- Household hazardous waste depot
- Electronic recycling depot
- Leaf, yard and brush waste composting program
- Used tire recycling depot
- Wood and lumber waste recycling
- Metal and white goods recycling
- Asphalt and concrete recycling

Each of these programs is described in further detail.

Household Recyclables Depot (Blue & Grey Box Materials)

The Landfill contains a number of disposal bins for paper, cardboard and plastics where residents can drop off acceptable blue and grey materials free of charge.

Household Hazardous Waste Depot

The Town participates in the Stewardship Ontario Municipal Hazardous and Special Waste Diversion program. Residents can deliver household hazardous materials to the Landfill for safe storage and eventual recycling at an approved facility, free of charge. A small percentage of the material is disposed in a secure landfill. Material is accepted from May to September during regular site operating hours. The following examples are materials accepted in the program:

Paints, cleaners, solvents, batteries, pesticides, fertilizers, waste fuel and oils, antifreeze, CFL bulbs, propane cylinders, aerosols, pool chemicals, prescriptions and others.

Electronic Recycling Depot

The Town operates an electronic waste diversion program through the Ontario Electronic Stewardship. Electronic waste includes monitors and televisions, desktop and portable computers, printing and copying devices, telephones and cellular devices, cameras and other video devices. Residents can dispose of electronic waste at the Landfill free of charge.

Used Tire Depot

The Landfill is a certified collection site with the Ontario Tire Stewardship and operates an Used Tire Depot program that allows residents to dispose of old tires free of charge. Tires are shipped off-site and re-processed into rubber aggregate and new products.

Leaf, Yard, Brush and Wood Waste Composting

Leaf, yard and brush is diverted to the Landfill and composted on-site. Material is accepted from residents, free of charge, and from the IC&I sector for a fee. Apple waste is also accepted from local fruit processors.

The leaf, yard and brush waste is composted on-site using an open-windrow technique. The wood material is ground up and used as a bulking agent in the composting process. Once the material has been processed and tested it is available for sale as compost.

Metal and White Goods Depot

Scrap metal and white goods are diverted from landfill. Residents and businesses can dispose of freon items (refrigerators, freezers, air conditioners, dehumidifiers) as well for a fee.

Concrete & Asphalt Disposal

Concrete and asphalt material is diverted from landfill and stockpiled, for a fee. When necessary the material is processed on-site or utilized for internal landfill roadways and tracks.

4.0 Current Conditions

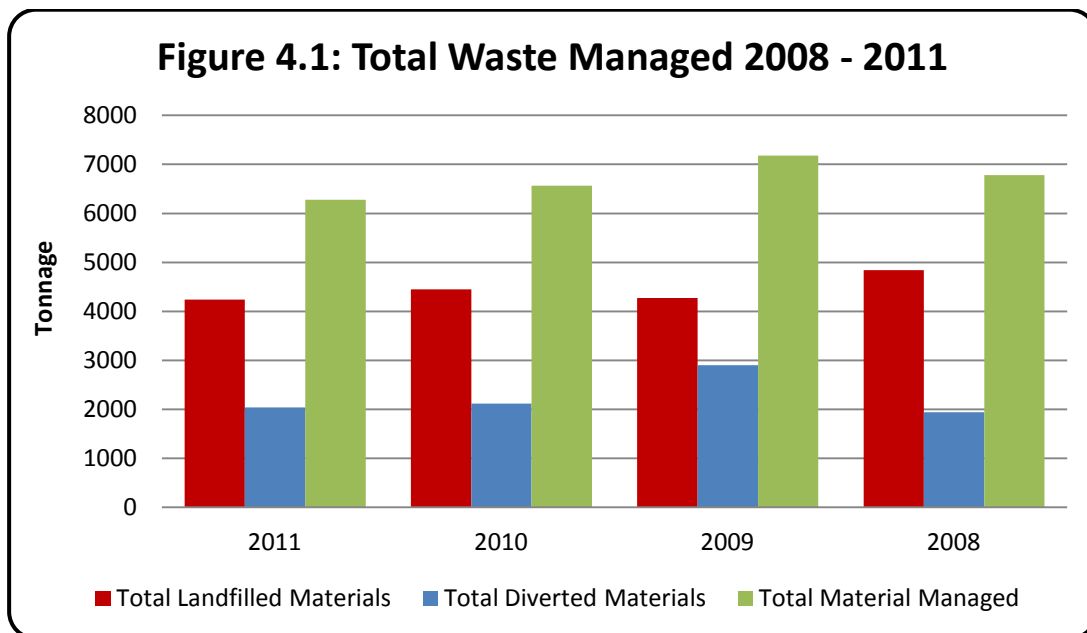
To analyze the current conditions of the Town's waste management system, this section will focus on total waste managed and two sub-streams;

1. Residential waste,
2. Institutional, commercial, industrial, construction and demolition sectors.

4.1 Total Waste Managed

The Town's waste management system handles residential, IC&I and C&D waste materials. Waste is comprised of divertible material that can be re-used or recycled and other material that is deposited in the Landfill.

From 2008 to 2011 the total quantity of handled material has varied with a slight overall decline in 2011. There is variation in the quantities of diverted and landfilled materials from year to year. This variation is illustrated in Figure 4.1 which summarizes the annual quantities of waste diverted, landfilled and total material managed by the Town from 2008 – 2011.



Source (Mid-Ontario Disposal & Miller Waste collection tickets and landfill weigh slips)

There are a number of considerations that influence the quantities of materials handled, diverted and disposed of in the Town's waste management system. These include:

- Community growth and economic development. The Town has experienced slowed growth beginning in 2009, potentially accounting for some of the decline in the total quantities of materials handled from 2010 – 2011.
- Building and demolition projects undertaken by the Town. In 2009 the Town began demolition activities relating to the new Town Hall and Health Centre projects which generated significant quantities of materials handled by the Town.
- Extreme weather events. For example, the tornado of 2009 generated significant quantities of brush and wood waste that were delivered to the Landfill and diverted through the compost program. This event elevated the total quantity of material handled and diverted in 2009 as compared to other years.

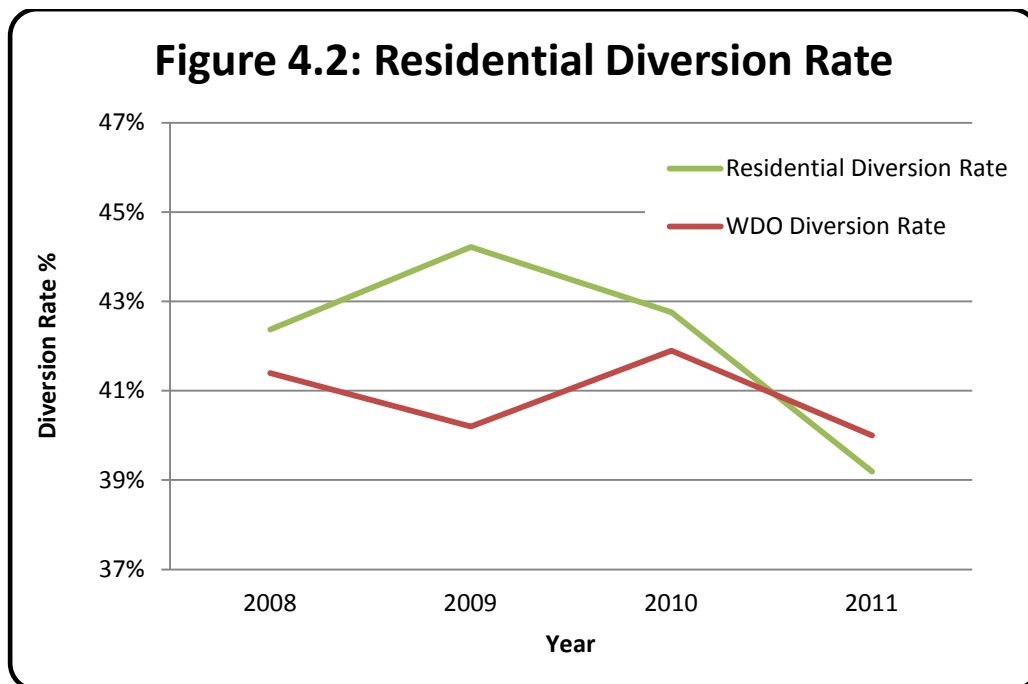
The Town’s goals and targets outlined in this Plan aim to reduce the total quantity of materials generated and correspondingly handled within the community while increasing the diversion of waste from landfill.

4.2 Residential Waste Diversion

The Town’s waste management system has matured as residents become familiar with the curbside collection services and the diversion programs offered at the Landfill. Residential waste disposal and recycling rates have remained steady. This is reflected in the Town’s residential diversion rate, which has remained near the 42% mark over the last 4 years. Waste diversion is calculated by dividing the total quantity of waste diverted from disposal by the total quantity of waste handled.

$$\text{Waste Diversion Rate [\%]} = \frac{\text{Waste Diverted (recyclables diverted from landfill)}}{\text{Total Waste Handled (total amount disposed + total amount diverted)}} \times 100$$

Figure 4.2 summarizes the residential diversion rate from 2008 – 2011.



Source (Mid-Ontario Disposal & Miller Waste Collection ticket and Landfill weigh slips)

Figure 4.2 includes Waste Diversion Ontario’s (WDO) calculated diversion rate for The Blue Mountains in comparison to the residential diversion rate identified in this Plan. Waste Diversion Ontario calculates their diversion rate based on data submitted for the annual blue box data call. The residential diversion rate identified for examination in this plan is developed using different considerations than the WDO figure. The WDP diversion rate incorporates blue and grey box diversion and landfill diversion activities.

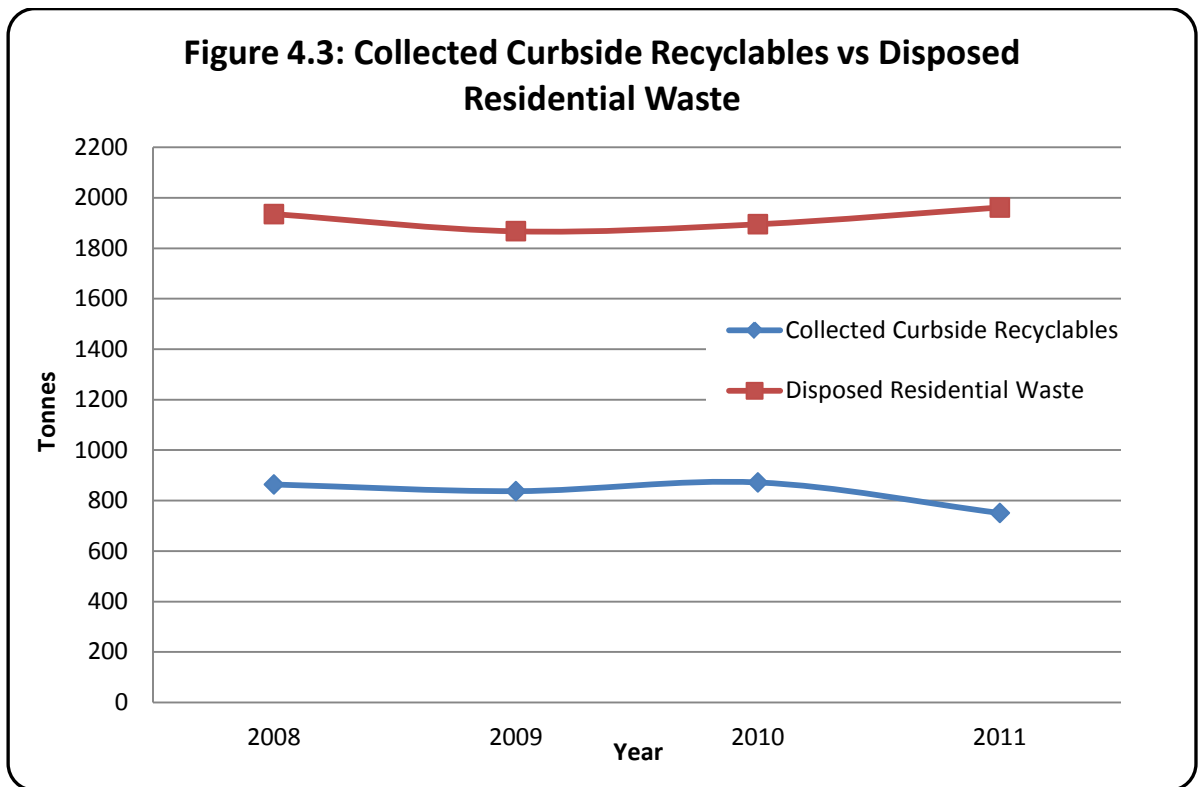
Curbside Waste Collection

Curbside waste collection services significantly impact residential waste diversion rates. Eighty-four percent of residential material handled by the Town’s waste management system is collected at the curbside. Curbside waste and recyclables are collected weekly from 4,668 single-unit dwellings¹ (excluding multi-unit dwellings). Some light commercial units are included in this collection service.

Collected quantities of curbside recyclables has remained steady from 2008 – 2010 and declined slightly in 2011. Residential waste disposal quantities have remained relatively unchanged over

¹ A single-unit dwelling is considered a property that includes six or less units. For collection purposes a unit is considered a unique collection stop by the contractor and generally corresponds with a single residence.

the same 4 year period. Figure 4.3 compares the quantity of collected curbside recyclables to the quantity of disposed waste from 2008 – 2011.



Source (Mid-Ontario Disposal, Miller Waste and Landfill weigh slips)

The blue and grey box program has not significantly changed from 2008 - 2011. There is an opportunity to optimize the program by improving capture rates² through:

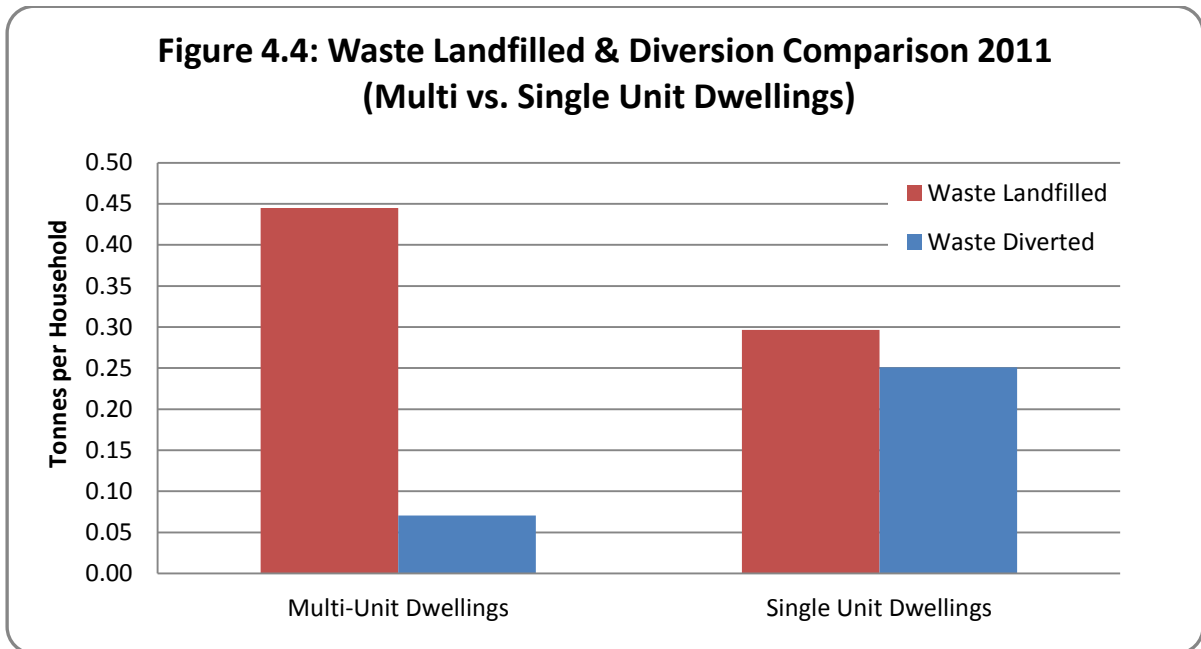
- promotion and education;
- expanding the types of material accepted at the curbside; and
- modifying the curbside bag tag fee structure.

These initiatives will improve the diversion rate, but to a limited degree, as the curbside blue and grey box program is already well utilized by residents. The goal is continuous improvement, to capture additional recyclables remaining in the garbage. As additional recyclables are accepted and added to the curbside program, the public must be engaged and provided an economic incentive to enhance their participation.

² Refers to the amount of recyclables captured in the blue and grey boxes compared to the total amount of recyclables generated by a household.

Multi-Unit Curbside Collection

Multi-unit residences have more than 6 residential dwelling units located on a single property. The Town services 1,299 units within the community at 60 different locations. In 2011, the multi-unit diversion rate stood at 13.7%, down from the 2010 diversion rate of 18.6%. In 2011, multi-unit residences landfilled 31% (557 tonnes) of the community's residential waste and diverted 7% (92 tonnes) of residential recyclables. Multi-unit residences account for only 21% of the total curbside collected units but landfill proportionally more waste and divert less recyclables than single-unit dwellings. This comparison is illustrated in Figure 4.4.



Source (Mid-Ontario Disposal and Miller Waste Collection Tickets and Landfill weigh slips)

Multi-unit waste management remains a challenge within the Town and throughout the province. There are many barriers that contribute to the relatively low multi-unit waste diversion rate, including:

- Multi-unit residents are typically required to deliver their recyclables to a central storage area, rather than 'door-to-door' collection;
- Building design, especially older multi-unit buildings, are not designed to accommodate management of source separated materials;
- Some multi-unit residences may have limited space for storing recycling containers (ie blue boxes);
- The financial incentive on the individual user is not as strong at multi-units to properly separate recyclables and waste as these buildings are generally serviced using large container bins with no tag pay system in place. However, the bin size is limited in proportion to the number of units and any additional collection of the bin, beyond once per week (paid by the Town), are paid for by the property owner(s).

- Single unit dwelling residents currently must use a bag tag, at a cost of \$1.00 to place a second garbage bag at the curb, with no limitation to the amount of recyclables that can be placed at the curb. Single-unit residents have a greater financial incentive to divert waste.
- Many multi-unit locations serve as resort based rentals. Transient renters and visitors may be uninformed about the Town’s recycling practices or are not concerned with recycling while vacationing, reducing their diversion efforts.

There are opportunities to improve the waste diversion performance of multi-unit dwellings within the Town through engagement with tenants and property managers. There are best practices that can help to mitigate some of the barriers faced by tenants of multi-unit dwellings. These are discussed in more detail in Section 5.

Landfill Residential Diversion Programs

Diversion programs offered at the landfill such as the leaf, grass and brush composting, household hazardous waste depot and electronic waste depot remain popular. Other residential waste is diverted through depot programs including used tires, wood waste, scrap metal, brush, concrete and asphalt. From 2008 – 2011 these programs have diverted an average of 560 tonnes per year.

In 2009 a tornado caused substantial damage within the community increasing the quantity of brush waste received at the landfill, producing an overall spike in the total diverted quantities for these programs. From 2008 – 2011 the quantities of waste diverted through the household hazardous waste depot (with the exception of 2008, when the program was run through Owen Sound) and the leaf and yard waste compost program have remained stable. The electronics recycling depot has diverted an average of 16 tonnes per year from 2008 – 2011.

Table 4.1 summarizes the quantities of diverted residential waste by diversion program.

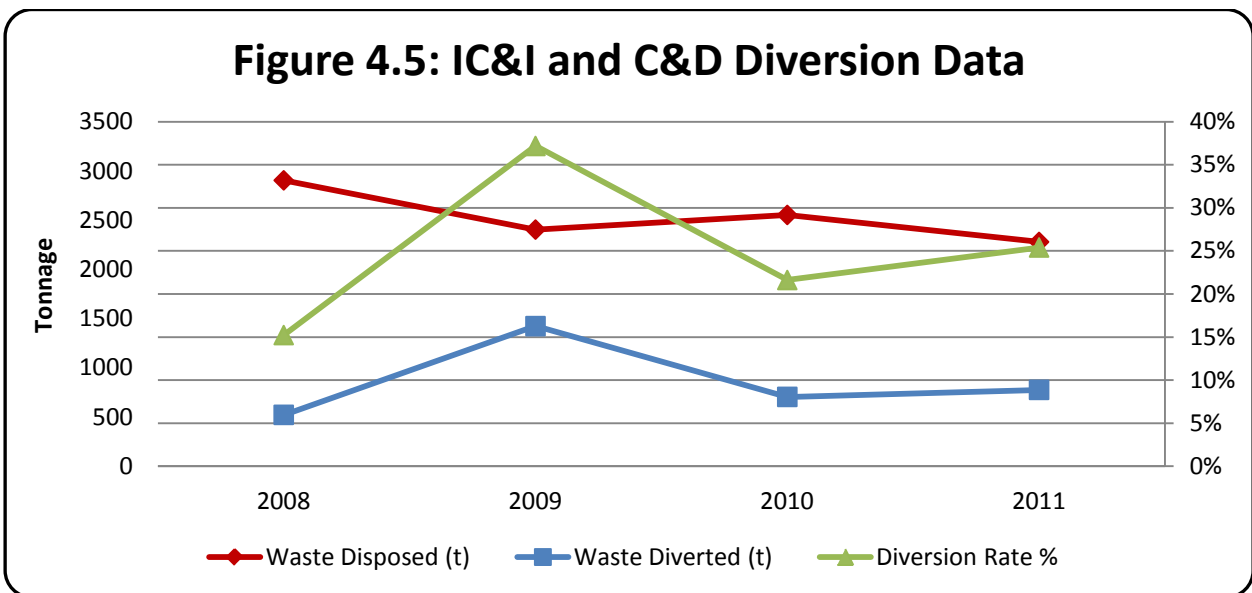
Table 4.1: Residential Diversion by Material at the Waste Disposal Site

Diversion Material	2008	2009	2010	2011	Average
Wood Waste	64.5	34.3	33.7	32.6	41.3
Scrap Metal	86.5	66.0	52.5	51.6	64.2
Blue and Grey Bin Materials	0.0	0.0	60.9	50.6	27.9
Brush waste	161.6	234.9	112.1	123.1	157.9
Concrete & Asphalt	22.2	66.6	32.8	16.4	34.5
Used Tires	6.5	2.1	4.0	18.4	7.7
Leaf and yard waste	195.3	194.5	221.1	188.8	199.9
Household Hazardous Waste	4.3	12.8	13.5	12.2	10.7
Electronics Recycling	18.0	16.2	10.6	19.4	16.1
Total:	558.9	627.4	541.3	513.1	560.1

As the landfill diversion programs evolve there will be opportunities to enhance or add services to further improve residential waste diversion.

4.3 IC&I and C&D Waste Diversion

The other major generators of waste within the community include the IC&I and C&D sectors. Tracking waste generation, disposal and diversion for these sectors is difficult as private contractors are free to dispose of waste at the Town’s Landfill or at other regional landfills or transfer stations. However, the Town does track the quantity of IC&I and C&D waste that is disposed at the Town Landfill in addition to diverted materials such as scrap metal, concrete and asphalt, leaf and grass, apple and wood waste. Figure 4.5 summarizes the quantities of disposed and diverted materials for these sectors from 2008 – 2011.



Source (Mid-Ontario Disposal Collection Tickets and Landfill weigh slips)

Town generated corporate waste is included in the IC&I diversion figures and contributes to the fluctuation of the diversion rate seen from 2008 - 2011. The demolition of the structures as part of the new Town Hall project and Thornbury Health Centre significantly increased the quantity of diverted materials in 2009, as over 700 tonnes of concrete and asphalt from these projects were diverted from landfill. In 2009, the Landfill began accepting apple processing waste (21.1 tonnes) as part of the composting program which has grown significantly to 373.2 tonnes received in 2011. Table 4.2 summarizes the quantities of diverted material by waste stream from 2008 – 2011.

Table 4.2: IC&I and C&D Diversion by material type 2008 -2011

Material Type	2008	2009	2010	2011	Average
Scrap Metal	86.5	66.0	52.5	51.6	64.2
Concrete and Asphalt	156.7	843.2	58.5	43.6	275.5
Wood Waste	64.5	34.3	33.7	32.6	41.3
Used Tires	6.5	2.1	4.0	18.4	7.7
Brush	205.7	456.4	371.7	206.9	310.2
Compostable Materials	1.9	0.0	50.3	49.4	25.4
Apple waste	0.0	21.1	133.6	373.2	132.0
Yearly Total:	521.8	1423.1	704.3	775.7	856.2

There are many opportunities to improve the waste diversion of the IC&I and C&D sectors. Modification of fee structures and improving disposal convenience are ways to incentivize contractors to utilize the Town’s diversion programs. These are discussed in further detail in Section 5.

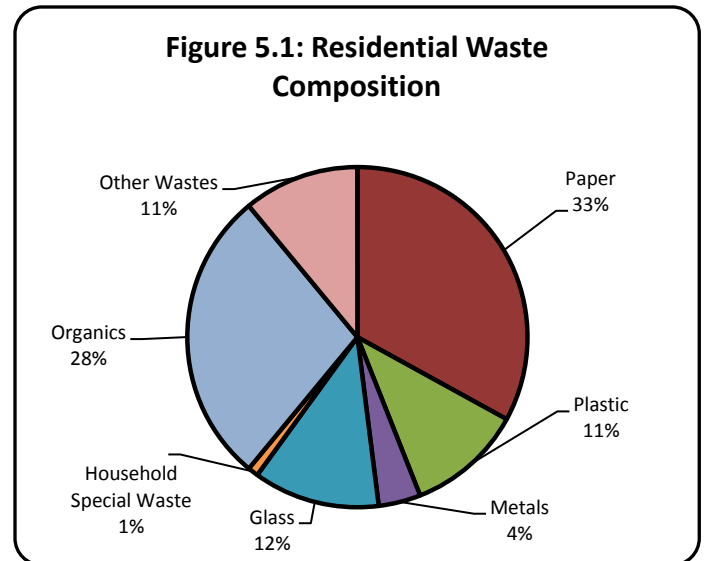
5.0 Waste Diversion Potential and Opportunities

5.1 Waste Diversion Potential

Residential Sector

Residential Waste Composition

Residential waste is comprised of organic materials, paper, plastics, glass, textiles, furniture, white goods, metals, hazardous and electronic waste. Residences can utilize the curbside waste collection service to dispose and/or divert the majority of this waste material. Items not accepted at curbside (ie large furniture, paints, electronics, brush and yard waste) can be delivered to the landfill to be disposed or recycled. Figure 5.1 illustrates the composition of the waste generated by residents within the community. This data is based on comprehensive waste audits³ conducted within the Town in 2006. These audits indicate that a significant quantity of the waste generated by an average household can be diverted from landfill. These materials include plastics, paper, glass and metals that are currently accepted in the Town's curbside grey and blue bin program and waste organics such as food scraps, tissues and soiled paper products. Some materials are currently not divertible, which include some types of plastics not accepted within the curbside blue/grey bin program and other items such as textiles and construction materials.

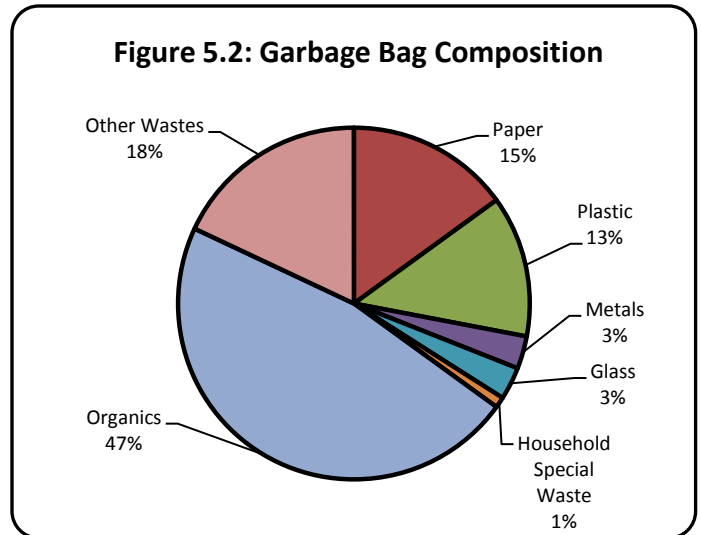


Source (TBM Waste Audit 2006)

³ The waste audits were funded by Stewardship Ontario and included 100 homes within the community. Four, two week audits were undertaken in each of the four seasons.

Residential Garbage Bag Composition & Capture Rates

The success of the Town’s residential diversion efforts is driven in part, by the effectiveness of the curbside blue and grey bin program. One way to measure the efficacy of this program is to examine the contents of the ‘garbage bag’ left at the curb to identify any recyclables present (that were not placed into the blue/grey bin). Figure 5.2 breaks down the composition of the typical residential garbage bag (based on the 2006 audit data).



Source (TBM Waste Audit 2006)

Furthermore, Table 5.1 provides a summary of the total estimated *quantity* of each of the materials present in curbside garbage for 2011⁴.

Table 5.1: Estimated Quantities of Materials Present in Curbside Garbage 2011

Material	%	Tonnage
Paper	15%	294.2
Plastic	13%	254.9
Metals	3%	58.8
Glass	3%	58.8
Household Special Waste	1%	19.6
Organics	47%	921.7
Garbage	18%	353.0
Total :	100%	1961.1

The waste audit analysis demonstrates that there is opportunity to divert additional material from the curbside garbage. This is evident when considering that over 660 tonnes of paper, plastic, metals and glass are not captured in the curbside recycling program annually. In 2011, 750 tonnes of curbside recyclables were collected out of an estimated 1,400 tonnes of available blue/grey bin material for a capture rate of 53%.

Additionally, over 900 tonnes of divertible organic materials are disposed in landfill through curbside garbage collection. In total, over 1,500 tonnes of divertible residential waste is landfilled annually. Diverting all of this material would improve the residential diversion rate from 39% to

⁴ These quantities were derived by multiplying the total quantity of residential waste collected in 2011(1961 tonnes) by the % composition of the different material present in residential garbage.

89%. Improving the capture of blue and grey box materials and implementing a curbside organics diversion program are opportunities to improve the Town's waste diversion performance.

IC&I and C&D Sector

There are many effective diversion programs for this sector; however, the Town does not manage a large amount of this waste material. IC&I and C&D wastes are not traditionally municipally managed and are handled by the private sector. Unfortunately, waste diversion in the IC&I area is decreasing on a per capita basis and efforts made in the residential sector need more duplication in the IC&I sector.

Currently, wood waste, scrap metal, asphalt and concrete are the key materials diverted from landfill. Shingle and drywall disposal tonnages are tracked at the Landfill and represent an additional potential diversion opportunity for waste C&D material. In 2011, approximately 269.8 tonnes of these materials were landfilled, accounting for 12% of the total IC&I and C&D material disposed.

5.2 Waste Diversion Opportunities

There are a number of opportunities to divert additional waste from landfill to achieve a 60% diversion rate. These opportunities are described in detail (specific recommendations are summarized within Section 6.0) as follows:

1) Update the Town's Waste Diversion Goal & Targets

Aligning the Town's waste management goal and targets with those identified in The Sustainable Path and the Province will provide long term direction for the municipality moving forward. These are as follows:

Goal: Sustainably manage waste within the community as locally as possible and become a community that supports a movement towards a zero waste society.

Targets: Achieve a residential diversion rate of 60% by 2015, 75% by 2025 and 85% by 2050.

Recommendation - Council adopt the identified goals and targets as part of the Town's waste diversion plan.

2) Establish a Source Separated Organics (SSO) Waste Collection and Processing Program

Residential organics waste diversion provides the opportunity for the Town to divert a significant quantity of material from disposal in the Landfill. Appendix A includes a SSO Justification Report

for more detailed analysis of the proposed program. Fully implemented and optimized, the SSO will divert an additional 540 tonnes of waste from landfill and add 17% to the residential waste diversion rate (from 42% to 59%), nearly achieving the goal of 60% diversion.

Recommendation - Establish a curbside source separated organics program.

3) Strengthen the User-Pay Curbside Program

The Town currently employs a partial user pay curbside waste management program. Residents are required to pay for a second bag of garbage placed at the curb in the form of a bag tag for \$1.00. Strengthening this system by increasing the bag tag fee to \$2.00 and implementing a proactive enforcement of the bag tag requirement will provide additional incentive for residents to maximize their diversion efforts. It is recommended that increasing the bag tag fee *follow* the implementation of a SSO program to ensure residents have every waste diversion option available to eliminate garbage placed at the curb.

When residents do not observe the bag limit or bag tag requirement, the collection contractor will leave the bag at the curb and provide an 'Oops' sticker identifying the infraction. To augment this enforcement tactic, Staff will take action to formally notify the property owner and educate residents on recycling options and bag limits. This proactive enforcement will help to solidify the bag tag and limit requirements.

Strengthening the user-pay program will improve curbside capture rates. The residential waste audit indicated that approximately 660 tonnes of potential blue and grey box recyclable materials remain in the garbage stream. It is estimated that strengthening the user pay system will capture an additional 66 tonnes of curbside recyclables. This would add 2% to the diversion rate.

Recommendation - Develop and implement a proactive enforcement program and increase the bag tag fee to \$2.00.

4) Maximize Waste Diversion Ontario (WDO) Blue Box Funding

Waste Diversion Ontario funds municipal Blue Box programs based on a variety of criteria, including the implementation and execution of industry best practices. Aligning the Town's Blue Box program with the WDO funding formula will optimize revenues from this funding agency. Moving forward, the following best practices should be implemented:

- Revise and update the Town's Waste Diversion Plan every 5 years
- Define and establish program goals and targets within a specified timeframe

- Set defined objectives and targets for recycling programs that are implemented and evaluated within a defined time period
- Collect data to evaluate the effectiveness of recycling programs
- Conduct an annual efficiency audit of the recycling program

Staff will monitor the performance of the Town’s waste management system and the implemented best practices in an annual report to Council.

Recommendation - Implement the identified WDO best practices and report annually to Council.

5) Modify Waste Collection and Disposal Fee Structures

There are various fee mechanisms that influence waste diversion rates within the Town. These include;

- Waste Disposal Site Tipping Fees

The tipping fees collected at the Landfill are a significant source of revenue for the Town’s waste management system and have remained mostly unchanged since 2003. The tipping fee for garbage disposal is \$100/tonne and commercial diversion items have a tipping fee of \$50/tonne. Unsorted mixed loads carry a tipping fee of \$200/tonne. Table 5.2 compares the revenue generated from the landfill compared to the total quantity of waste disposed in landfill from 2008 – 2011.

Table 5.2: Landfill Revenue vs. Disposed Waste from 2008 -2011

Year	Landfill Revenue	Disposed Waste (Tonnes)	Revenue / Tonne
2008	\$373,432	4839	\$77.16
2009	\$272,025	4275	\$63.63
2010	\$291,912	4448	\$65.63
2011	\$272,440	4240	\$64.26

The four-year trend shows that revenues per tonne have been declining. Raising the commercial tipping fee on regular waste and mixed waste will increase revenue and provide additional incentive to separate divertible waste for a reduced fee.

- Commercial Organics Sales Price

Composted material produced from the processing of residential and IC&I brush, leaf and yard waste is sold at the landfill. As the volume of finished compost continues to grow, the Town must

adopt competitive pricing to ensure the finished material is moved offsite in a timely fashion. Currently, compost is sold at the landfill for \$0.05/kg or \$50/tonne. A more competitive price to attract larger volume buyers, such as landscaping companies, is in order. Reducing the price will improve compost sales and promote the use of the material by local residents.

- **Illegal Dumping Fine**

Currently, the maximum fine for littering or illegal dumping is \$500. In some circumstances this limit is insufficient as a deterrent, especially when significant quantities of materials are dumped illegally. Aligning the Town's maximum fine with the *Provincial Offences Act* (maximum \$5000 fine) will provide an adequate deterrent for significant littering and dumping incidents.

- **Reduce Recycling Bins Sale Price**

Currently, the Town sells replacement blue and grey boxes at a price of \$10. Providing blue and grey boxes to the public at a subsidized price is identified as a WDO best practice. Reducing the selling price of recycling bins below cost will help to maximize revenues from WDO under the best practices criteria.

Recommendation - Implement the following fee changes:

- *Increase the commercial landfill tipping fees*
- *Decrease the compost fee*
- *Align the Town's littering fine with the provincial offences act*
- *Reduce residential recycling bin price*

6) Add New Blue and Grey Box Materials

New products and materials are continuously being introduced into the market place which provides an opportunity to expand the materials accepted at the curbside. Some material can be added to the existing systems, others such as 'compostable' plastic and polylactic acid (PLA) plastics cannot be added. Continuously improving the blue and grey box program by adding new materials and educating the public optimizes the capture of recyclables.

Expanding the accepted curbside recyclable materials requires collaboration with the collection contractors to ensure there is consideration of cost, contract implications and market demand for the recyclables.

It is estimated that adding new materials to the curbside recyclable program will divert an additional 5 tonnes of recyclables, adding 0.1% to the residential waste diversion rate.

Recommendation – Annually or biennially assess the residential waste stream and identify new materials to be added to curbside recyclables collection.

7) Establish a Recycling Incentive Award Program

An incentive promotional award program is an effective way to actively engage local residents. It acts to renew interest in the recycling program and recognize residents that are diligent in their recycling practices. The goal of these programs is to continuously improve recycling capture rates.

One potential incentive program concept is a County wide ‘Golden Box’ program, whereby residents that properly sort recyclables from waste are awarded a gold coloured recycling box to recognize their efforts. The resident then uses the golden box at curbside visibly promoting the program and exceptional efforts. Winners are recognized in promotional and educational material to positively reinforce the program on a County wide scale. Working with the County and other municipalities will improve funding opportunities and utilize economies of scale on box purchases and promotions.

It is anticipated that this program will improve capture rates, especially for new materials that are added to the blue and grey box over time and create a new goal for residents. The ‘Golden Box’ program will have a moderate benefit on residential waste diversion. It is estimated that the incentive program will add 0.5% to the diversion rate, by increasing capture rates. This type of program will also achieve at least 2 of the WDO funding best practices.

Recommendation – Establish a recycling incentive award program in collaboration with the County.

8) Engage Multi-Unit Tenants and Property Managers

Multi-unit properties within the Town dispose of more waste and divert less recyclables per unit, which presents a large opportunity for improvement. Each property presents a different waste management challenge as building design and tenant type influence diversion rates. Working with property managers and tenants to identify specific barriers and potential solutions provides an opportunity to address the unique issues facing each multi-unit property. Often simple solutions such as relocating or resizing recycling carts or providing educational material can improve recycling outcomes. In some cases, analyzing waste and recycling quantities can allow for property managers to introduce more recycling carts, reducing waste disposal and providing a financial incentive for both tenants and managers. Implementing a multi-unit awareness and engagement program will have a positive benefit on waste diversion for these properties.

It is estimated that improving multi-unit recycling performance through engagement and education will add 2% to the diversion rate. Improving multi-unit waste diversion to that of the entire Town would require diversion of an additional 175 tonnes of recyclables.

Recommendation - Host workshops with property management companies to develop new promotion and education material and collection techniques.

9) Establish a Reuse Depot Centre at the Landfill

The Landfill receives a significant quantity of reusable materials that are unwanted and discarded. These materials are often in fair condition and can potentially be utilized by someone else. There are local organizations that can potentially salvage this material for resale to assist in funding community based programs. Establishing a storage and resale system in partnership with local organizations will benefit the community and divert material from Landfill.

The Reuse Depot Centre will have a modest impact on overall diversion, estimated to add an additional 0.1% to the diversion rate.

Recommendation – Establish a Reuse Depot Centre in collaboration with local organizations.

10) Promote Waste Management Best Practices to the IC&I and C&D Sectors

Many IC&I facilities or C&D operations do not assess or audit their waste management practices. In some cases these organizations are not aware of regulatory requirements. Distributing a simple information package and waste reduction plan worksheet to these sectors can help facilitate improvement within their waste management practices.

Recommendation - Develop and circulate an informational waste management package specific to the IC&I and C&D sectors.

11) Investigate the Feasibility of Implementing a Shingle and Drywall Recycling Program

Waste drywall and shingles represent 12% of the total IC&I and C&D material disposed at Landfill. There are various diversion programs that may be feasible dependent upon accessibility to recycling facilities, program costs, transportation options, availability of material and so forth. Implementing diversion programs requires an assessment of these considerations. Conducting a program feasibility assessment will provide clear direction on the potential of diverting shingle and drywall materials.

Recommendation - Assess the feasibility of implementing a shingle and drywall diversion program.

12) Implement a Waste Box Indicator Program

The Town conducted a pilot program that concluded in the July 2012 to improve waste collection efficiency and service for residents that utilize waste collection boxes. Residents place their garbage and/or recyclables in these boxes at the end of their driveway to ensure protection from weather and nuisance animals. The indicator program involves affixing signage indicators to the waste boxes. These indicators are flipped, signalling the agent to collect waste and/or recycling that has been placed in the box. The indicator program will improve collection efficiency as collection agents will only need to make stops signalled by residents.

Recommendation: Implement waste box indicator program.

13) Assess the Feasibility of Implementing Curbside Leaf & Yard Waste Collection

Leaf and yard waste is generated during the spring and fall seasons. Some municipalities provide curbside collection of this waste as an added service for residents. Curbside collection service provides a convenient way to divert this waste and could act as a potential source of material for the Town's leaf, yard and brush composting operation. There may be opportunities during waste collection contract renewal to obtain favourable pricing for this service as added value to regular collection contract.

Recommendation: Request pricing for curbside leaf and yard waste collection when tendering for new waste collection services in the future.

14) Other Diversion

The waste management field is constantly evolving. Opportunities arise as technology advances and the market changes. Residential, IC&I and C&D waste materials that are currently disposed may become valued in the future creating a diversion opportunity. Continually seeking out these opportunities as they arise is necessary for a successful waste management system.

Recommendation – On an annual basis investigate diversion programs offered at other transfer and waste disposal sites and assess the opportunity for deployment within the Town.

6.0 Conclusions and Recommendations

The Blue Mountains' residential waste diversion rate has remained steady at 42% over the past 4 years. The residential curbside collection system has matured as the blue and grey box programs are generally well utilized and effective at diverting paper and plastics from landfill. Diversion programs offered at the Landfill are popular with residents and provide alternatives to traditional curbside waste collection services. The IC&I and C&D waste disposal and diversion rates have fluctuated from 2008 – 2011, indicating that there is opportunity for diversion within this sector.

Diverting residential organic waste and strengthening the user pay curbside program represent the most effective way to achieve a residential waste diversion rate of 60%. Based on the opportunities identified in Section 5.2, the following recommendations are:

1. Update the Town Waste Diversion Goals & Target as follows:
 - o **Goal:** Sustainably manage waste within the community as locally as possible
 - o **Targets:** Achieve a residential diversion rate of 60% by 2015, 75% by 2025 and 85% by 2050.
2. Establish a SSO Waste Collection and Processing Program (17%)⁵
3. Strengthen the User-Pay Curbside Program (2.0%)
4. Maximize Waste Diversion Ontario Blue Box Funding
5. Modify Waste Collection and Disposal Fee Structure
6. Add New Blue and Grey Box Material (0.1%)
7. Establish a Recycling Incentive Award Program (0.5%)
8. Engage Multi-Unit Tenants and Property Managers (2.0%)
9. Establish a Reuse Depot Centre at the Landfill (0.1%)
10. Promote Waste Management Best Practices to the IC&I and C&D Sectors
11. Investigate the Feasibility of Implementing a Shingle and Drywall Recycling Program
12. Implement a Waste Box Indicator Program
13. Assess the Feasibility of Implementing Curbside Leaf and Yard Waste Collection
14. Investigate Other Diversion Opportunities

Implementing the identified recommendations is estimated to add 21.7% to the residential diversion rate, exceeding the goal of 60% residential diversion.

Next Steps: Town Staff will develop individual program plans to bring forward to Council for approval on a case by case basis. Each initiative will include an estimated diversion impact and associated implementation costs which will vary greatly depending upon the particular program. All proposed programs will include a budget analysis. Furthermore, Staff will engage the public when planning and developing these programs and report to Council on their findings.

⁵ Figures in bracket delineate the estimated addition to the residential diversion rate. For recommendations without brackets an estimate could not be determined or it is not applicable.

Appendix A

**Town of The Blue Mountains
Source Separated Organics Justification Report**

Introduction

This report presents the justification for the implementation of a municipal curbside residential source separated organics (SSO) program and the associated financial, environmental and social implications.

Background

The Town has been proactively assessing the waste management needs of the community. Two initiatives, the 'Long Term Solid Waste Solution' and 'The Sustainable Path' have provided the Town with an over-arching direction moving forward. These are described as follows:

Long Term Waste Management Solution

In 2006, the Town initiated a 'Long Term Waste Management Solution' to address the challenge of ensuring that adequate waste management capacity is available for the Town's residential, agricultural, industrial, commercial, institutional, construction and demolition sectors for the next 20 – 30 years.

As part of this initiative the following assessments, actions and reports were completed:

- A summary of the existing waste management system (May 2007);
- Assessment of the Town's current and future solid waste requirements (May 2007);
- Waste Diversion Plan (July 2008);
- Completion of a curbside organics collection and processing feasibility study (February 2010);
- Completion of organic diversion business case (June 2010);
- Complete an environmental screening report to the Ministry of the Environment to expand landfill capacity (2012).

The following conclusions are drawn from the Long Term Waste Management Solution:

- The waste disposal site has limited disposal capacity remaining;
- Organic waste diversion will extend the life of the waste disposal site and will reduce greenhouse gas emissions;
- To reach the goal of 60% waste diversion (proposed in the Waste Diversion Plan) a curbside source separated organics program must be implemented;
- The waste disposal site has the capacity to process and compost the quantities of household organic waste generated by the community without significant upgrades or site improvement;

- Residents are generally in favour of a curbside SSO program.

The Blue Mountains' Sustainable Path

In 2010 The Blue Mountains' Sustainable Path was completed, a long-term plan that steers the community towards a sustainable future. This plan was created collaboratively with participation from local organizations, businesses, institutions, residents and volunteer groups. The Plan focuses upon three pillars of The Blue Mountains, environmental integrity, community vibrancy and economic prosperity. Waste management is an integral component of The Sustainable Path. Specifically, within the environmental integrity pillar a number of goals, strategies and actions are identified that provide direction for the community moving forward, these are as follows:

- Implement a permanent curbside organics program in urban areas throughout the municipality
- Assume full responsibility for the management of our wastes within regional borders
- Sustainably manage waste generated with the community as locally as possible
- Become a community that supports a movement towards a zero waste society
- Reduce solid and hazardous waste generation in the community
- Increase the Town's diversion rate through implementation of various reduce, reuse and recycle programs
- Update the Town's Waste Reduction Action Plan with residential diversion rate targets of 60% by 2015, 75% by 2025 and 85% by 2050
- Develop local and regional waste diversion services specific to industrial, institutional and commercial sectors

The 'Long Term Waste Management Solution' and 'The Blue Mountains Sustainable Path' demonstrate that a curbside SSO collection and processing program will positively benefit the community's waste management system and provide a desired service for residents.

Program Implementation

Background

The Town currently provides curbside waste collection services for residents. This includes the traditional blue and grey box program to collect recyclable paper; plastics; glass and metal materials. Non recyclable materials including organic waste is collected at the curb in garbage bags. In addition to curbside waste management services, the Town owns and operates a waste disposal site (Landfill) with a variety of diversion programs.

The Town operates a compost program at the Landfill for delivered brush; leaf; yard and apple waste. These materials are processed using an active windrow technique on an asphalt pad. In a

windrow composting process, nitrogenous (green) material is mixed with carbonaceous (brown) woodchips. The mixed materials are formed into a windrow, generally 5 metres in width by 3 metres in height and up to 75 metres in length.

The piles are turned over as required to maintain an ideal internal operating temperature between 55 C and 60 C. Turning frequency depends on the types of materials composted, the time of year, temperatures within the windrow and other factors. Generally, windrows are turned weekly. Turning, which provides aeration and helps to break down the composting materials, is undertaken with a wheeled loader. The material will be processed for approximately six months to one year.



Curbside SSO programs divert household organic waste from the garbage. Residents are provided a 'green bin' and a 'kitchen catcher' that allows users to separate household organic wastes from the garbage. The catcher is used in the kitchen area to temporarily hold scrap food, tissues and other organic materials. These are relatively small containers (8 litre capacity) compared to the larger green bins (45 litre capacity). Participants frequently empty their kitchen catcher to the larger green bin which is placed at the curb for weekly collection.

Curbside 'Green Bin'

Collection and Service Description

Curbside collection of the green bin will occur in conjunction with regular garbage pick-up. The collection contractor, using a split truck, will pick-up the green bin and garbage bag(s) at each stop. The organic waste contained in the green bin will be placed in one side of the split truck with the garbage bag placed in the other side.

The split collection truck will deliver the organics waste to the compost pad at the landfill. Only the organic waste is tipped onto the compost pad for processing.

The processing of the collected SSO materials will be integrated into the landfill composting operations. Residential organic waste represents an ideal source of nitrogenous material and is readily composted utilizing a windrow processing technique.

The organic waste will be fed into the mixer unit with woodchips at the appropriate proportion. The mixer breaks down the material into a smaller uniform size and then sufficiently mixes the materials. Reducing the material size and mixing it to the proper proportion improves and speeds up the composting



Split-Truck Collections Vehicle

process producing more uniform product. After mixing, the material is formed into a windrow to initiate the composting process.

Program Roll-Out & Communications Strategy

The Town’s program will accept household food waste and paper products. Table 1 identifies the materials accepted and not accepted within the Town’s SSO program.

Table 1: Acceptable and Non-Acceptable Green Bin Materials

Accepted:	Not Accepted:
<ul style="list-style-type: none"> ✓ Fruits and vegetables ✓ Meat and Fish Products Includes bones, fat, skin and shellfish ✓ Grain Products Includes pasta, bread, rice and cereal ✓ Baked goods or baking ingredients Includes cake, cookies, flour, sugar, spices, eggs and egg shells ✓ Dairy Products Includes milk, cheese and yogurt ✓ Other food products Includes candy and confectionary, coffee grounds, coffee filters and tea bags ✓ Paper Products Includes soiled paper towels, paper napkins. 	<ul style="list-style-type: none"> ✗ Artificial Flowers & Plants ✗ Baby Wipes ✗ Candles ✗ Carpet & Rugs ✗ Cigarette Butts ✗ Clothing, Leather & Textiles ✗ Corks ✗ Cotton Balls, Ear Cleaners ✗ Dead Animals ✗ Disposable Mop Sheets ✗ Dryer Sheets ✗ Foil ✗ Gum ✗ Milk Bags ✗ Styrofoam ✗ Tissue Paper for Gift Bags ✗ Plastic Wrap & Baggies ✗ Personal Hygiene Products, diapers ✗ Pet Waste ✗ Wood ✗ Toothpicks ✗ Vacuum Cleaner Bags & Contents ✗ Yard Waste ✗ Compostable & biodegradable plastics.

The proposed SSO program will be rolled out in two phases as follows:

- 1) Phase I (2014) – Thornbury / Clarksburg & Craigleith Collection Zones (Monday & Thursday Collection)
- 2) Phase II (2015) – Lora Bay / Wards Rd. & Rural Collection Zones (Tuesday & Wednesday Collection)

Prior to each phase, a promotion and education (P&E) communications strategy will be employed to inform the public about the change to the curbside waste collection service. The educational material will serve to increase the awareness and understanding of the new program for all phases of the implementation. The material will give residents tools to deal with concerns such as odour and animal and other nuisances. A P&E campaign will address these concerns, provide consistent messaging for residents and clearly delineate the materials accepted in the green bin. The P&E communications strategy will include the following components:

- **Public Information Centres (PIC)**

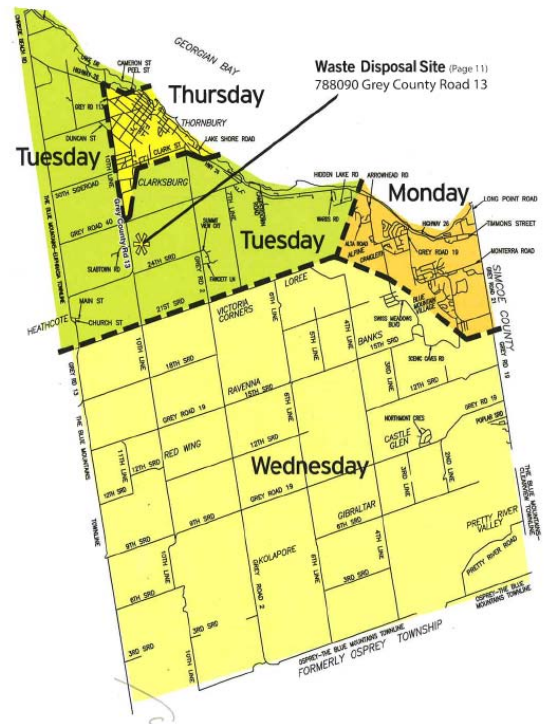
Public Information Centre(s) will be hosted to provide educational material to interested members of the public and address questions and concerns about the program. The PIC will be held in an open house format, whereby residents are free to roam and review information presented on easels and brochures.

- **Informational Letter Mail-Out**

Participating residents for each phase will receive an informational letter outlining the details of the program. A fact sheet will be included in the mail-out that addresses common questions and concerns associated with curbside green-bin programs.

- **Newspaper Advertisements**

Advertisements will be placed in the local newspapers that provide brief details about the program roll-out and sources for additional information.



- **Media Advisories / Magazine Articles**

Staff will circulate media advisories to local radio stations and newspapers. Local and regional magazines will often include articles from local government regarding new programs or initiatives. Staff will utilize the magazine circulation to enhance awareness of the SSO program.

- **Revised 'Oops' Collection Stickers**

Collection agents will be provided with updated 'Oops' collection stickers to include infractions related to improper use of the green bin.

- **Webpage Updates and Notifications**

All of the program information will be made available on the Town's website. Updates, public information centres and implementation notices will be circulated electronically to residents that choose to be notified by email.

Bin and Material Delivery

Single unit residences will be provided a green bin, kitchen catcher and educational material prior to the commencement of collection service. The educational material will include a fact sheet and other promotional tools.

Multi-unit residents will be provided with educational materials and individual kitchen catchers. Each multi-unit property will be supplied with larger collection bins dedicated to hold organic waste. Residents would be required to empty their kitchen catchers into these dedicated bins.

Multi-unit rollout will require collaboration with the condominium and property management companies. An update of the collections bylaw will obligate participation in the program by condo corporations and multi-unit properties to ensure continued garbage collection service.

Source Separated Organics Program Analysis

Service Delivery

Currently, organic waste material is collected at curbside in the garbage stream and disposed in the Landfill. The Town's waste management service has the capacity and the infrastructure to modify curbside service delivery with the addition of SSO collection and processing, without significant investment or financial impact to the ratepayers. The Town currently accepts and composts residential leaf and yard waste. This material is processed on site using an active windrow technique on a composting pad. Implementing an SSO curbside collection and processing program can be readily integrated within the current system operated at the Landfill.

Residential Organic Waste Generation and Composting Capacity

The SSO program will divert residential organic material from the garbage. Residential waste audits conducted in 2006 demonstrated that approximately ½ of all garbage is organics. In 2011, 1961 tonnes of curbside residential waste was collected and disposed in landfill. Assuming 50% is organic material, approximately 900 tonnes of organic material is available for diversion from the waste stream.

The Town's compost pad was initially designed to accommodate 1,000 tonnes of material annually. This capacity is based on a turning over period of 12 months, meaning that the delivered material takes 12 months to be processed and reach maturity. Utilizing the mixer and removing the finished compost from the compost pad area will decrease the material processing time to 6 – 8 months and create additional space for windrow construction. These changes will increase the annual processing capacity of the Town's composting operations to 2,000 tonnes.

Financial Implications

Increased collection service fees and procuring capital equipment represent the major cost drivers of the SSO program. The major capital expenditures include purchasing a material mixer and curbside green bins. The program will generate revenue from the sale of finished compost to help offset the annual program cost.

Capture rates for curbside SSO programs typically range from 40 – 60%. To be conservative, cost calculations will assume a relatively low capture rate of 40% or 360 tonnes annually.

The estimated net cost of the program is \$280/tonne. The program will generate revenue from selling finished compost. This revenue partly offsets the expense of the program and has been incorporated into the cost per tonne. Collection expenses are the major cost driver representing 75% of total project cost. The major capital expenditures (green bins, mixer) account for 9% of program cost. Composting operational cost increases account for 16% of the total program expense. These estimates are based upon full program implementation in 2015, adjusted for inflation. Figure 1 illustrates the program cost breakdown while Table 2 outlines the identified cumulative impact on taxation. This table only delineates the costs of the program and does not include program revenues.

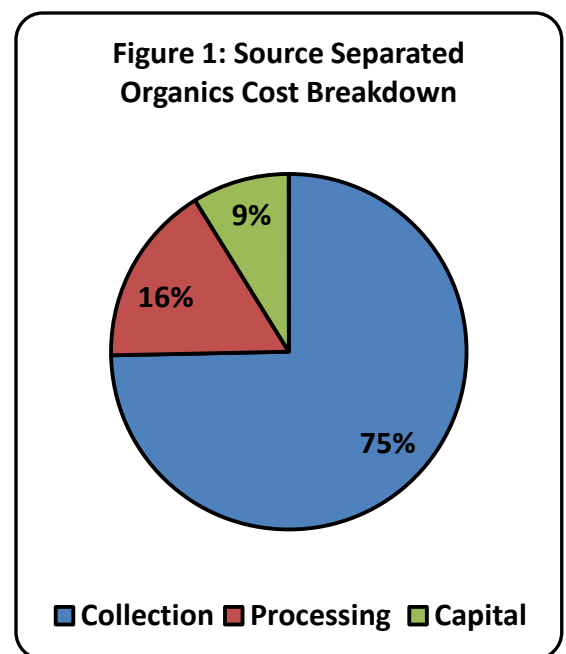


Table 2: Taxation Impact 2014 - 2015

Cost	Phase I - 2014	Phase II - 2015
Processing	\$12,757	\$20,420
Collection	\$56,253	\$93,298
Capital	\$11,250	\$11,250
Total :	\$80,260	\$124,968

Capital & Operating Requirements

The waste disposal site currently has the capacity to expand composting operations. The basic composting system will not require significant modification to process the additional organic material delivered on-site.

The SSO program will require some capital modifications to the Landfill composting facility including the purchase of processing equipment and materials for residents. These capital requirements and associated costs are summarized in Table 3 as follows:

Table 3: Capital Component Cost Summary

Item	Total Cost	Annual Amortized Cost
Mixer (12-15 year replacement cycle)	\$180,000	\$4,500
Hydro Installation and Line Extension	\$15,000	\$375
Green Bins, Promotion and Education Material	\$187,000	\$4,675
Certificate of Approval Amendment	\$50,000	\$1,250
Asphalt Replacement	\$18,000	\$450
Total:	\$450,000	\$11,250

The capital costs have been amortized over a forty year period. This timeframe was utilized to align with the estimated life expectancy of the Landfill as outlined in Expansion Scenario 2 of the report submitted to Council on June 20, 2011 entitled 'Long Term Solid Waste Disposal Needs Update Report on Financial Considerations'. Expansion Scenario 2 estimates an increased landfill capacity of 17 - 40 years¹. Scenario 2 identifies a waste disposal cost of \$315/tonne.

Operationally, the Town's collection services contract will be modified to provide separate collection of the organic materials. The additional SSO material will marginally increase

¹ The expansion scenario capacity range varies depending upon the quantities of received commercial waste. If no commercial waste is received, the landfill life expectancy is 40 years.

operating costs related to compost sampling, material screening and grinding, additional fuel and hydro, maintenance and training.

Implementing the SSO program will have an immediate direct cost to the existing taxpayer. However, to properly assess the financial implications of the SSO program, the costs of *not* composting or continuing to landfill organic waste must be considered. The landfill expansion project has estimated the cost of disposal of \$315/tonne which exceeds the identified SSO diversion cost of \$280/tonne. Therefore, the implementation of the SSO program represents a financial benefit to the Town in the longer term compared to continuing to landfill organics. Additionally, diverting organic material has the benefit of extending the life capacity of the Landfill by an additional 6 years (based on a 40% capture rate) over a 40 year period. Table 4 summarizes the financial impacts of implementing the SSO program compared to the current practice of landfilling organic waste.

Table 4: Source Separated Organics Program Cost Comparison

Item	SSO Program	Landfilling Organics	Deferred Cost
Annual Costs	\$124,968	\$113,400	n/a
Annual Revenue	\$24,150	\$0	n/a
Net Cost per tonne	\$280	\$315	\$35
Annual Financial Impact:	\$100,818	\$113,400	\$12,582

These cost calculations are conservative as they are based on a capture rate of 40%. As the capture rate increases the financial benefit of SSO implementation grows compared to landfilling organic waste.

Well managed, optimized SSO programs generally achieve a 60% capture rate or greater. It is anticipated that the program will achieve a 60% capture rate within 5 years of full implementation. Table 5 summarizes the financial implications of the SSO based on a 40%, 50% and 60% capture rate compared to the cost of landfilling the organic waste.

Table 5: Financial Impact of Capture Rate on SSO Program Annual Cost vs. Landfilling

Capture Rate	Tonnage Diverted	SSO Cost Per Tonne	SSO Annual Cost	Landfilling Cost*	Annual Deferred Cost	40- Year** Deferred Cost
40%	360	\$280	\$100,818	\$113,400	\$12,582	\$503,260
50%	450	\$222	\$100,083	\$141,750	\$41,667	\$1,666,680
60%	540	\$183	\$99,348	\$170,100	\$70,752	\$2,830,080

*Landfilling cost is calculated by multiplying estimated annual diverted tonnage by estimated cost of landfilling (\$315/tonne)

** 40 years is the life expectancy of the landfill

Other Considerations

The SSO program cost evaluation has excluded potential commercial tipping fee revenues to assess the program viability of residential service only. Revenues from commercial tipping fees will offset program costs. At a minimum there are 450 tonnes of commercial organic waste material available, representing potential revenue of \$22,500 (at \$50/tonne tipping fee). However, over the long term, these revenues are not guaranteed and therefore have not been included when assessing the financial feasibility of the program. Furthermore, the major capital costs associated with the SSO program (the green bins and mixer) are gas-tax eligible, and if utilized, would reduce the program expense.

The financial assessment of the SSO program incorporates collection costs while the landfilling of organics scenario has only considered disposal costs (\$315/tonne), excluding the collection expenses. In 2011, costs for garbage collection (not including recyclables collection) were \$144/tonne. Adding \$144/tonne with \$315/tonne gives one a full cost view of garbage management for a total of \$459/tonne.

Based on the financial assessment of the SSO program, the following conclusions are offered:

- Implementing the SSO represents a long term financial benefit compared to the current practice of landfilling organic waste material;
- The SSO program has an estimated cost of \$280 / tonne;
- New landfill disposal costs are \$315 / tonne;
- There is an immediate direct cost to the ratepayer;
- Collection costs represent the majority of SSO program expenditures;
- The SSO program costs are based on a conservative capture rate of 40%. It is estimated that the program will achieve a capture rate of 60% within five years of implementation;
- Capital project costs of the SSO program are gas-tax eligible, representing potential reduction in program cost to the ratepayer;
- Landfill expansion is gas-tax eligible too, however, due to the scale of the project costs its use of the gas-tax will have a minimal impact on reducing the cost per tonne;
- Implementing the SSO program will extend the life of the landfill by 6 years (based on a 40% capture rate) over 40 years with an estimated deferred cost saving of \$503,260.
- Commercial tipping fee revenues will further enhance the financial viability of the SSO program.

Environmental Implications

The SSO program reduces the Town's dependency on landfilling and supports the processing of material for reuse. Diverting 360 tonnes of organic waste from landfill will add nearly 12% to

the residential diversion rate and a fully optimized program, with a capture rate of 60% will add 17% to the diversion rate, from 42% to 59%.

Diverting organics from landfill reduces methane emissions, a potent greenhouse gas, which is generated when organic material is landfilled and decomposes anaerobically. Composting 360 tonnes of organic waste eliminates approximately 360 tonnes of eCO₂ emissions, representing nearly 6.5% of the community greenhouse gas reduction goal².

Social Implications

The SSO program augments the current residential curbside diversion program and further instills personal responsibility for household waste management.

Source separated organic programs have been implemented in a number of the surrounding municipalities and are recognized as a progressive and essential component of leading integrated waste management programs.

Residents have a desire to sustainably manage waste as locally as possible. The majority of participants in the curbside feasibility study that completed the mail-in survey voted in favour (76%) of implementing a Town wide program. Part-time residents have noted a desire for a curbside green bin program similar to the services offered at their primary residence.

Conclusions & Recommendations

Implementing an SSO program will provide long term economic benefits to residents, provide a desired service to ratepayers and improve the environmental performance of the Town. Based on the analysis of the SSO program outlined in this report the following conclusions are offered:

- Approximately 50% of residential household garbage is comprised of divertible organic material;
- The Town's waste management system can be readily modified to collect and divert the residential organic waste material;
- The cost (per tonne) of collection and processing organic waste under a SSO program is less than the cost to dispose the material in landfill;
- An SSO program will have a positive financial benefit to ratepayers over the long-term compared to the current practice of landfilling organic waste;
- An SSO program will have an immediate direct cost to the ratepayer;
- Implementing an SSO program will extend the life of the landfill;

² Reduction goal established in the Town's Partners for Climate Protection milestone 1 submission, at 6% below 2005 levels by 2016.

- Utilization of gas-tax funding and soliciting revenues from IC&I tipping fees will further improve the economic feasibility of the SSO program;
- A fully implemented SSO program will divert 360 tonnes of greenhouse gases (eCO₂) annually and add an additional 12% on the diversion from 42% to 54%;
- Curbside organics diversion will be required to meet the provincial goal of 60% residential waste diversion;
- Residents are generally in favour of a curbside SSO program;
- Promotion and education will be an essential part of the SSO launch to ensure residents participate in and understand the program;
- SSO programs are considered an essential component of a progressive, optimized waste management system.

Based on the identified environmental, social and financial benefits, it is recommended that the Town implement a two-phase roll-out of the curbside SSO program, commencing in 2014.