



# Long-Term Waste Management Strategy

March 2018





# Executive Summary



## Introduction

Dufferin County (the County) is a leader in Solid Waste Management in Ontario. The County and its residents have continuously improved how the County’s residential solid waste is managed, with a goal of increasing the diversion of waste from disposal. Building upon past work and successes, the County has prepared a Long-Term Waste Management Strategy (LTWMS) to maximize waste diversion over the Strategy’s 20-year planning horizon and beyond.

## Mission Statement, Goals and Objectives

The Mission Statement of Dufferin County’s Long-Term Waste Management Strategy is:

*To update and enhance the County’s waste management system to maximize the diversion of waste from disposal in an economic, environmental and socially responsible manner.*

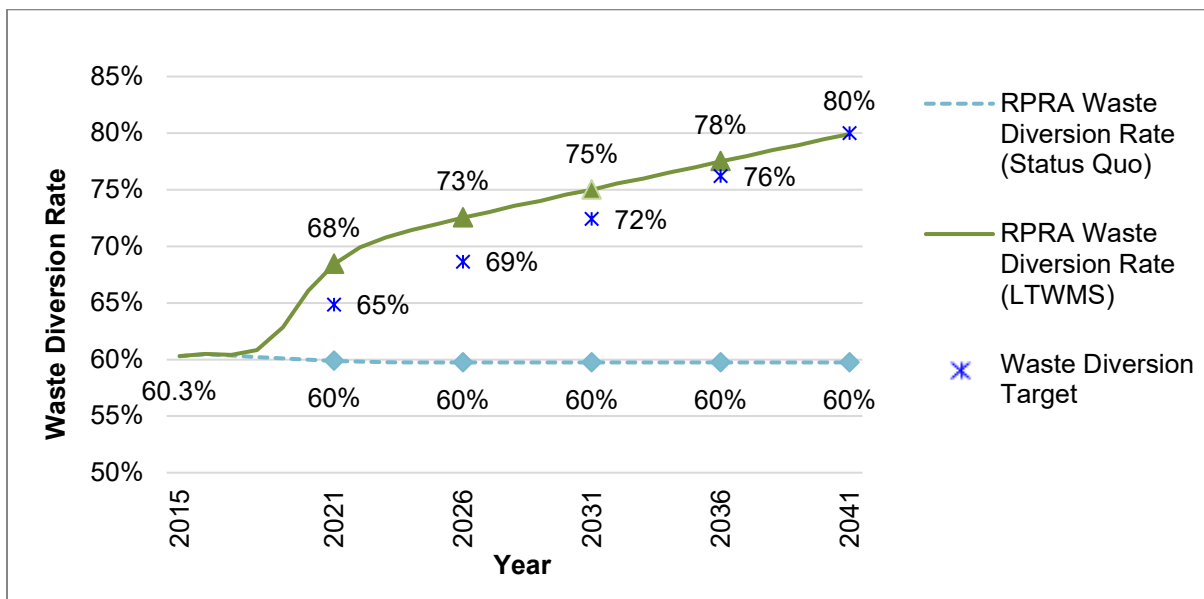
The four goals of the LTWMS include:

- Goal #1: Maximize diversion of waste from disposal.
- Goal #2: Explore waste management opportunities that are either local or located within Central Ontario.
- Goal #3: Involve stakeholders and the public through continual education and feedback to support and facilitate individuals and businesses taking responsibility for their waste.
- Goal #4: Continue with waste diversion programming that is consistent with provincial waste management policy.

The LTWMS’s ultimate long-term goal is zero-waste, with interim waste diversion targets identified as:

- 65% waste diversion by 2021;
- 72% waste diversion by 2031; and
- 80% waste diversion by 2041.

The figure below compares the LTWMS waste diversion targets with the projected future waste diversion rates for the County under *status quo* conditions (dashed line) and with the implementation of the LTWMS (solid line). The waste diversion rates are calculated based on the Resource Productivity and Recovery Authority (RPRA) municipal Datacall.



## Recommended Waste Management Initiatives

The suite of recommended waste management initiatives include an emphasis on waste reduction, optimizing the County's existing programs, and the introduction of new waste diversion opportunities. The main initiatives to be implemented over the next five years include:

- food waste reduction;
- enhancing the existing Blue Box program by providing an extra blue box and assessing the addition of new materials through the tendering process;
- enhanced promotion and education to support the Green Bin program;
- strategic and targeted waste management promotion and education, with an emphasis on waste reduction and reuse;
- assessing every-other-week garbage collection; and
- introduction of municipal policy tools such as a by-law enforcement strategy and waste management-related standards for multi-residential development.

## Monitoring and Evaluation

Progress of the LTWMS will be tracked through regular monitoring and evaluation of individual initiatives and the waste management system as a whole. While the LTWMS will be reviewed and updated every five years, tools for its regular monitoring and evaluation include:

- Annual RPRA Datacall - the RPRA Datacall is where municipalities in Ontario report the results of their waste management programs to the Province. The Datacall measures the County's waste diversion rate and allows the County to compare its performance against that of other municipalities in Ontario.
- Curbside tonnage tracking data - this is data that measures the amount of material collected and processed for the relevant waste streams. This data can be used to analyze monthly or annual trends to help assess the impacts of waste management programs.
- Dufferin County rebate data - the rebate data tracks the amount of Blue Box materials marketed, contamination levels, and revenues from the sale of the materials.
- Opinion and awareness survey - this is a survey of a targeted audience (e.g., the general public, businesses, farmers, etc.) to identify their opinions, attitudes or reported behaviours on waste management topics. The method of undertaking the survey can vary, for example via telephone, in-person, or online.
- Waste audit - a waste audit measures the composition of the County's waste stream. The data in combination with the RPRA Datacall can be used to update the County's waste profile. Ideally, the waste audit should be completed prior to implementation of the options, as the data will provide a benchmark against which future waste management performance can be measured.
- Participation study - the County's participation study measures the level of public participation in waste diversion programs based on a sample of households in the County's curbside waste collection programs

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## Glossary

Term	Definition
Avoidable Food Waste	Food waste that is considered avoidable, i.e., that could have otherwise been consumed. For example, spoiled food or cooked food.
Blue Box	Residential curbside collection program for recyclable materials.
Construction and Demolition (C&D) Waste	Waste generated through construction (e.g., lumber cut-offs, dry wall pieces, etc.) or demolition (rubble, old wood or drywall, etc.).
Contamination	Waste materials that end up in programs unintended for their management, such as non-recyclable plastics or food waste in blue bins.
Datacall	Annual reporting by municipalities of their solid waste management practices, tonnages and costs to the former WDO/current RPRA (see “Waste Diversion Ontario”).
Deposit-Return Program	A waste diversion program implemented through the Beer Store, where alcohol containers can be returned for a refund.
EOW (Every Other Week)	Refers to waste collection every other week (bi-weekly), as opposed to weekly.
E-waste	Waste electronics and electrical equipment. Also commonly referred to as “WEEE”.
Household Hazardous Waste (HHW)	Hazardous waste generated by households rather than businesses or industries. Also commonly referred to as Municipal Hazardous or Special Waste (MHSW).
Industrial, Commercial & Institutional (IC&I) Waste	Industrial, Commercial & Institutional (IC&I) waste includes waste generated by industry, commercial businesses, or institutions (for example, factories, retail outlets and offices, or hospitals).
Lightweighting	The process where, over time, the amount of material included in specific packaging (e.g., a plastic bottle or pop can) has been reduced.

Organics	Common term for food waste and other household compostable material. Also referred to as Green Bin waste or source separated organics (SSO).
Recovery Rate	Refers to the percentage of a divertible material in a waste stream that is diverted from disposal.
Recyclables	Common term for recyclable materials accepted in the Blue Box recycling program, such as newspapers, aluminum cans, and other select paper and plastic packaging.
Resource Productivity and Recovery Authority (RPRA)	The provincial agency responsible for regulating solid waste diversion in Ontario. Formerly known as Waste Diversion Ontario (WDO).
Residential Solid Waste	Includes garbage, blue box recyclables, green bin organics, and other solid wastes generated by households.
Residue	Another term for garbage, or waste that is not divertible. Can also be used to refer to contamination.
Tonnage	General term for the amount of solid waste, which is usually measured in tonnes.
Unavoidable Food Waste	Food waste that was not consumable. For example, vegetable peelings and trimmings, bones, etc.
User Pay	Waste management approach where waste generators pay for the amount of waste they dispose.
Waste Audit	A technique used to help determine the composition of waste set out for collection, whereby bags or bins of garbage and other applicable waste containers are sorted, and measured (by weight).
Waste Diversion Ontario (WDO)	Now known as the Resource Productivity and Recovery Authority (RPRA), is the provincial agency responsible for regulating solid waste diversion in Ontario.
Waste Diversion Rate	The percentage of solid waste that is diverted from being disposed of as garbage.
Waste Diversion	Occurs when waste is reduced, reused, recycled, composted, or otherwise not disposed of as garbage.
Waste Generation	The amount of waste that is generated, including both waste disposed and diverted.



# 1. Introduction



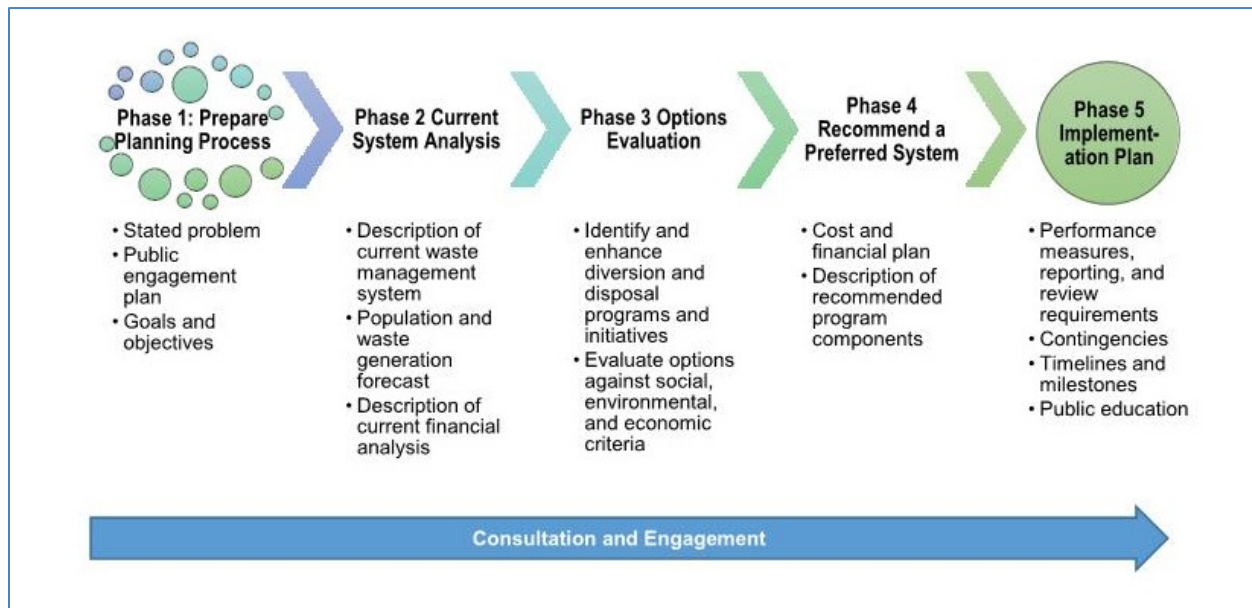
## 1.1 Overview

Dufferin County (the County) is a leader in Solid Waste Management in Ontario. The County and its residents have continuously improved how the County's residential solid waste is managed, with a goal of increasing the diversion of waste from disposal. Building upon past work and successes, the County has prepared a Long-Term Waste Management Strategy (LTWMS) to maximize waste diversion over the Strategy's 20-year planning horizon and beyond.

The LTWMS was conducted over a 5-Phase process (see Figure 1 below). Phases 1 and 2 included the initial planning, goal setting, and background information gathering portion of the study. In particular, Phase 2 included the development of a Waste Profile (System Performance Assessment) report, which assessed the County's current waste management system and identified program gaps that provide the greatest opportunity to increase waste diversion. The key opportunities identified for additional diversion efforts included:

- Food waste and household organics (~1,140 tonnes);
- Plastics (~550 tonnes);
- Textiles (~220 tonnes);
- Blue Box program and deposit/refund glass (~150 tonnes); and
- Electronic waste (~95 tonnes).

**Figure 1: Strategy Development Process**



In Phase 3, a range of options were reviewed to identify how best to improve the County's waste management system and achieve the LTWMS' goals and objectives. This included the development of a long-list, which was screened to a short list that was evaluated for inclusion in the LTWMS. The LTWMS was developed over Phase 4 and 5.

Public and stakeholder consultation was a key aspect of this process. The public was consulted for their input as follows:

- the initial planning;
- goal setting and background gathering portion of the study;
- development of the Waste Profile Report, which assessed the County's current waste management system and identified which waste materials provide the greatest opportunity for waste diversion;
- the selection and evaluation of options to best help manage the County's waste material; and
- the draft LTWMS document.

The consultation activities included the following:

- Project Website - A project webpage on the County's website has been used as a portal to engage the public and stakeholders, obtain their feedback, and disseminate information;
- Stakeholder Meetings - County staff met with various community stakeholders to discuss issues and obtain feedback into the review process;
- Community Stakeholder Workshop – A Phase 3 workshop was held in June 2017 to generate focused discussion and feedback on the LTWMS vision, goals and objectives, and potential options to manage the County's waste;
- Public Information Centres - Two Public Information Centres were held in June 2017 to present the results of the waste management options evaluation;
- Two Online Surveys – The first online survey was held in June 2017 to provide the public and interested stakeholders with an additional opportunity to provide feedback on the development of the options under consideration. A second online survey in January 2018 gave the public and interested stakeholders an opportunity to review the draft LTWMS and provide feedback on the programs and initiatives recommended to manage the County's solid waste over the planning period.

Public feedback received at key points of the planning process helped shape the LTWMS. Results of the final online survey regarding the draft final LTWMS demonstrated general support for the recommended plan, from a majority of the respondents. While some comments were received about various aspects of the County's waste program, no common trend among the comments were apparent. The results of the final survey have been included in the LTWMS consultation report. The comments, presented in the consultation report, can be used by staff to assist with the LTWMS's implementation and future updates.

The draft LTWMS presented in the following sections are the culmination of the technical work and consultation activities described above:

- Section 2: Mission Statement, Goals and Objectives;
- Section 3: Dufferin County's Current Waste Management System;
- Section 4: Waste Diversion Opportunity Analysis;
- Section 5: Identification and Evaluation of Options;
- Section 6: Recommended Solid Waste Management Options;
- Section 7: Financial Plan;
- Section 8: Evaluation and Monitoring Plan; and
- Section 9: Contingency Plan.

Note: Unless otherwise noted, the LTWMS is based on 2015 waste management data, including the published 2015 Resource Productivity and Recovery Authority (RPRA) municipal Datacall.

## 2. Mission Statement, Goals and Objectives



## 2.1 Mission Statement

The Mission Statement for Dufferin County’s Long-Term Waste Management Strategy is:

*To update and enhance the County’s waste management system to maximize the diversion of waste from disposal in an economic, environmental and socially responsible manner.*

## 2.2 Goals and Objectives

Goals	Objectives *
<p><b>Goal #1</b></p> <p>Maximize diversion of waste from disposal.</p>	<ul style="list-style-type: none"> <li>• Long-term waste diversion targets:               <ul style="list-style-type: none"> <li>○ 80% waste diversion by 2041</li> <li>○ Zero-waste by 2051</li> </ul> </li> <li>• Short to mid-term waste diversion targets:               <ul style="list-style-type: none"> <li>○ 65% by 2021</li> <li>○ 72% by 2031</li> </ul> </li> <li>• Increase the amount of waste diverted from multi-residential buildings (i.e., apartments and condominiums) by 25%</li> <li>• Increase the amount of HHW diverted from landfill by 10%, and increase participation</li> <li>• Assist agricultural community to explore opportunities to increase the diversion of agricultural waste from disposal</li> </ul>
<p><b>Goal #2</b></p> <p>Explore waste management opportunities that are either local or located within Central Ontario.</p>	<ul style="list-style-type: none"> <li>• Engage private sectors and potential partner municipalities to identify opportunities to manage Dufferin’s waste</li> <li>• Explore two new waste diversion solutions beyond existing waste diversion contracts</li> </ul>
<p><b>Goal #3</b></p> <p>Involve stakeholders and the public through continual education and feedback to support and facilitate individuals and businesses taking responsibility for their waste.</p>	<ul style="list-style-type: none"> <li>• Engage the community to confirm and evaluate the success of the LTWMS initiatives</li> </ul>
<p><b>Goal #4</b></p> <p>Continue with waste diversion programming that is consistent with provincial waste management policy.</p>	<ul style="list-style-type: none"> <li>• Conduct ongoing monitoring of the Province’s efforts to implement Bill 151 and their “<i>Strategy for a Waste Free Ontario: Building the Circular Economy</i>”</li> <li>• Identify opportunities to maximize diversion and reduce associated costs arising from implementation of Bill 151</li> </ul>

\* All increases compared to a 2015 base year, except for multi-residential buildings, in which a baseline will be established.



### 3. Dufferin County's Current Waste Management System

### 3.1 Waste Generation and Diversion

In 2015, the County's solid waste management program served an estimated population of 58,570, which included a total of 24,159 single-family and multi-residential households. The residents of Dufferin County generated an estimated 19,391 tonnes of solid waste, of which 11,696 tonnes (or about 60.3%) was diverted from disposal<sup>1</sup>.

Figure 2 depicts the amount of residential solid waste generated, diverted, and disposed in the County from 2009 and 2015<sup>2</sup>. Since 2009, the total tonnage of solid waste generated collectively by the residents of Dufferin County has decreased slightly, after experiencing a crest in 2011. The amount of solid waste diverted has generally increased, while the amount disposed has decreased. During this same period, the population of Dufferin County has increased by approximately 6%.

Figure 3 depicts the amount of solid waste generated, diverted, and disposed on a per capita basis for the County between 2009 and 2015. Similar to Figure 2, it shows that solid waste generation per capita has generally decreased between 2009 and 2015, as has the amount of solid waste disposed. However, the amount of solid waste diverted per capita in 2015 is similar to that of 2009, after experiencing a peak in 2012. It is important to note that this does not mean that residents are participating any less in diversion programs in 2015 compared to 2009, as there are other factors that have contributed to lower tonnages, such as light-weighting of materials, the decline of newspaper and telephone book usage, increased usage of plastics to package consumables, and scavenging of recyclable material.

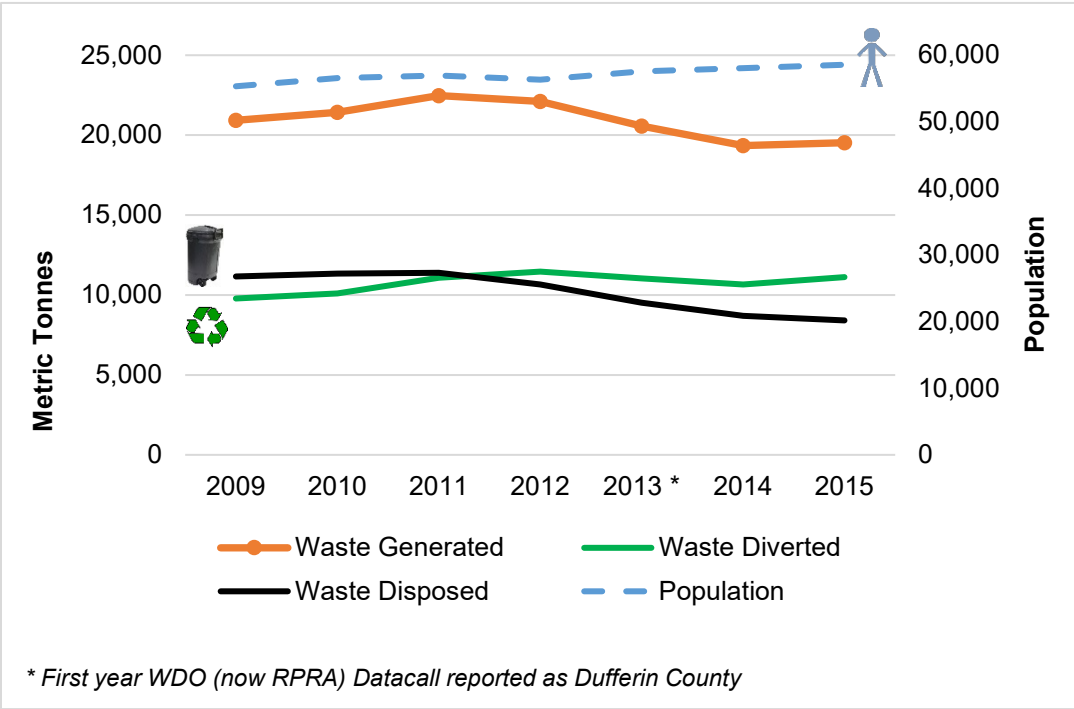
Since 2009, the County's waste diversion rate has steadily increased from 46.7% to 60.3% (see Figure 4). Diverting material from disposal through the Blue Box and Organics programs has been a key factor in this success.

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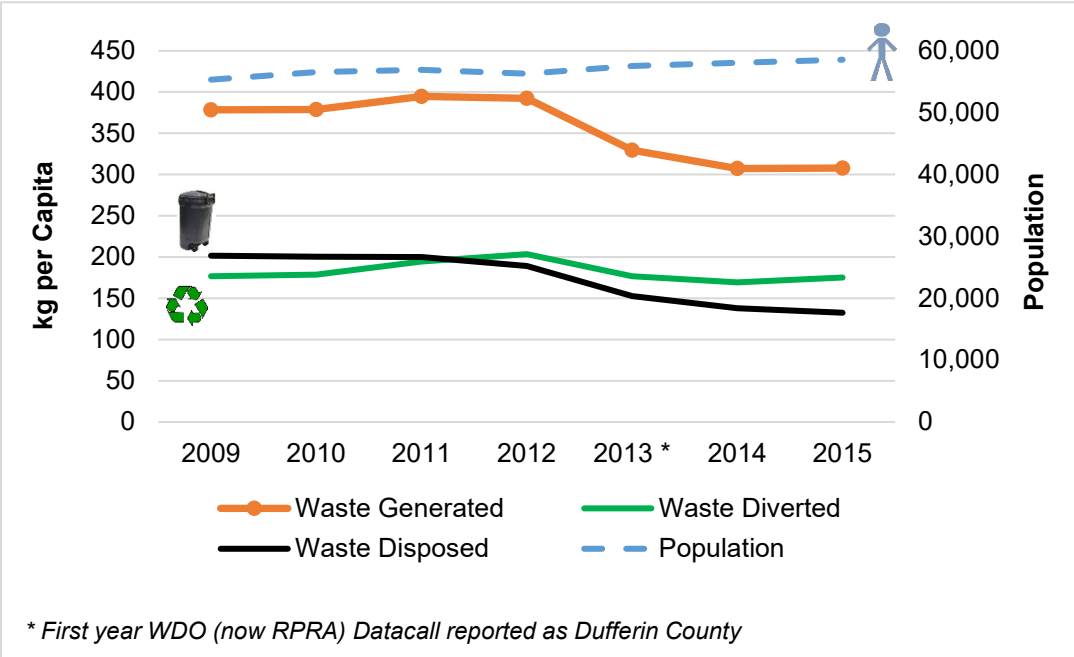
<sup>1</sup> Population and waste management tonnages used in this report are based on data provided by the County for its 2015 RPRA municipal Datacall, which has been reviewed and published by the RPRA.

<sup>2</sup> For the period 2009 to 2012, the municipalities comprising the County reported to WDO (now RPRA) separately. Dufferin County began reporting as a whole to WDO in 2013.

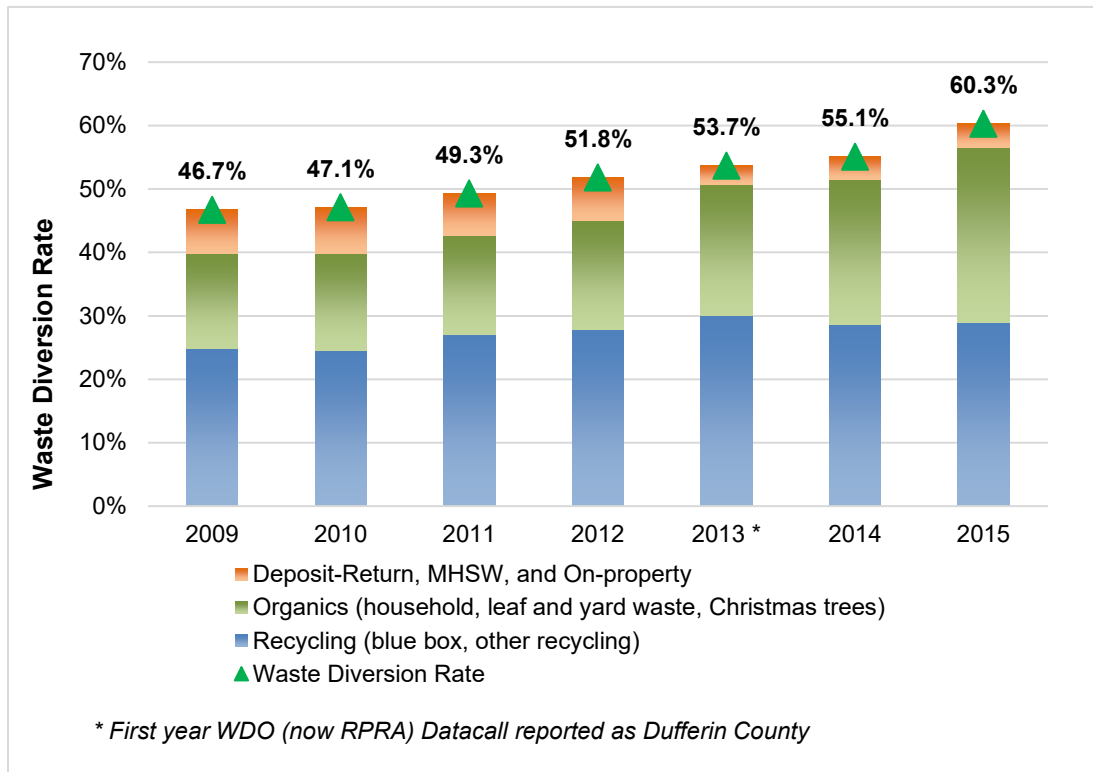
**Figure 2: Dufferin County Annual Waste Generation and Diversion (2009 - 2015)**



**Figure 3: Dufferin County per Capita Waste Generation and Diversion (2009 - 2015)**



**Figure 4: Dufferin County Solid Waste Diversion Rate (2009 - 2015)**



### 3.2 Waste Profile

A profile of the County’s solid waste was generated to help identify opportunities for waste diversion. The solid waste profile was created using the following data sources:

- Dufferin County’s RPRA 2015 Datacall submission - the County’s 2015 Datacall submission was used to supply data on the total amount of waste generated and diverted, as well as diversion tonnages for various programs; and
- CIF Project 711 Ontario Single Family Curbside Audits 2012/2013 (April 2014) - In the absence of actual waste audit data for the County, the results of waste audits completed by the Continuous Improvement Fund (CIF) for the “Rural Regional” municipalities were used to estimate the average composition of the County’s curbside residential solid waste.

It is important to note that because the waste profile was based on the Datacall submission and the CIF waste audit, solid waste materials not captured through these methods may be under-represented in this waste profile. For example, yard waste that is managed on-property (beyond what was accounted for through backyard composting estimates) will not be represented in this waste profile, nor will residential construction and demolition (C&D) waste that is dropped off through private waste management facilities. The implication is that either:

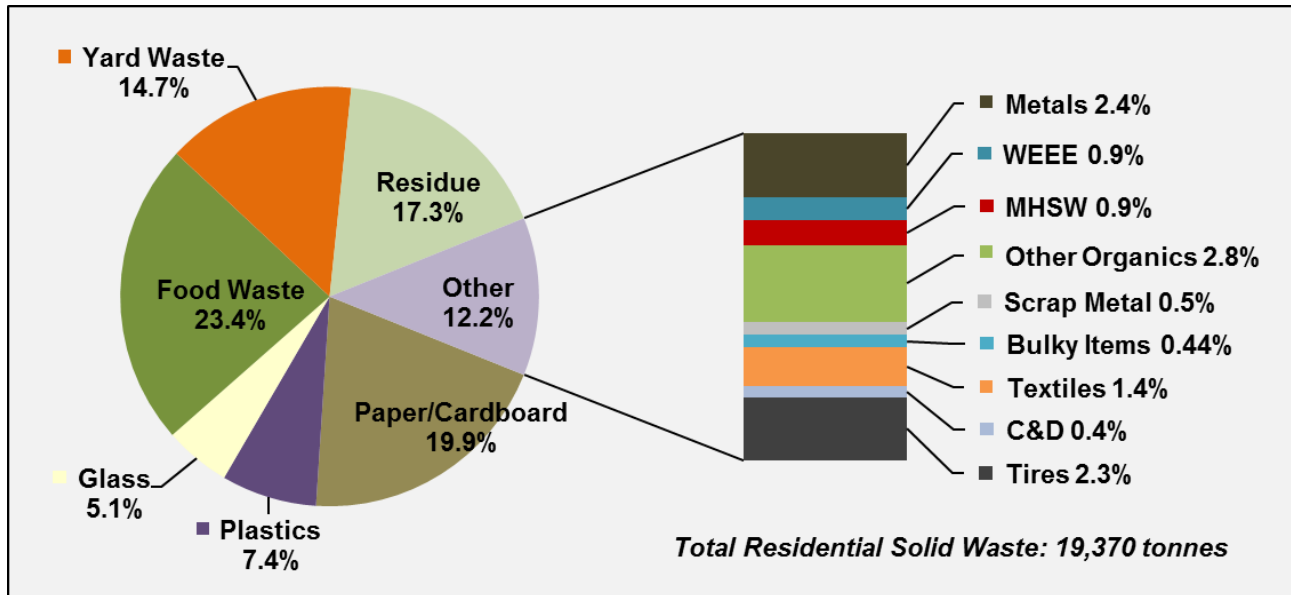
- a) These materials are being managed by the County and, due to lack of available data, these tonnages are unknown; or
- b) These materials are being managed through other avenues and not directly through County-operated programs.

Given the nature of the County’s existing waste management initiatives (e.g. use of clear bags, requirement of bag tags above the 1-bag/container set out limit for garbage, etc.), it is likely that these

materials are not managed through County programs but through other means such as private facilities, on-property management, commercial take-it-back programs, etc.).

Figure 5 below illustrates the estimated waste composition profile for the County. The largest categories of residential solid waste include food waste (23.4%), paper and cardboard (19.9%), residue<sup>3</sup> (17.3%) and yard waste (14.7%).

**Figure 5: Dufferin County Residential Solid Waste Composition (2015)**



### 3.3 Current Programs and Facilities

#### 3.3.1 Garbage Collection and Disposal

Garbage is collected weekly and must be placed in a clear colourless garbage bag, or loose in a garbage container. The County has a partial user pay system in place; residents can set out one bag or container of garbage each week, while additional bags or containers require a garbage tag. Bag tags cost \$2 per tag. The County’s waste guide and website promotes the locations where garbage tags can be purchased.

The County’s garbage program includes “double-up days,” where residents are able to set out two untagged bags or containers of garbage during the weeks of Victoria Day, Labour Day, and New Year’s Day.

Green for Life Environmental (GFL) is contracted for the collection of garbage, which is then exported to Michigan for disposal.

In 2015, the County collected approximately 6,774 tonnes of residential garbage via its curbside collection program, of which 87 tonnes was bulky waste items.

<sup>3</sup> Residue includes waste that either does not fit within the divertible waste categories or is otherwise not feasible to divert in Ontario.

### 3.3.2 Blue Box Recycling

The County offers weekly curbside collection of recyclable material using 83 litre (22 gallon) blue boxes for its single-family residential program and 360 litre (95 gallon) carts for its multi-residential buildings. The material is collected and processed as a single stream program.

In 2015, the County collected approximately 5,926 tonnes of recyclables, of which 5,126 tonnes were marketed. Collection of recyclables is contracted to GFL, and processing is completed by Waste Management of Canada. Table 1 lists the recyclable materials that are accepted or not accepted in the County's Blue Box program.

**Table 1: Dufferin County Accepted Blue Box Materials**

Category	Accepted / Not Accepted
Printed Fibres	✓
Corrugated Cardboard and Boxboard	✓
Gable Top Cartons	✓
Tetra Pak Cartons	✓
Glass	✓
Aluminum Cans	✓
Steel Cans	✓
Other Aluminum & Foil Packaging	✓
Empty Aerosol Cans	✓
Empty Paint Cans	✓
PET Bottles (#1)	✓
HDPE Containers (#2)	✓
Other Bottles & Containers (#3, #4, #5, #7)	✓
LDPE/HDPE Film (#2, #4)	✗
Polystyrene Foam (#6)	✗
Polystyrene Crystal (#6)	✗

### 3.3.3 Organics

The County manages organics through five initiatives:

- Green Bin (Source-Separated Organics);
- Yard waste;
- Loose Leaf collection from certain areas with mature trees;
- Christmas trees; and
- On-property management.

In 2015, these initiatives diverted 5,652 tonnes of organics from disposal. The County's current organic diversion programs are summarized in Table 2.

**Table 2: Organics Management Programs**

<b>Program</b>	<b>Materials Managed</b>	<b>Collection Contract</b>	<b>Processing Contract</b>	<b>Tonnes Diverted (2015)</b>
<b>Green Bin</b>	All food waste Soiled paper products Other compostable items, such as hair and fur, saw dust and wood shavings, etc.  (Does not include items such as dead animals, bandages and medical waste, diapers, pet waste and kitty litter)	GFL	Region of Peel	2,924 tonnes
<b>Yard Waste</b>	Tree / garden / hedge trimmings Grass clippings Leaves Fallen tree fruit	GFL	All Treat Farms	1,789 tonnes
<b>Loose Leaf Collection</b>	Loose (bulk) leaves from boulevard trees in mature areas of Grand Valley, Shelburne and Orangeville	Grand Valley, Orangeville and Shelburne Public Works Departments	All Treat Farms Local farms	368 tonnes
<b>Christmas Trees</b>	Christmas Trees	GFL	All Treat Farms	28 tonnes
<b>On-property Management</b> (e.g. backyard composting, grasscycling)	Food and garden waste Grass clippings	n/a	n/a	307 tonnes

### 3.3.4 Bulky Items and White Goods

Bulky items and white goods (i.e. large appliances and other metal items) are collected by the County via their contract with GFL. Residents must pay a fee for the collection in the amounts of:

- White goods: \$20 per white good (plus \$10 if the item contains refrigerant); and,
- Bulky items: \$20 (up to four bulky items).

Approximately 86 tonnes were collected in 2015 and consisted primarily of bulky item waste.



### 3.3.5 Household Hazardous and Electronic Waste

HHW and electronic wastes are generally collected through Hazardous and Electronic Waste Events, which are held at various locations throughout Dufferin County, between May and October. Materials accepted at these events include:

- Paint;
- Automotive containers, fluids and batteries;
- Household chemicals and cleaning products;
- Lawn and garden products;
- Health products, such as medications, sharps, etc.;
- Various household items such as compact fluorescent lightbulbs, batteries, mercury-containing thermostats, etc.; and
- Various electronic wastes, such as audio equipment, computers and computer parts, electric tools, etc.

The County also operates a curbside battery collection program twice a year. Special bags are mailed out to residents in advance of the battery collection date. Residents place their batteries in the bag and set the sealed bag on top of their blue box for collection.

In 2015, the County diverted 127 tonnes of HHW and 40 tonnes of electronic material.

### 3.3.6 Ontario Stewardship Programs

County residents can also participate in Ontario's stewardship programs. The amount of waste diverted through the Ontario Tire Stewardship (OTS) program and through the LCBO/Deposit-Refund program is estimated to be 451 tonnes of tires and 350 tonnes of deposit-refund alcohol beverage containers.

### 3.3.7 Take it Back Directory

The County provides a directory of businesses and organizations where residents can take items for reuse, recycling or proper disposal. The directory includes 33 categories of materials under "Reuse and Resale" and 37 categories under "Recycling and Proper Disposal".

### 3.3.8 IC&I Waste Management

The County provides some waste collection services to its IC&I (Industrial, Commercial and Institutional) sector. These services include:

- Garbage collection for small waste generators (i.e. those within the 1 bag/container limit);
- Blue Box/Carts collection and processing; and
- Organics collection and processing.

In 2015, the County collected approximately 36 tonnes of garbage, 98 tonnes of recyclables and 16 tonnes of organics from its IC&I customers. These values have not been included in the residential solid waste tonnage estimates or diversion rates.

## 3.4 System Performance

This section summarizes the performance of the County's residential solid waste management program in comparison with other jurisdictions in the County's RPRA municipal grouping. The comparison is based on published RPRA Datacall information for 2014<sup>4</sup> and includes the following topics/programs:

- Overall Residential Waste Diversion;
- Blue Box Recycling;
- Organics;
- Household Hazardous Waste; and
- Solid Waste Disposal.

### 3.4.1 Overall Residential Waste Diversion

Dufferin County's solid waste diversion program performs very strongly compared to other municipal programs and can be considered a waste diversion leader. For example, based on the published 2014 RPRA Datacall information, the County was ranked 2<sup>nd</sup> in its municipal grouping based on its waste diversion rate (55%), following the City of Kingston (63%). The County's waste diversion rate was about 10 percentage points higher than the average for the municipal grouping, and ranked 3<sup>rd</sup> in its grouping with respect to the amount of residential solid waste diverted per household (450 kg/hhld).

The County's waste diversion rate and diversion per household were also above the provincial average shown in Table 3 below (based on participating municipalities in the RPRA Datacall program).

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<sup>4</sup> At the time of the analysis, the RPRA 2015 Datacall information was not yet published. Therefore, the performance comparison was based on the RPRA 2014 Datacall.

**Table 3: Overall Residential Waste Diversion for Rural Regional Municipal Grouping (2014)**

Municipal Program (sorted by Waste Diversion Rate)	Total Households	Solid Waste Diverted	Waste Diversion Rate
<b>Kingston</b>	54,686	540	63%
<b>Dufferin County</b>	23,676	450	55%
<b>Quinte Waste Solutions</b>	64,786	367	54%
<b>Peterborough County</b>	33,286	439	53%
<b>Oxford County</b>	45,160	437	49%
<b>Greater Sudbury</b>	74,100	477	45%
<b>Muskoka District Municipality</b>	48,475	210	45%
<b>Bluewater Recycling Association</b>	73,648	219	44%
<b>Northumberland County</b>	38,591	299	40%
<b>Wellington County</b>	33,109	326	40%
<b>Kawartha Lakes</b>	39,724	306	39%
<b>Bruce Area Solid Waste Recycling</b>	33,394	127	35%
<b>Norfolk County</b>	29,268	297	35%
<b>Chatham-Kent Municipality</b>	47,303	318	33%
<b>North Bay</b>	23,257	276	31%
<b>Average for Municipal Grouping</b>	<b>662,463</b>	<b>345</b>	<b>45%</b>
<b>Ontario Datacall Average (for all 236 Participating Municipalities)</b>	<b>5,363,099</b>	<b>441</b>	<b>48%</b>

Source: 2014 RPRA Datacall data.

### 3.4.2 Blue Box Recycling

The County Blue Box program's recycling performance is very good compared to other jurisdictions in Ontario. As Table 4 shows, the County diverted approximately 419 kg of recyclables per household in 2014 (based on published RPRA Datacall results). This is more than any other municipality within its municipal grouping and is also above the provincial average.

This high level of performance is reflected in the Blue Box program's material recovery rates<sup>5</sup>, which are presented in Figure 6. The figure (which combines the Blue Box program's diversion with diversion through the deposit-refund program) shows that the County has a very high recovery rate (100%) for recyclable fibres (i.e. paper, cardboard and boxboard), moderate recovery rates for recyclable metals and glass (79% and 65%, respectively), and a relatively low recovery rate (compared to the other streams) for

<sup>5</sup> Recovery rate refers to the percentage of a divertible material in a waste stream that is diverted from disposal. For example, if a municipality generates 100 tonnes of recyclable paper waste in its entire waste stream and it diverts 90 tonnes of that material from disposal, then it has a 90% recovery rate for recyclable paper. Similarly, if a municipality generates 50 tonnes of pop can waste in its entire waste stream and it diverts 25 tonnes of that material, then it has a 50% recovery rate for pop cans.

recyclable plastics (42%). Overall, the County has an estimated Blue Box program recovery rate of about 81%. It should be noted that:

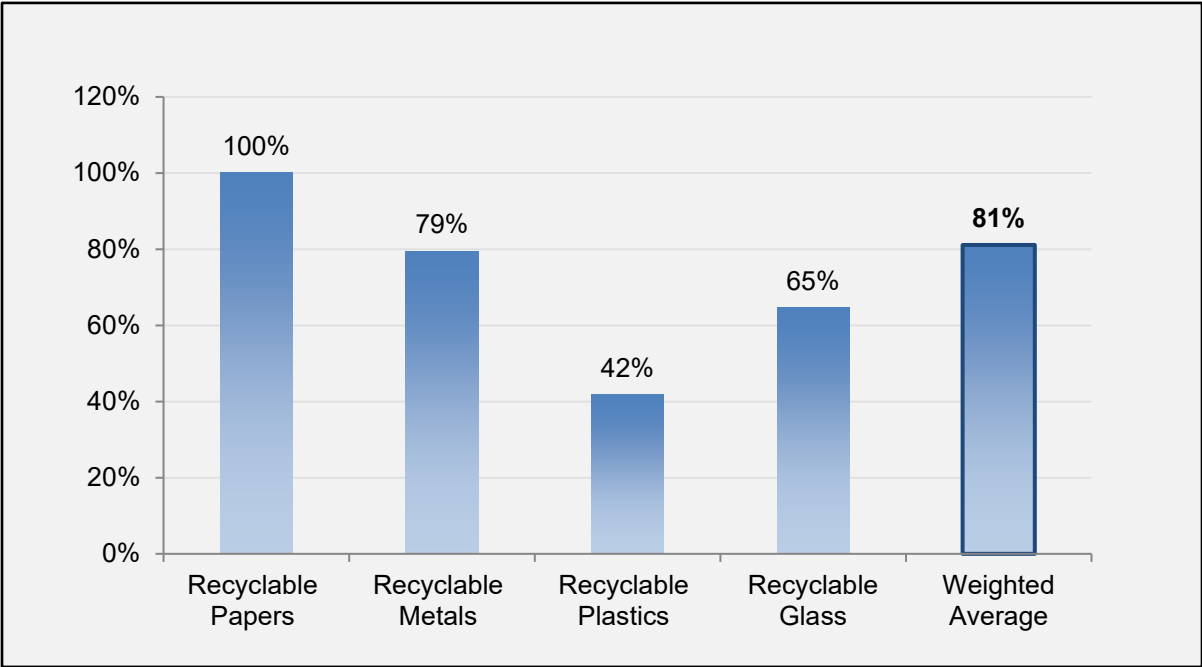
- The calculated recovery rate includes diversion through both the County's Blue Box program and the Provincial deposit-refund program; and
- The category of recyclable plastics includes film and polystyrene, which the County does not collect for recycling. These materials make up about 2.8% by weight (plastic film) and 0.3% by weight (Polystyrene) of the County's solid waste stream.

**Table 4: Annual Marketed Blue Box Material for Rural Regional Municipal Grouping (2014)**

Municipality (sorted by total blue box material per Household, or HHL D)	Total Households	Total Fibres per HHL D (kg)	Total Plastics per HHL D (kg)	Total Metal per HHL D (kg)	Total Glass per HHL D (kg)	Total Blue Box Material per HHL D (kg)
<b>Dufferin County</b>	<b>23,676</b>	<b>157</b>	<b>25</b>	<b>17</b>	<b>14</b>	<b>419</b>
Quinte Waste Solutions	64,786	121	47	11	7	368
Greater Sudbury	74,100	139	21	8	17	357
Kingston	54,686	119	20	8	11	309
Norfolk County	29,268	105	22	10	22	301
Bluewater Recycling Association	73,648	119	13	8	14	297
Peterborough County	33,286	114	16	8	17	297
North Bay	23,257	116	14	8	14	296
Oxford County	45,160	110	15	11	18	294
Wellington County	33,109	103	23	12	13	293
Northumberland County	38,591	117	10	7	19	291
Kawartha Lakes	39,724	103	20	9	13	280
Muskoka District Municipality	48,475	85	19	7	8	231
Bruce Area Solid Waste Recycling	33,394	67	15	9	13	198
Chatham-Kent Municipality	47,303	71	9	4	9	178
<b>Average for Municipal Grouping</b>		<b>110</b>	<b>19</b>	<b>9</b>	<b>14</b>	<b>294</b>
<b>Ontario Datacall Average (for all 236 Participating Municipalities)</b>		<b>124</b>	<b>17</b>	<b>8</b>	<b>17</b>	<b>318</b>

Source: 2014 RPRA Datacall data.

Figure 6: Dufferin County Blue Box Estimated Recovery Rates (2015)



Participation in the County’s Blue Box program by residents appears to be high and stable. A curbside collection participation study was completed by the County in 2016. In that study, 94% of surveyed households were observed to participate in the Blue Box program. This is comparable to a similar study conducted in 2013, where 95% of households surveyed were observed to be participating.



### 3.4.3 Organics

The County is one of five jurisdictions within its municipal grouping that has a curbside Green Bin (i.e. source separated organics) collection program. Table 5 illustrates that the County's organics diversion is very good compared to those within its municipal grouping. For example, in 2014 within its municipal grouping, the County:

- Diverted the most household Organics per household (129 kg/hhld);
- Ranked third based on the amount of total Organics diverted per household (220 kg/hhld); and
- Diverted slightly more than the average amount of yard waste (90 kg/hhld).

**Table 5: Organics Diversion for Rural Regional Municipal Grouping (2014)**

Municipal Program (sorted by Total Organics Diverted)	Total Households	Household Organics Diverted (kg/hhld)	Yard Waste Diverted (including leaves and Christmas Trees) (kg/hhld)	Total Organics Diverted (household + yard waste) (kg/hhld)
<b>Oxford County</b>	45,160	0	313	313
<b>Kingston</b>	54,686	77	232	309
<b>Dufferin County</b>	<b>23,676</b>	<b>129</b>	<b>90</b>	<b>220</b>
<b>Chatham-Kent Municipality</b>	47,303	0	166	166
<b>Greater Sudbury</b>	74,100	29	116	145
<b>Quinte Waste Solutions</b>	64,786	31	50	81
<b>Kawartha Lakes</b>	39,724	0	71	71
<b>Peterborough County</b>	33,286	3	66	69
<b>Northumberland County</b>	38,591	0	62	62
<b>Norfolk County</b>	29,268	0	60	60
<b>Wellington County</b>	33,109	0	40	40
<b>North Bay</b>	23,257	0	37	37
<b>Muskoka District Municipality</b>	48,475	18	9	27
<b>Bluewater Recycling Association</b>	73,648	0	4	4
<b>Bruce Area Solid Waste Recycling</b>	33,394	0	0	0
<b>Average for Municipal Grouping</b>		<b>19</b>	<b>88</b>	<b>107</b>

Source: 2014 RPRA Datacall data.

The County's 2016 curbside collection participation study found that 65% of surveyed households participated in the Green Bin program. This is a decrease of about 14% compared to 2013, where 79% of households were observed to participate.

### 3.4.4 Household Hazardous Waste

Table 6 compares the amount of HHW diverted from the garbage stream for Dufferin County's municipal grouping, based on RPRA data. Based on data from the 2015 Datacall, the County diverted 5.2 kg of HHW per household from the garbage stream. This ranks the County 7<sup>th</sup> in its municipal grouping, with the amount being slightly above the average of 5.0 kg per household for its municipal grouping.

**Table 6: Household Hazardous Waste Managed for Rural Regional Municipal Grouping (2015)**

Program Name (sorted by kg/hhld diverted)	Event Day Tonnes	Depot Tonnes	Total Collected (Tonnes)	Total Households (2015)	Total Collected Kg/hhld
North Bay	-	262	262	23,257	11.3
Kawartha Lakes	24	287	311	40,086	7.8
Peterborough County	1	214	216	33,425	6.5
Northumberland County	-	240	240	38,845	6.2
Muskoka District Municipality	88	182	270	48,520	5.6
Kingston	-	293	293	55,466	5.3
<b>Dufferin County</b>	<b>127</b>	<b>-</b>	<b>127</b>	<b>24,159</b>	<b>5.2</b>
Greater Sudbury	-	385	385	74,799	5.1
Quinte Waste Solutions	76	250	326	65,115	5.0
Wellington County	71	78	149	32,500	4.6
Oxford County	32	139	171	45,858	3.7
Bruce Area Solid Waste Recycling	121	-	121	33,626	3.6
Norfolk County	83	-	83	29,479	2.8
Chatham-Kent Municipality	50	76	126	47,850	2.6
Bluewater Recycling Association	-	10	10	73,648	0.1
<b>Average for Municipal Grouping</b>	<b>67</b>	<b>201</b>	<b>206</b>		<b>5.0</b>

Source: Resource Productivity & Recovery Authority. 2015 Datacall (unpublished data).

### 3.4.5 Solid Waste Disposal

The amount of solid waste disposed per household in the County is lower than average for its municipal grouping (see Table 7). Based on the 2014 RPRA Datacall data, the County disposed of 367 kg of waste per household in 2014, which is about 54 kg less than average for the group, and 112 kg less than the average for all municipalities participating in the RPRA Datacall. The County ranks 6<sup>th</sup> overall in the amount of solid waste disposed per household among the 15 municipalities in its group.

**Table 7: Residential Solid Waste Disposed for Rural Regional Municipal Grouping (2014)**

Municipal Program (sorted by waste disposed)	Total Households	Solid Waste Disposed (kg/hhld)
<b>Bruce Area Solid Waste Recycling</b>	33,394	234
<b>Muskoka District Municipality</b>	48,475	253
<b>Bluewater Recycling Association</b>	73,648	283
<b>Quinte Waste Solutions</b>	64,786	316
<b>Kingston</b>	54,686	317
<b>Dufferin County</b>	<b>23,676</b>	<b>367</b>
<b>Peterborough County</b>	33,286	387
<b>Oxford County</b>	45,160	453
<b>Northumberland County</b>	38,591	457
<b>Kawartha Lakes</b>	39,724	487
<b>Wellington County</b>	33,109	488
<b>Norfolk County</b>	29,268	563
<b>Greater Sudbury</b>	74,100	588
<b>North Bay</b>	23,257	617
<b>Chatham-Kent Municipality</b>	47,303	648
<b>Average for Municipal Grouping</b>		<b>421</b>
<b>Ontario Datacall Average (for all 236 Participating Municipalities)</b>		<b>479</b>

Source: 2014 RPRA Datacall data.



## 3.5 Financial Review of Existing System

### 3.5.1 Financial Overview

A financial review of the County’s residential solid waste management program was prepared based on 2015 costs as reported in the County’s Waste Services June 2016 Departmental Statements. The solid waste program costs have been organized based on the following waste management initiatives:

- Garbage collection and disposal;
- Blue Box program collection and processing;
- Household Organics (Green Bin) program collection and processing;
- Leaf and Yard Waste collection and processing;
- HHW and E-waste;
- On-property diversion;
- Take it Back Program; and
- Promotion and Education.

For the purpose of this financial review, administrative costs (which are contained within its own financial grouping in the statements) have been allocated to each initiative based on tonnage.

Table 8 summarizes the total costs for the County’s residential solid waste management program. In 2015, the total net cost of the program was \$3.58M, or about \$193 per tonne of residential solid waste managed by the County. Garbage collection and disposal comprised the largest portion of the County’s costs, at \$1.62M (net) for collection, disposal, and administration. This is followed by the County’s household Organics collection and processing program, which in 2015 cost approximately \$1.18M (net), including collection, processing, and administration. Table 9 provides a more detailed overview of the expenditures, revenues, and net costs for the County’s solid waste management program.

**Table 8: Solid Waste Management System: Cost Summary (2015)**

Program	Total Cost	Cost per Tonne Managed
<b>Garbage Collection and Disposal (including bulky waste)</b>	\$1,618,097	\$239
<b>Blue Box Collection and Processing</b>	\$187,701	\$32
<b>Household Organics (Green Bin) Collection and Processing</b>	\$1,180,668	\$396
<b>Leaf and Yard Waste Collection and Processing</b>	\$448,133	\$185
<b>Household Hazardous Waste / E-Waste Event Days</b>	\$65,029	\$389
<b>On-Property Diversion</b>	\$6,609	\$22
<b>Take it Back Program</b>	\$5,480	na
<b>Promotion and Education</b>	\$72,697	na
<b>Total Solid Waste Management System *</b>	<b>\$3,584,414</b>	<b>\$193</b>

*\* Note: Total system cost per tonne does not include tonnage from tire and deposit-refund stewardship programs. Including tonnage for those programs as per the 2015 Datacall, reduces the overall system cost per tonne to \$185. Incremental costs associated with IC&I waste collection have not been excluded.*



**Table 9: Solid Waste Management System: Summary of Expenditures and Revenues (2015)**

<i>Item</i>	<i>Cost / Revenue</i>	<i>Cost / Revenue Per Tonne</i>
<b>Expenditures</b>		
Collection	\$1,102,973	\$163
Disposal	\$416,768	\$61
Materials	\$4,450	\$0.66
Administrative	\$151,652	\$22
<b>Revenues</b>		
User Fees (garbage bag tags, etc.)	-\$57,747	-\$9
<b>Expenditures</b>		
Collection	\$712,042	\$120
Processing	\$481,904	\$81
Materials	\$31,484	\$5
Administrative	\$132,596	\$22
<b>Revenues</b>		
CIF/ RPRA Recycling Funding	-\$396,687	-\$67
Recycling Rebate Revenue	-\$773,637	-\$131
<b>Expenditures</b>		
Collection	\$723,766	\$243
Processing	\$345,513	\$116
Materials	\$44,631	\$15
Administrative	\$66,758	\$22
<b>Expenditures</b>		
Yard Waste Collection and Processing	\$313,533	\$129
Vacuum (Loose) Leaf Collection Contract	\$80,277	\$33
Administrative	\$54,323	\$22
<b>Expenditures</b>		
Contract	\$122,430	\$732
Event-related Promotion and Education	\$18,033	\$108
Administrative	\$3,742	\$22
<b>Revenues</b>		
Other Contributions (SO, PCA and OES)	-\$79,176	-\$473
<b>Expenditures</b>		
Administrative	\$6,874	\$22
<b>Revenues</b>		
Sales of Backyard Composters	-\$266	-\$0.86
Promotion and Education (e.g. TIB Directory, advertising, etc.)	\$5,480	
Program Promotion (e.g. collection guide, mobile App, etc.)	\$64,461	\$3.33
Public Awareness/Public Events	\$8,236	\$0.42
<b>Total Program Cost / Tonne (managed by County)</b>	<b>\$193</b>	
<b>Total Program Cost / Tonne (Whole system tonnes)</b>	<b>\$185</b>	

### 3.5.2 The Blue Box Marketplace

While the County's bid process for waste collection and processing contracts drive most of the costs to manage solid waste in Dufferin County, revenue from the sale of recyclables recovered through the Blue Box program provide the single greatest opportunity to offset those costs. The potential revenue from the sale of the recovered recyclables is based on two key factors:

- The commodities value of the recyclable materials; and
- The monetary penalties charged by the contractor for contaminated material in loads of recyclables received at the processing facility.

Unfortunately, the County's influence of these two factors is somewhat limited, however, they can be influenced indirectly and directly through the consumer and recycling behaviours of the general public. These factors are discussed below.

#### Blue Box Commodities Value

When recyclable material is collected curbside in blue boxes, it is delivered to a processing facility where the material is sorted, baled, and shipped to market where it is then turned into new products. Recyclable materials are commodities that can be sold into the marketplace, and the price for those commodities can vary depending on the state of the economy and the demand for recyclable material. Typically, a stronger economy results in a stronger demand for recyclable material which can result in higher commodity values. For example, Figures 7 and 8, which present the yearly average commodity values for select recyclables collected in the Blue Box program, show that values can vary significantly between materials and from year to year. For example, the average per tonne value for aluminium cans reached a high of \$2,200 in 2006, but then dropped to about \$1,200 in 2009. The least valued commodity material is glass, which has a negative revenue value. In 2016, the annual average market revenue per tonne for glass was *negative* \$36 per tonne<sup>6</sup> (i.e. the County paid \$36 per tonne to have the material recycled).

The market price highs and lows can significantly affect the revenue municipalities receive from the sale of their recyclable material, which in turn has a significant impact on their waste management budget. For example, in 2015 the County's revenue from the sale of recyclable material offset 60% of the Blue Box program collection and processing costs. If commodity prices rise, then the offset can be greater, however, if commodity prices decline, then less of the program cost is offset.

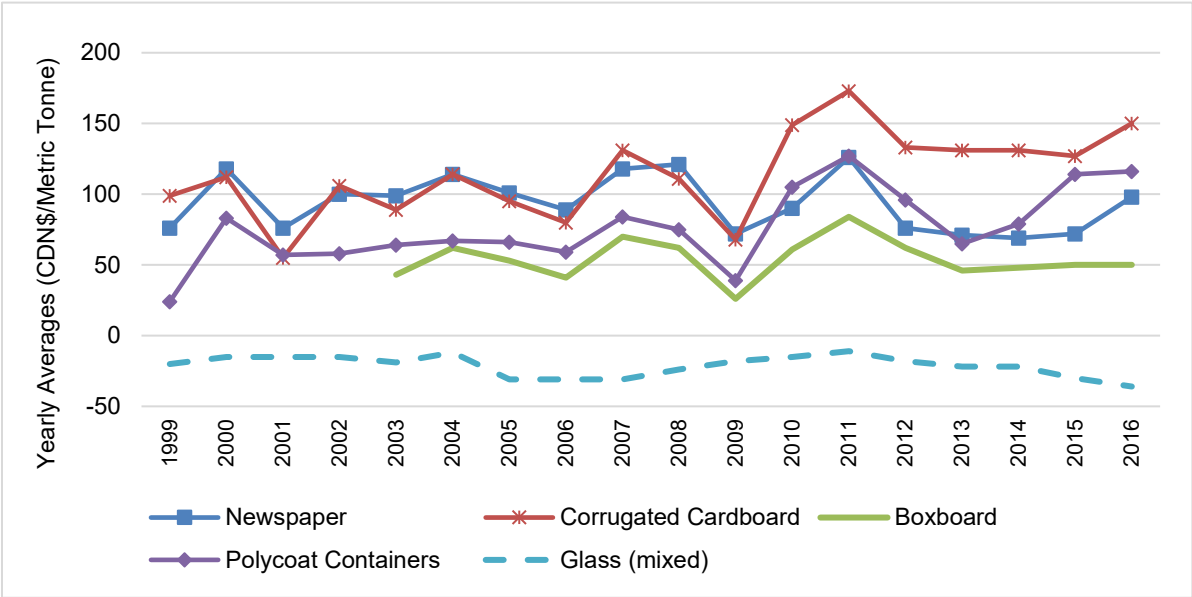
While the County cannot directly affect commodity prices for recyclable materials, one way for consumers as a whole to increase the demand and therefore, the market value for recyclable material, is to ensure the products they purchase include post-consumer recycled content.

Another way for County residents to directly impact the amount of revenue received through the sale of recyclables is by limiting contamination in curbside blue box program, which is discussed in the following section.

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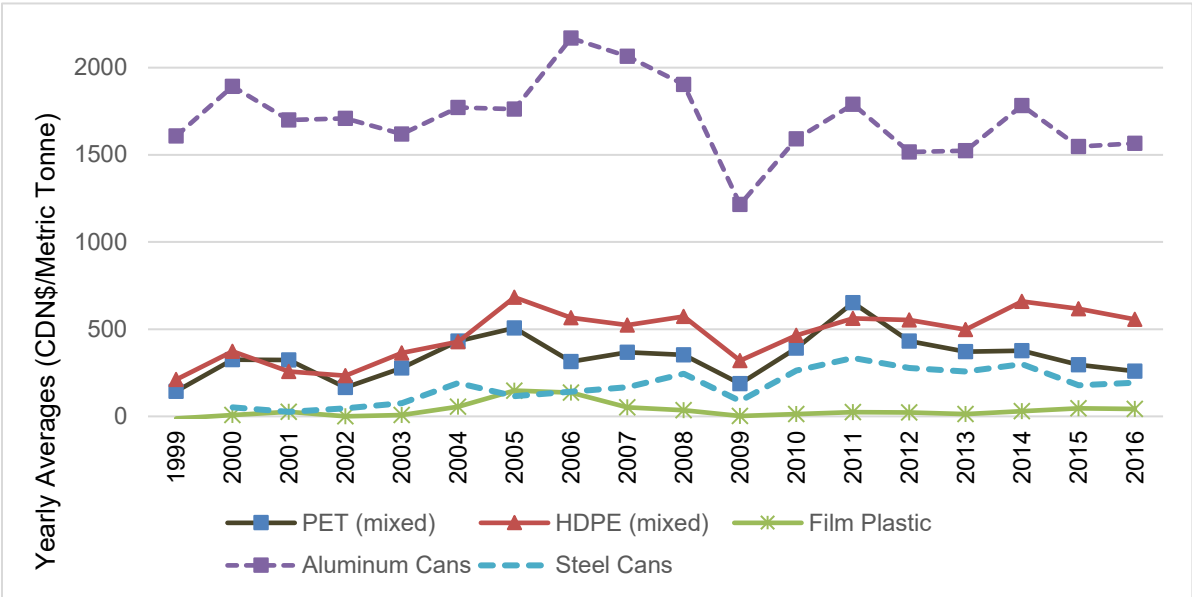
<sup>6</sup> Continuous Improvement Fund. *Price Sheet – December 2016*. <http://reclaystewardedge.com/wp-content/uploads/2013/05/Dec-2016-Price-Sheet.pdf>.

**Figure 7: Yearly Average Market Price - Blue Box Fibres and Glass**



Source: Continuous Improvement Fund. Price Sheet – December 2016.

**Figure 8: Yearly Average Market Price - Blue Box Plastics and Metals**



Source: Continuous Improvement Fund. Price Sheet – December 2016.



## Blue Box Contamination

Generally, the County receives revenue based on market value for the recyclable material it recycles<sup>7</sup>. However, not all of the material that is collected through the Blue Box program can be recycled such as garbage, Organics or other non-recyclable program material that is incorrectly placed into the blue box. This material, which is considered to be contamination (or residue), is removed at the processing facility, and disposed.

Recyclable material processing facilities typically have a percent of contamination that they are willing to accept, and for the County this amount is 10% (i.e. 10% of the material by weight collected through the Blue Box program is allowed to be contamination). When the contamination level exceeds 10%, the County is charged a fee for the amount of contamination above 10%. For example, in 2014 the amount of contamination in the County's recycling program above the processing facility's 10% threshold was 340 tonnes, which resulted in approximately \$22,100 of lost revenue. In 2015 only 230 tonnes of contamination above the 10% threshold was processed, which reduced the amount of lost revenue to approximately \$14,700. Through improved recycling practices (i.e. increased diversion, reduced contamination, etc.), revenue loss to the County due to contamination levels could be greatly reduced.

## Other Factors

Other factors that can negatively influence revenues received through the Blue Box program include:

- **Reduced Household Participation** - when households reduce their participation in the Blue Box program, the amount of recyclable material collected, processed and recycled is reduced which in turn, reduces the amount of revenue generated for material sold.
- **Curbside Scavenging** - curbside scavenging occurs when scavengers remove the valuable material from blue boxes set out at the curb for collection by the County. The remaining material managed by the County is the light-weight and less valuable material, resulting in lost revenue that would offset the cost for collection and processing.
- **Collection/Processing Contracts** - the terms and conditions of the County's Blue Box program collection and processing contracts influence how much revenue is retained by the County and/or the processor. For example, the County's current processing contract stipulates that 100% of the revenues from the sale of recycled material is retained by the County. For future contracts, this could potentially be adjusted to share revenue with the Contractor which may reduce processing costs and risk to the County for fluctuating commodity markets.

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<sup>7</sup> The exception for this is glass, which in 2015 cost the County on average \$60 per tonne to recycle.

## 4. Waste Diversion Opportunity Analysis

A Waste Diversion Opportunity Analysis (see Table 10) was conducted to identify opportunities available to the County for increasing its waste diversion rate. The Waste Diversion Opportunity Analysis was completed using the following steps:

- The total amount of divertible material in the County's waste stream was estimated, for each category of divertible material, based on the waste composition analysis presented in Section 2.2 and the total estimated amount of solid waste generated in 2015. For some materials, such as yard waste and C&D waste, the amount of material available for diversion may be underestimated;
  - For this exercise, a target recovery rate<sup>8</sup> of 80% was assumed. This is considered to be a progressive target for diversion.
- The amount of material available by category for diversion was calculated based on an assumed recovery rate for the total amount of material in the waste stream. For example, if 100 tonnes of material was estimated for a waste category and the recovery target was 80%, then the amount of that material available for diversion would be 80 tonnes;
- The amount of potential material remaining in the waste stream that could be diverted from disposal was calculated for each category of divertible waste; and
- The amount of divertible material remaining in the waste stream for each category was then used to estimate (as a percentage) how much more diversion could potentially be added to the existing performance.

The results of the waste diversion analysis indicate the following (based on a waste recovery rate of 80%):

- The main opportunities for additional diversion are food waste and other organics (+5.9%, or about 1,143 tonnes) and plastics (+2.8%, or about 550 tonnes);
- Other possible opportunities for increased waste diversion include:
  - Blue box/deposit-refund glass (+0.8%, or about 150 tonnes)
  - Electronic waste (+0.5%, or about 95 tonnes);
- The County appears to be capturing nearly all its recyclable fibres (an estimated 100% recovery rate). This number is supported by the RPRA Datacall information, i.e. the County has the highest tonnage per household for its municipal grouping; and
- While the County does not currently have a textile recycling program in place (beyond encouraging textile take back through its "Take it Back" directory), textiles appear to provide some opportunity for additional diversion (+1.1%, or 220 tonnes).

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<sup>8</sup> Recovery rate refers to the percentage of a divertible material in a waste stream that is diverted from disposal. For example, if a municipality generates 100 tonnes of recyclable paper waste in its entire waste stream and it diverts 90 tonnes of that material from disposal, then it has a 90% recovery rate for recyclable paper. Similarly, if a municipality generates 50 tonnes of pop can waste in its entire waste stream and it diverts 25 tonnes of that material, then it has a 50% recovery rate for pop cans.

**Table 10: Waste Diversion Opportunity Analysis**

Waste/Resource Material	Estimated Residential Waste Composition (%)	Total Divertible Material in Waste Stream (tonnes) <i>Based on 19,370 total annual tonnes</i>	Material Available for Diversion (tonnes) <i>Based on 80% Recovery Target</i>	Material Currently Diverted (tonnes)	Available Material Remaining in Waste Stream for Diversion (tonnes)	Material Remaining in Waste Stream for Diversion (% of total waste stream)
Papers (ONP, OMG, OCC, OBB and fine papers)	19.9%	3,868	3,094	3,871	nil	0.0%
Metals (aluminum, steel, mixed metal)	2.4%	461	369	367	2	0.0%
Plastics (containers, film, tubs and lids)	7.4%	1,429	1,143	597	547	<b>2.8%</b>
Glass	5.1%	992	794	641	152	<b>0.8%</b>
Electronic Waste	0.9%	170	136	40	95	<b>0.5%</b>
Household Hazardous Waste	0.9%	181	145	127	18	0.1%
Food Waste	23.4%	4,539	3,631	2,928	704	<b>3.6%</b>
Yard Waste	14.7%	2,850	2,280	2,724	nil	0.0%
Other Organics	2.8%	549	439	0	439	<b>2.3%</b>
Scrap Metal	0.5%	98	79	0	79	0.4%
Bulky Items	0.44%	91	73	5	68	0.4%
Textiles	1.43%	277	222	0	222	<b>1.1%</b>
C&D	0.45%	87	69	0	69	0.4%
Tires	2.3%	451	361	451	nil	0.0%
<b>Total Divertible Materials</b>	<b>82.7%</b>	16,045	12,836	11,750	<b>2,396</b>	<b>12.4%</b>
<b>Residue</b>	17.3%					
<b>Current Diversion Rate of Divertible Material</b>				<b>60.3%</b>		
<b>Potential Future Diversion Rate (if 80% Recovery Target is reached)</b>						<b>73%</b>
<b>Potential Diversion Rate (if 100% recovery rate is reached)</b>						<b>83%</b>





## 5. Identification and Evaluation of Options

## 5.1 Overview

A total of 27 potential solid waste management options were reviewed in the preparation of the County's LTWMS. The Long List of options was based in part on a desktop literature review of waste management best practices, consultation with County staff, and programs implemented in other municipal waste management jurisdictions in Ontario, North America, and internationally. The waste management program option categories reviewed for the Long List included:

- Waste Reduction and Reuse;
- Recycling;
- Organics Management;
- Waste Collection/Receiving;
- Promotion and Education;
- Municipal Policy;
- Industrial, Commercial and Institutional (IC&I);
- Other Opportunities; and
- Disposal/Processing.

Table 11 below provides a summary of the options reviewed as part of the Long List and identifies which options were carried forward to the Short List review. The options recommended for the County's LTWMS are discussed in Section 6.

**Table 11: Overview of Options Long List**

<b>Waste Reduction and Reuse</b>	<b>Short List (Yes/No)</b>
<b>1. Promote on-site management of organics</b> Foster greater uptake of backyard composting and grasscycling.	<b>Yes</b>
<b>2. Food waste reduction campaign</b> Consider the development or licencing of a food waste reduction campaign. For example, the organization WRAP UK has developed a successful food waste reduction campaign titled Love Food Hate Waste. The campaign has expanded internationally to places like Australia and has been licenced in Canada by Metro Vancouver. Sustain Ontario has also recently developed a municipal toolkit for reducing household food waste.	<b>Yes</b>
<b>Recycling</b>	
<b>3. Expand curbside capacity for collection of recyclables</b> Assess the feasibility of enhancing recyclables collection by providing residents with additional blue boxes free of charge or changing to recycling carts.	<b>Yes</b>  (blue boxes)
<b>4. Add additional materials to the recycling program</b> Consider the feasibility of adding items to the list of materials accepted in the Blue Box program, specifically plastic film and polystyrene (Styrofoam) (or other materials as they become feasible to recycle). Consider whether material should be collected via a curbside or depot program, and whether there is an advantage to including polystyrene densification.	<b>Yes</b>  (included based on consultation)

<b>5.</b>	<b>Review public space recycling</b>  Prepare and implement a strategy for public space recycling in partnership with the local municipalities. Items to consider include: placing recycling bins at rural post office boxes; use of solar compactor recycling bins; use of public space art or advertising on public space recycling/waste receptacles; sponsorship of public recycling bins by local businesses, etc.	<b>Yes</b>
<b>6.</b>	<b>Textile recycling</b>  Consider opportunities for the collection, and recycling or reuse of textiles. This could include collaboration with local textile reuse organizations or the recovery of textiles for recycling into new textiles.	<b>Yes</b>
<b>7.</b>	<b>Agricultural waste diversion support</b>  While not a waste stream currently managed by the County, the County could work with the local agricultural community to help identify and act on opportunities for the recycling of agricultural wrap for example, and diversion of other materials.	<b>Yes</b>
<b>Organics Management</b>		
<b>8.</b>	<b>Increase support for household organics collection and composting</b>  Consider development of a multi-pronged curbside organics diversion strategy to increase the capture of household organics through the Green Bin (source-separated organics) program. The strategy could include: <ul style="list-style-type: none"> <li>• Research on behaviour and barrier identification (waste audits, behaviour and attitude research, etc.);</li> <li>• Identification of methods for removing or addressing the identified barriers (e.g., promotion and education, tools etc.); and</li> <li>• Implementation.</li> </ul>	<b>Yes</b>
<b>9.</b>	<b>Review leaf and yard waste collection and composting</b>  Consider enhancing the leaf and yard waste program by extending its frequency and/or catchment.	<b>No</b>
<b>Waste Collection/Receiving</b>		
<b>10.</b>	<b>Assess garbage collection frequency (every other week collection)</b>  Collect garbage every other week (EOW) rather than every week.	<b>Yes</b>
<b>11.</b>	<b>Assess collection using carts</b>  In addition to using carts for the collection of recyclables (see option 3), assess the feasibility of introducing automated or semi-automated curbside cart collection of both garbage and recyclables.	<b>No</b>

<b>Promotion and Education</b>		
<b>12.</b>	<p><b>Conduct targeted/expanded promotion and education</b></p> <p>Develop/implement targeted promotion and educational campaigns, and expand the County’s current educational activities through a Promotion and Education Strategy. This could include:</p> <ul style="list-style-type: none"> <li>• Targeted promotion of waste reuse and reduction initiatives;</li> <li>• Improving diversion of specific items through targeted campaigns;</li> <li>• Implementing incentive/recognition programs for exceptional recycling efforts by households, businesses or organizations;</li> <li>• Enlisting the help of “community champions”;</li> <li>• Enhancing the existing municipal website with online waste management information tools such as an “environmental impact calculator”;</li> <li>• Increasing education and presentations to schools and other organizations;</li> <li>• Enhancing targeted promotion and education in multi-residential buildings; and</li> <li>• Expanding waste management promotions at public events.</li> </ul>	<b>Yes</b>
<b>13.</b>	<p><b>Promote “Green” purchasing</b></p> <p>Promote green purchasing practices among municipal departments, local businesses and the general public. This may include: promotion of pre-cycling; promotion of the link between purchasing decisions and waste/the environment; educating businesses on green purchasing practices for their sector, etc.</p>	<b>Yes</b>
<b>14.</b>	<p><b>Encourage events to be “Zero Waste”</b></p> <p>Consider a policy requiring municipal events or other public events held on municipal property to be “zero waste”. Develop/promote/distribute available tools and resources. Include “zero waste” provisions in the permitting process for event coordinators.</p>	<b>Yes</b>
<b>15.</b>	<p><b>Encourage Extended Producer Responsibility (EPR)</b></p> <p>Encourage greater EPR. Participate in lobby efforts at the provincial and federal level to increased EPR. Promote existing EPR opportunities, such as existing take-back programs, and provincial EPR programs (e.g., Orange Drop, WEEE, MHSW, etc.)</p>	<b>Yes</b>
<b>Municipal Policy</b>		
<b>16.</b>	<p><b>Consider maximum bag limit</b></p> <p>Limit the total number of garbage bags that households can set out at the curb for collection with garbage tags.</p>	<b>Yes</b>
<b>17.</b>	<p><b>Shift to full user pay</b></p> <p>Reduce the number of garbage bags or bins that can be set out at the curb without a user fee (e.g. bag tag) from 1 to zero.</p>	<b>Yes</b>
<b>18.</b>	<p><b>Enforcement of Waste Collection By-Law</b></p> <p>Update and enforce the applicable elements of the existing Waste Collection By-Law. Add guidelines to encourage diversion and provide municipal staff with the legal means to enforce desired behaviours (e.g., source separation) and curtail undesired behaviours (e.g., scavenging).</p>	<b>Yes</b>
<b>19.</b>	<p><b>Preparation of Multi-Residential development standards</b></p> <p>Consider updating existing multi-residential development standards and other related guidelines to ensure multi-residential developments and retrofits include appropriate infrastructure for waste diversion programs.</p>	<b>Yes</b>

IC&I		
<b>20.</b>	<b>Promotion of waste minimization/diversion in the IC&amp;I sector</b>  Develop a strategy to encourage the local Industrial, Commercial and Institutional (IC&I) community to increase waste minimization/diversion. Possible strategy elements may include: a recognition program; incentives for environmental leadership (e.g., becoming registered in RCO's #3RCertified program); forming a sector-specific waste minimization working group; form partnerships with local NGO's to help deliver outreach; distribute/promote already existing tools and resources; include waste diversion/management clauses in municipal permits, etc.	<b>Yes</b>
<b>21.</b>	<b>Establish a strategy for Construction and Demolition (C&amp;D) recycling</b>  Develop a strategy for C&D recycling. Elements of the strategy could include partnering with private sector facilities or establishing a depot to receive/sort/process C&D waste for diversion; policy instruments to encourage C&D recycling; promotion of a County program, and implementation of C&D waste diversion best practices.	<b>No</b>
Other Opportunities		
<b>22.</b>	<b>Explore multi-municipal partnerships for waste management services</b>  Explore opportunities for partnerships with other municipalities including regionalization of services that will make waste management activities more effective and efficient. This may include shared collection and processing contracts or facilities.	<b>Yes</b>
<b>23.</b>	<b>Expand MHSW and E-waste diversion program</b>  Consider a possible combination of constructing a permanent MHSW depot with remote MHSW collection events.	<b>Yes</b>
Disposal/Processing		
<b>24.</b>	<b>Develop a new landfill site</b>  Develop a new landfill site within the County to dispose of the County's waste.	<b>No</b>
<b>25.</b>	<b>Develop an Energy from Waste facility</b>  Develop an Energy from Waste facility (either independently or in partnership with other municipalities) for the disposal of the County's waste.	<b>No</b>
<b>26.</b>	<b>Develop a Mechanical Biological Treatment facility</b>  Develop a Mechanical Biological Treatment facility within the County to process and stabilize the County's solid waste.	<b>No</b>
<b>27.</b>	<b>Continue to export garbage</b>  Continue with the existing practice of contracting out disposal of the County's solid waste.	<b>Yes</b>

## 5.2 Ranking and Scoring System

Each of the options in the Long List were screened for the preliminary options Short List using the following criteria:

- Potential diversion – how much waste the option could potentially divert from disposal (which will be shown as part of the County’s overall diversion rate, or through on-site or waste reduction activities that may or may not be measured through the RPRA Datacall);
- Potential environmental benefits – this could include reductions in global greenhouse gas emissions from recycling or composting, conservation of natural resources, or avoidance of landfilling of toxic items, etc.;
- Potential cost – the anticipated cost of the option; and
- Ease of implementation – how simple or challenging it would be to implement the option, considering technical, public participation, and environmental approval challenges.

The screening criteria are based on the three pillars of sustainability, including:

- Environment: this pillar is represented by the “Potential Environmental Benefits” criterion;
- Economy: this pillar is represented by the “Potential Cost” criterion; and
- Society: this pillar is represented by the “Ease of Implementation” criterion, which considers the social acceptability of the option.

Additionally, “Potential Diversion” was included as a screening criterion as it directly relates to a key purpose of the LTWMS, which is the increased diversion of solid waste from disposal.

The short-listed options were organized into six priority groups. The orders of priority were generated based on the potential economic savings or costs per tonne the option could potentially divert from disposal and, based on the consultation feedback, the anticipated level of public support. Table 12 presents how the options were prioritized. For example:

- Options that provide anticipated cost savings and have a high level of support were considered to be high priority and were placed in the 1<sup>st</sup> priority group
- Options that had an operating cost of less than \$200 per diverted tonne and considered to have a high level of public support were placed in the 2<sup>nd</sup> priority group.
- Options that provided anticipated cost savings but were only anticipated to receive a medium level of public support were placed in the 3<sup>rd</sup> priority group.
- Options that had an operating cost of less than \$200 per diverted tonne and were anticipated to receive a medium level of public support were placed in the 4<sup>th</sup> priority group.
- All remaining options, including those that cost more than \$200 per diverted tonne or were anticipated to receive a low level of public support, were placed in the 5<sup>th</sup> priority group.

Consideration for the order in which the options were recommended for implementation included capital costs, anticipated diversion, and other factors that may affect the success of their implementation.

**Table 12: Options Prioritization**

Order of Priority	Anticipated Savings or Cost per Tonne of Waste Diverted	Anticipated Level of Support
<b>1<sup>st</sup> Priority Group</b>	Anticipated cost savings	High
<b>2<sup>nd</sup> Priority Group</b>	Operational costs less than \$200 per tonne of waste diverted	High
<b>3<sup>rd</sup> Priority Group</b>	Anticipated cost savings	Medium
<b>4<sup>th</sup> Priority Group</b>	Operational costs less than \$200 per tonne of waste diverted	Medium
<b>5<sup>th</sup> Priority Group</b>	All remaining options	

Table 13 presents a summary of the estimated costs and anticipated diversion of the short-listed waste diversion options, including the anticipated savings or cost per tonne of waste diverted and the anticipated level of support.

**Table 13: Summary Review of Short-Listed Waste Diversion Options**

#	Option	Potential Diversion (Tonnes)	Estimated Capital Cost	Estimated Operational Cost	Capital Cost per Tonne Diverted	Operating Cost or Savings per Tonne Diverted	Anticipated Level of Public Support
<b>Waste Reduction and Reuse</b>							
1a	Promote on-site management of organics (BYC)	84	\$29,525	\$1,751	\$354	\$21	High
1b	Promote on-site management of organics (e.g. grasscycling)	100	\$1,000	\$1,000	\$10	\$10	High
2	Food waste reduction campaign	500	\$17,000	-\$57,866	\$34	-\$116	High
<b>Recycling</b>							
3	Expand curbside capacity for collection of recyclables: additional Blue Box	388	-	\$20,040		\$52	High
4a	Add additional materials to the recycling program: Polystyrene (Styrofoam)	45	-	\$13,660	-	\$304	High
4b	Add additional materials to the recycling program: Plastic film	97	-	\$48,318	-	\$498	High
5	Public space recycling	2	\$50,000	\$1,600	\$25,000	\$800	High
6	Textile recycling	222	\$6,500	unknown	\$29	-	High
7	Agricultural waste diversion support	unknown	\$2,000	\$1,000	-	-	High
<b>Organics Management</b>							
8	Increase support for household organics collection and composting	1,143	\$18,000 (plus \$60,120 for relaunch)	\$63,077	\$68 (includes relaunch)	\$55	High
<b>Waste Collection</b>							
9	Assess garbage collection frequency (EOW garbage collection)	970	\$5,000	-\$110,000	\$5	-\$113	Medium
<b>Promotion and Education</b>							
10	Conduct targeted/expanded promotion and education	776	\$13,000	\$11,322	\$17	\$15	High



#	Option	Potential Diversion (Tonnes)	Estimated Capital Cost	Estimated Operational Cost	Capital Cost per Tonne Diverted	Operating Cost or Savings per Tonne Diverted	Anticipated Level of Public Support
11	Promote "Green" purchasing	194	existing promotion/education costs	existing promotion/education costs	-	-	High
12	Encourage events to be "Zero Waste"	19	existing promotion/education costs	existing promotion/education costs	-	-	High
13	Encourage Extended Producer Responsibility (EPR)	-	existing administrative and promotion/education costs	existing administrative and promotion/education costs	-	-	High
<b>Municipal Policy</b>							
14	Consider a maximum bag limit	67	\$2,000	nil	\$30	-	Low
15	Shift to full user pay	67	\$3,000	Revenue neutral	\$45	Revenue neutral	Low
16	Enforcement of Waste Collection By-law	undetermined	-	\$1,000	-	-	Medium
17	Preparation of multi-residential development standards	580	\$8,000	-	\$14	-	Medium
<b>Industrial, Commercial and Institutional (IC&amp;I)</b>							
18	Promotion of waste minimization/diversion in the IC&I sector	unknown	existing promotion/education costs	existing promotion/education costs	-	-	High
<b>Other Opportunities</b>							
19	Explore multi-municipal partnerships for waste management services	unknown	existing administrative costs	existing administrative costs	-	-	High
20	Expand MHSW and E-waste diversion program	133	\$375,000	\$14,561	\$2,821	\$110	High

The ranking of short-listed waste management options, based on the evaluation, included<sup>9</sup> the following:

- **1st Priority Group:**
  - Option 2: Food waste reduction campaign
- **2nd Priority Group:**
  - Option 1a: Promote on-site management of organics (i.e. backyard composting, BYC)
  - Option 1b: Promote on-site management of organics (e.g. grasscycling)
  - Option 3: Expand curbside capacity for collection of recyclables: Additional blue box
  - Option 6: Textile recycling
  - Option 7: Agricultural waste diversion support
  - Option 8: Increase support for household organics collection and composting
  - Option 10: Conduct targeted/expanded promotion and education
  - Option 11: Promote “Green” Purchasing
  - Option 12: Encourage Events to be “Zero Waste”
  - Option 13: Encourage Extended Producer Responsibility (EPR)
  - Option 18: Promotion of Waste Minimization/Diversion in the IC&I sector
  - Option 19: Explore multi-municipal partnerships for waste management services
  - Option 20: Expand MHSW and E-waste diversion program
- **3rd Priority Group:**
  - Option 9: Assess garbage collection frequency (every-other-week, EOW)
- **4th Priority Group:**
  - Option 16: Enforcement of Waste Collection By-law
  - Option 17: Preparation of Multi-Residential development standards
- **5th Priority Group:**
  - Option 4a: Add additional materials to the recycling program: Polystyrene (i.e. Styrofoam)
  - Option 4b: Add additional materials to the recycling program: Plastic film
  - Option 5: Review public space recycling
  - Option 14: Consider a maximum bag limit
  - Option 15: Shift to full user pay

As continuing the export of solid waste was the only disposal option and will be a continuation of the existing program, it is not included in the list of options above.

Section 6 discusses the recommended options for the LTWMS and their implementation.

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<sup>9</sup> Note: options are organized within the priority groups based on option number; the order within the groups does not reflect order of implementation or magnitude of diversion.

## 6. Recommended Solid Waste Management Options

## 6.1 1st Priority Group

### 6.1.1 Food Waste Reduction Campaign

#### Description of Initiative

Based on the increasing number of municipalities participating in food waste reduction campaigns, awareness on the issue of food waste has grown in recent years. For example, in 2014 the Food and Agriculture Organization (FAO) of the United Nations has reported on the issue of food waste in its *Global Initiative on Food Loss and Waste Reduction* report. In Canada, the National Zero Waste Council released its *National Food Waste Reduction Strategy* in March 2017. In November 2017, the Ontario Ministry of Environment and Climate Change (MOECC) released its proposed Food and Organic Waste Framework for consultation, which includes direction to work with municipalities on food waste reduction.



Avoidable food waste is considered food waste that could have otherwise been consumed. For example, this may include food that has spoiled or that has been cooked but not eaten. Unavoidable food waste would include items such as carrot top trimmings, peelings from food preparation, or the inedible parts of food (e.g., apple cores). Based on waste audits from other Ontario municipalities, on average 33% of food waste is considered avoidable.

Implementation of a County Food Waste Reduction campaign can prevent avoidable food waste from entering the waste stream and, therefore, reduce Green Bin collection and processing costs for the County.

The Food Waste Reduction campaign will divert approximately 2.6% of the waste stream from disposal, assuming that the amount of avoidable food waste is reduced by 50%. The estimated cost to prepare and implement a Food Waste Reduction campaign is approximately \$17,000, although the potential cost savings from reduced processing costs is about \$58,000. The campaign costs include:

- Develop the Food Waste Reduction Campaign Plan: \$8,000;
- Develop communication materials: \$7,000; and
- Implement the Food Waste Reduction Campaign: \$2,000.

#### Implementation

The steps to implement a Food Waste Reduction Campaign include:

1. Continue with the County's participation in the Municipal Waste Association's (MWA) Organics Committee and other networking opportunities to ensure the County keeps abreast of food waste reduction initiatives in Ontario, the rest of Canada, and elsewhere.
2. When planning waste audits for Dufferin County, ensure that avoidable food waste is included as a waste category (along with all food waste and compostable non-recyclable paper). Use this data to assess the magnitude of the issue of avoidable food waste in Dufferin County and the opportunity it provides for waste reduction.
3. Identify/develop potential partnerships for a Food Waste Reduction Campaign, including:
  - the "Love Food Hate Waste" franchise;

- wellness organizations (e.g., Wellington-Dufferin-Guelph Public Health) and/or organizations that promote home economics (e.g., Ontario Home Economics Association and its Food Literacy Initiative, the Canadian Home Economics Foundation, or the Ontario Family Studies Home Economics Educators' Association);
  - Ontario waste management associations/organizations; and/or
  - other municipal partners outside of Dufferin County (i.e. Ontario Food Collaborative).
4. Develop a Food Waste Reduction Campaign Strategy with identified partners. The strategy may include:
- research on Food Waste Reduction Campaigns in other jurisdictions;
  - research on food waste behaviours and attitudes, including barriers to and possible motivations for reducing avoidable food waste;
  - consultation with community stakeholders and the general public. Possible consultation/engagement approaches/methods may include:
    - citizen advisory committee;
    - survey about attitudes and behaviours toward avoidable food waste; and/or
    - focus testing of messages and materials;
  - target audiences;
  - strategies to overcome barriers to reducing avoidable food waste and to capitalize on existing opportunities and synergies;
  - key messages and tactics; and
  - a plan for monitoring and measuring the effectiveness of the program.
5. Develop promotion and education materials for the Food Waste Reduction Campaign. This may include customizing materials from other jurisdictions, partnering with and utilizing the “Love Food Hate Waste” franchise material, or developing the County’s own material.
6. Implement the campaign. Revisit the campaign messages annually and revise as required, which may include a scaled-down recirculation of select campaign materials or promotion of specific targeted campaign messages and/or images.

## 6.2 2nd Priority Group

### 6.2.1 Expand Curbside Capacity for the Collection of Recyclables by Providing an Extra Blue Box

#### Description of Initiative

For some municipalities, a common option to maximize the capture of materials through the Blue Box program is to increase the size (capacity) of the blue boxes they offer. This is especially useful for those municipalities that collect an extensive list of items through their Blue Box program. Since the County currently uses the larger 83-litre (22-gallon) blue box, another option for increasing the Blue Box collection capacity is to provide residents with an extra blue box.

The County currently replaces broken blue boxes free of charge, but there is currently a fee for an extra blue box. To encourage the public to recycle more material, the County will help increase the collection capacity of households by providing an extra blue box free of charge. The County will also continue to encourage residents to use blue-tinted plastic bags for overflow recyclables.

Distribution of the additional blue box will be upon request and pick-up only. Assuming 15% of single-family households per year request an additional blue box, the estimated annual cost of this initiative is about \$20,000. The estimated amount of additional diversion from this initiative is about 2% of the waste stream.

#### Implementation

The steps to implement this option include:

1. Assess the Blue Box recycling behaviours and attitudes to determine how many residents would benefit from an additional blue box. This assessment may include:
  - a visual assessment of the number of blue boxes set out for recycling are full to overflowing; and/or
  - either a formal or informal survey of residents to determine if they feel an extra blue box would help them recycle more.
2. Determine and implement the mechanism for distributing the free blue boxes (e.g., the collection contractor, having boxes available for pick up at the local municipal offices, etc.).
3. Develop and provide supporting communication materials as required.
4. Monitor and evaluate the results of the option (e.g., track tonnage of Blue Box materials recycled, set out rates, etc.).



## 6.2.2 Promote “Green” Purchasing

### Description of Initiative

The promotion of “Green” Purchasing can help reduce waste generation rates by fostering a shift in purchasing behaviours. This initiative can include the following program elements:

- The County leading by example and adopting an internal Environmentally Preferable Purchasing Policy for all County departments, which would place an emphasis on sustainable options such as waste minimization and purchasing products made from post-consumer recycled material.
- An educational campaign to encourage residents and businesses to consider the environmental impact of their purchases and to reduce waste by choosing products that are more durable, have less packaging waste, are recyclable, and contain recycled materials. The term “pre-cycling” has been used in such campaigns in other municipalities, which has been defined by some municipalities as “preventing waste before it happens”.



This option can be implemented as a targeted promotion and education initiative or as a component of the County’s regular waste management communications.

Although the amount of diversion from such an initiative is difficult to measure, it is expected to reduce or divert approximately 1% of waste from disposal. Promotion of green purchasing could be included within the County’s waste management promotion and education strategy and budget. The cost of the promotion would depend on the extent of the program.

### Implementation

The steps required to implement this option include:

1. Further investigate how other jurisdictions are working to promote “green” purchasing behaviours, such as (but not limited to):
  - making conscious decisions to purchase products with less packaging or having high recycled content, or otherwise less harmful to the environment compared to similar products; and
  - purchasing/providing “wasteless gifts”, such as package-free gifts, durable/repairable gifts, or “experience” gifts (i.e., gifts such as tickets to an event, a gift certificate for a service, etc.).
2. Promote use of an Environmentally Preferable Purchasing Policy, both within the County’s operations, and externally to the broader IC&I community.
3. Based on the successes and/or lessons learned of other programs, develop and implement a plan to promote “green” purchasing, including key messaging, communications materials, and an approach for measuring/monitoring results.

### 6.2.3 Increase Support for Household Organics Collection

#### Description of Initiative

In 2015, the County's entire waste stream included about 5,088 tonnes of household (or food and kitchen) organics, including food scraps and non-recyclable compostable paper such as paper towels and tissues. The recovery rate for this material was approximately 58% (2,928 tonnes were diverted from disposal, mostly through the Green Bin program). Increasing the recovery rate of household organics from 58% to the target of 80% would divert an additional 5.9% of the waste stream from disposal.



The County will work to increase diversion of organics through its Green Bin program through a comprehensive Organics Diversion Strategy. The strategy will include:

- Research on behaviour and barrier identification (waste audits, behaviour and attitude research, etc.);
- Identification of methods for removing or addressing the identified barriers (e.g., promotion and education, tools, etc.);
- Implementation plan; and
- A possible re-launch of the Green Bin program.

This initiative also has potential to operate in concert with the Food Waste Reduction Campaign.

The estimated costs to prepare and implement an Organics Diversion Strategy is approximately \$18,000, including:

- Develop the Organics Diversion Strategy: \$8,000;
- Develop communication materials: \$7,000; and
- Implement the Organics Diversion Strategy: \$3,000.

Depending on the results of the behaviour and barrier identification research, the strategy may include a relaunch of the Green Bin program where green bins are distributed to households that either do not have a green bin or require replacement. The 2016 participation study reported a decrease of 15% in the Green Bin program participation rate compared to the 2013 participation study. Assuming a similar percentage would require new or replacement green bins, a relaunch may include distribution of about 3,340 new green bins, for an additional capital cost of about \$60,120.

The estimated annual cost of ongoing support of the Organics Diversion Strategy through the County's existing promotion and education program is approximately \$2,000 per year.

The cost of processing the additional organic material is approximately \$132,360 annually. However, this would be offset by the avoided disposal costs, which would be approximately \$70,280, for a net annual cost increase of approximately \$63,080.

#### Implementation

The steps to implement this initiative include:

1. Use the waste audit data to confirm opportunities for increasing organics diversion, including specific geographic areas, sectors and demographics.
2. Update the waste collection participation study.



- Confirm the participation study methodology (the 2016 study included a higher number of zero set-out observations than would be expected; the study methodology should ensure it does not miss set-outs that occur closer to when the garbage truck normally passes through its scheduled route); and
- Ensure compatibility and comparison of results from the previous study by monitoring the same study area.

3. Develop and implement a comprehensive Organics Diversion Strategy:

- a. Use results from waste audit and participation study to identify and assess issue and opportunity areas.
- b. Research barriers to and motivations for participation in the Green Bin program.
- c. Develop tools, methods and strategies for removing participation barriers and increasing motivation.
- d. Consultation with community stakeholders and the general public. Possible consultation/engagement approaches/methods may include:
  - i. citizen advisory committee;
  - ii. survey about attitudes and behaviours regarding the Green Bin program; and/or
  - iii. focus testing of messages and materials;
- e. If required, develop a plan for a re-launch of the Green Bin program.
- f. Develop/update/enhance Green Bin communication materials.
- g. Develop an implementation plan for the Strategy.
- h. Develop an evaluation plan for the Strategy.

An example table of contents for the Organics Diversion Strategy may include:

- Purpose and objectives of the strategy;
- Overview of the existing Green Bin program;
- Assessment of the existing Green Bin program, including:
  - a review of current and historical tonnage (total and per household or capita);
  - an assessment of organics material still available for diversion (based on waste audit results);
  - participation rates; and
  - any other relevant aspects (e.g., contamination, etc.).
- Barriers to participation in the Green Bin program (based on the barrier research and consultation);
- Barrier removal strategies, strategies for removing the barriers to participation and fostering the desired behaviours;
- Implementation; and
- Monitoring and Evaluation.

## 6.2.4 Promote On-Site Management of Organics: Backyard Composting

### Description of Initiative

Backyard composting is, essentially, the composting of home and kitchen organics (such as fruit and vegetable peelings, coffee grinds, and egg shells) in a backyard composter. This is a voluntary activity and many municipalities try to encourage it through promotion and education, and by offering subsidized or free backyard composters. While municipalities with curbside or depot programs for household organics composting may find that residents are more likely to use the municipal service rather than backyard composters, it continues to remain an option for managing household organics on-site (thereby avoiding the collection and processing activities and cost of a centralized program).

The County currently sells discounted backyard composters for \$35 each and provides a brochure on how to backyard compost, available for download on its website. The County will develop a Backyard Composting Strategy to further encourage residents to backyard compost. The Backyard Composting Strategy will include targeted promotion and education and the sale of discounted backyard composters at a greater reduced price.

The estimated additional diversion from the Backyard Composting Strategy is approximately 0.4% of the waste stream).

### Implementation

The steps to develop and implement the Backyard Composting Strategy include:

1. Research on backyard composting behaviours and attitudes to identify motivations and barriers to backyard composting (would include a literature review and, if feasible, a survey of Dufferin County residents).
2. Identify target audience(s) for the campaign (e.g., general public, gardeners, families, seniors etc.).
3. Identify possible campaign partners (e.g., gardening groups, active lifestyle organizations, environmental groups/food sustainability groups, etc.).
4. Identify strategies to overcome perceived public barriers to backyard composting and to capitalize on existing opportunities and synergies.
5. Develop key messages and tactics.
6. Prepare a plan for monitoring and measuring the effectiveness of the program.
7. Develop relationships/partnerships with potential partner organizations or participating groups.
8. Develop backyard composting promotion and education materials. This could include customizing materials from another jurisdiction or developing the County's own material.
9. Develop an implementation plan for the campaign, including the sale of backyard composters. Implementation could be structured in two separate phases, where the time between phases would



help develop additional partnerships or adjust the program based on feedback or new information (e.g., waste audit data).

10. After implementation, continue with annual/spring educational blitzes, monitoring and measuring success.

## 6.2.5 Promote On-Site Management of Organics: Grasscycling

### Description of Initiative

Grasscycling is the practice of leaving grass clippings on the lawn so they can decompose and return to the soil. Many municipalities do not accept grass clippings in their yard waste program because they can create odour issues during the yard waste composting process. Instead, they encourage the practice of grasscycling through promotion and education. The County mentions grasscycling in its waste management guide and on its “Other Waste” webpage, within the Yard Waste section. This information will be expanded to promote how to grasscycle properly and its benefits. It may also include limited rebates on mulching lawnmowers or mulching lawnmower blades.

The estimated added diversion from this initiative is approximately 0.5% of the waste stream.

### Implementation

The steps to implement this initiative include:

1. Assess the degree to which grass clippings are an issue in the waste management system (e.g., whether grass clippings are appearing in the garbage, yard waste, or Green Bin programs). This could be assessed through the waste audit findings or through discussions with processing contractors.
2. If grasscycling is confirmed to be an issue, proceed with implementation of the option.
3. Conduct a literature review of grasscycling programs from other jurisdictions, including how they have proceeded with grasscycling incentive programs (e.g., mulcher blade give-aways, rebates, etc.).
4. Develop a Grasscycling Plan that includes:
  - identification of opportunities to increase grasscycling;
  - target audiences;
  - preferred approach for grasscycling incentives;
  - potential partnerships (including corporate/retail organizations);
  - key messages;
  - monitoring and measuring; and
  - implementation steps.
5. Develop promotion and education materials (this may include customizing existing materials used in other jurisdictions, if available).
6. Implement the campaign and review on an annual basis (e.g., spring) as required, which may include a scaled-down recirculation of select campaign materials or promotion of specific targeted campaign messages and/or images.



## 6.2.6 Conduct Targeted/Expanded Promotion and Education

### Description of Initiative

An effective promotion and education strategy will be key to ensuring that the County's waste diversion programs are maximized through increased and proper public participation. Promotion and education can work to identify and overcome actual and perceived barriers that discourage residents from fully participating in waste management programs. The overall goal of the County's promotion and education efforts will be to influence sustainable behaviour change from the perspective of solid waste management.

The County currently has a robust promotion and education program in place. In 2012, the County's Waste Services department prepared a Communications Plan which was updated in 2014. The Communications Plan included a variety of tools and approaches, including newspaper ads, "oops" stickers, posters, presentations to staff and community groups, press releases, public information sessions, e-communications such as a smartphone app, social media, mobile road signs, transit ads, and the County's website.

The County will build upon the successes and lessons learned from the previous Communication Plan and develop a multi-pronged Waste Diversion Promotion and Education Strategy. Additional elements the strategy will consider include:

#### Waste Prevention and Reduction

- Promotion of opportunities for reuse and repair, such as community-based online exchanges like Freecycle or the promotion of reusable diapers (i.e., promoting local diaper services, tips, etc.);
- A backyard composting promotion program;
- Targeted educational materials and initiatives that focus on specific materials, diversion programs, specific behaviour or attitude changes, or geographic areas. An emphasis could be placed on specific topics (based on results of background research such as waste audits) such as:
  - Green" purchasing;
  - "Zero Waste" events; and
  - IC&I waste diversion.

#### Audience-Specific

- An emphasis or targeted campaign on diversion in multi-residential buildings;
- The establishment of a Community Liaison Committee to help provide input on and to deliver community-based education; and
- Enlistment of community champions to help foster waste diversion behaviours in the community.
- Emphasis on Communications Tools and Approaches
- Incentives for desired waste diversion behaviour (e.g., Hamilton's "Gold Box" program); and
- Fine-tuning (as required) communication tools and materials, such as brochures, etc.

The issue and opportunity areas will be identified through ongoing monitoring of the County's waste management system and external factors, including:



- waste audit results;
- participation study results;
- feedback obtained from residents, elected officials, contractors, and/or stakeholders;
- successes and/or lessons learned from other jurisdictions;
- changes to Ontario's waste management regulations or provincial programs; and
- changes in the recyclable material marketplace, among other things.

Enhancements to promotion and education efforts by the County will help ensure that waste diversion programs are utilized to their full potential. A Waste Diversion Promotion and Education Strategy could help the County increase diversion by approximately 4 percent of the waste stream, or more, depending on the programs it is helping to support.

The cost of the targeted or expanded promotion and education program may vary, depending on the nature of the promotion and education initiatives. There is also the potential for the targeted or expanded promotion and education to be completed with the County's existing promotion and education budget. In 2015, the County spent approximately \$72,700 on promotion and education, plus \$18,000 to promote MHSW events and \$5,500 to promote the Take-it-Back guide. Combined, this amounts to about \$4 per household, or about 2.7% of the total system cost. Increasing the per household percentage to about 3% would provide an additional \$11,300 for targeted or expanded promotion and education.

## Implementation

The steps to implement this option include:

1. Identify the issue and/or opportunity areas requiring, or possibly benefiting from, targeted promotion and education.
2. Conduct background research to help develop the targeted promotion and education.
3. As much as is feasible, develop the targeted promotion and education initiative within the context of the County's latest waste management communication plan. The County may either develop the initiative using County staff, or it may seek the services of an outside consultant.
4. Implement the targeted promotion and education initiative, including the development of key messages and promotional material, and procurement of necessary equipment or other items.
5. Monitor/evaluate the results of the targeted promotion and education initiative.

## 6.2.7 Textile Recycling

### Description of Initiative

Approximately 277 tonnes of textiles are disposed by County residents each year. The County will promote existing opportunities for textile diversion and assess the feasibility of introducing other collection method(s) for textiles. This initiative will divert an additional 1.1% of the County's waste stream.

The estimated cost to implement this initiative is approximately \$6,500 for staff time in program development and promotion and education. The cost of collection is to be determined (depending on the collection method(s) chosen).



### Program Implementation

The steps to implement this initiative include:

1. Research municipal textile recycling programs in other jurisdictions (emphasis on Ontario initiatives), including;
  - collection methods (e.g., licensed community bins, MHSW special events, regular or periodic curbside collection, etc.);
  - partnerships and agreements (e.g., markets, contractors, non-profit organizations, etc.);
  - examples of textile recycling promotion and education;
  - lessons learned, including how potential issues and opportunities were managed; and
  - costs.
2. Based on waste audit data and performance in other jurisdictions, assess size of diversion opportunity.
3. Identify and develop partnerships with contractors and non-profit organizations that have textile recycling programs.
4. Develop and implement plan for the textile recycling initiative, including:
  - the preferred collection method(s);
  - if applicable, the request for proposals for collection and/or processing; and
  - the required communications to support the initiative.

## 6.2.8 Encourage Events to be “Zero Waste”

### Description of Initiative

Public events can generate large quantities of waste. The County will continue and enhance its efforts to encourage or require event organizers to ensure their events are waste-free as possible. This will be accomplished through active promotion or through requirements included in municipal permits (as applicable). It is estimated that this initiative may divert an additional 0.1% of the waste stream.

This initiative would be included as a targeted promotion and education initiative, or as a component of the waste management system’s regular communications. The cost of the promotion would depend on the extent and type of initiatives developed.



### Implementation

The steps to implement this initiative include:

1. Further investigate how other jurisdictions help event coordinators make their events as “zero waste” or “waste-free” as possible.
2. Based on the successes and/or lessons learned from programs in other jurisdictions, develop and implement a plan to help foster “Zero Waste” or “waste-free” events in the County. Possible approaches may include, but are not limited to:
  - development of a “Zero Waste” guide for event coordinators, customized for the use in the County; and
  - county-supplied waste diversion services, including the provision of waste receptacles and/or collection services.
3. Monitor and evaluate the results of the initiative.



## 6.2.9 Promotion of Waste Minimization/Diversion in the IC&I sector

### Description of Initiative

Ontario's regulatory environment provides municipalities with little control over how local businesses manage their waste. However, municipalities can use promotion, education and partnerships to encourage businesses to voluntarily adopt diversion programs. The County will apply these approaches in a Business Engagement Strategy, which may include components such as:

- A business recognition program to recognize the waste diversion innovations of local businesses;
- Provide incentives for businesses displaying environmental leadership, particularly in areas of waste minimization (e.g., becoming registered through the Recycling Council of Ontario's 3RCertified program<sup>10</sup>);
- Work with small businesses to encourage greater diversion from the County's small business sector, such as through green bin composting or educational support. The educational support could also be extended to businesses that are not currently participating in the County's curbside collection programs;
- Partnerships with local non-profit organizations to help deliver community outreach. Workshops could be offered to schools, organizations and individuals on the environment and health, including topics such as backyard composting and vermicomposting;
- Develop and deliver a community-based social marketing plan for businesses to foster greater waste reduction and diversion in the business community. This may include business guides and other outreach programs to inform and educate businesses on the opportunities and how to overcome barriers to participation. Explore what has been done in other communities to see if ready-made materials are available;
- A business survey to assess how much is being recycled and the barriers to participation;
- Engagement of retailers to support local recycling or waste diversion initiatives (for example, they could ensure they ask customers if they need a bag before just giving them one, or promote reusable bags);
- Business sponsorship of recycling efforts (e.g., on community recycling bins); and
- Meetings with local business leaders or the Board of Trade to explore how the business community can help promote recycling and waste diversion in the community.

This initiative may be included as a targeted promotion and education initiative, or as a component of the waste management system's regular communications.

### Implementation

The steps to implement this initiative include:

1. Consult with stakeholders in the County's IC&I sector to determine their waste diversion priorities, issue and opportunity areas, and barriers to and motivations for waste diversion.



<sup>10</sup> [www.rco.on.ca/3rcertified](http://www.rco.on.ca/3rcertified)

2. As appropriate, the consultation should determine how best the County should support and/or encourage the IC&I sector to reduce waste and divert waste from disposal.
3. In consultation with the IC&I stakeholders, identify clear goals and objectives for the Business Engagement Strategy.
4. Explore how other jurisdictions have supported their IC&I sectors in waste prevention and diversion to identify relevant success factors.
5. Based on the stakeholder consultation and jurisdiction review, identify strategies to foster increased waste prevention and diversion in the County's IC&I sector, including but not limited to:
  - recognition programs;
  - promotion and education or other support;
  - waste audits for businesses; and
  - waste management technical assistance.
6. Monitor and evaluate the results of the Business Engagement Strategy, and update as necessary.

## 6.2.10 Expand MHSW and E-waste Diversion Program

### Description of Initiative

The County holds seven MHSW and electronic waste special events between May and October. The County could potentially increase its collection of MHSW and electronic waste and reduce program costs by opening a permanent MHSW collection depot. Having a permanent depot would provide year-round or otherwise extended opportunities to drop off their MHSW and electronic waste.

The approximate capital investment would be in the range of \$250,000 to \$500,000, with annual operating costs of about \$50,000 to \$100,000. However, with the introduction of Ontario's Waste-Free Act, it is uncertain how funding for special collection events and depots will be addressed in the future. Currently, municipalities can enter agreements with Stewardship Ontario to participate in its Orange Drop program. Municipalities can choose to collect the MHSW at permanent year-round or seasonal depots or at special one day collection events.

For permanent MHSW depots, municipalities currently receive payment based on each hour of operation. The payment rate from Stewardship Ontario is for all collection-related services, including staff time, facilities, overhead, administration and reporting. The number of hours and the hourly rate would be detailed in the agreement between Stewardship Ontario and the municipality. For special events, municipalities are paid an all-inclusive flat rate per tonne collected. However, it is uncertain how this may change based on Ontario's Waste-Free Act.

Furthermore, the County will also consider the curbside collection of e-waste. This may include collection along with the bulky waste program, by appointment, or some other collection method to be determined. The collection method would be determined once stewardship responsibilities and provincial programs under the Waste-Free Act are more clearly defined.

This initiative would divert an additional 37 tonnes of MHSW and 95 tonnes of e-waste (about 0.7% of the waste stream). While this may seem like a small amount, there is a significant environmental benefit of diverting this material from the garbage stream given the toxic nature of these materials.

### Implementation

The steps to implement this option include:

1. Based on the stewardship initiatives in place at the time, identify the opportunities for expanding the County's MHSW and e-waste diversion programs, as applicable. This may include:
  - a review of MHSW and e-waste diversion initiatives in other jurisdictions;
  - public and stakeholder surveys;
  - evaluation of constructing a permanent depot only, a permanent depot and supplemental special events in remote areas of the County, or through the addition of more special events; and
  - preparation of a business case for the desired program expansion, including costs, potential locations and available stewardship funding.
2. Based on the results of the above, develop and carry-out an implementation strategy for the desired expansion option, including the necessary communications.
3. Monitor and evaluate the results of the program and update as necessary.



## 6.2.11 Agricultural Waste Diversion Support

### Description of Initiative

While agricultural wrap and other agricultural wastes are not managed by the County, it is reportedly a material that is generated by the County's agricultural community. Of particular concern is bale wrap and net wrap. The County will work with the agricultural community, industry representatives and stakeholder agencies (e.g., Ontario Ministry of Agriculture, Food and Rural Affairs) to actively promote participation in existing programs and identify new opportunities for diversion as they become available.

Information is not available on the amount of each type of agricultural waste disposed, therefore the amount of estimated waste for diversion is not known.

It is expected that capital and operating costs to implement this option will be minimal, as the County would operate in a support or resource role for the local agricultural community. Estimated costs include \$2,000 to develop and distribute information resources and approximately \$1,000 in staff time support.

### Implementation

The steps to implement this option include:

1. Liaise with agricultural industry stakeholders to assess waste diversion needs and opportunities. Stakeholders may include:
  - individual farmers;
  - agricultural associations;
  - governmental organizations, such as Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA); and/or
  - private enterprises or other organizations involved in the recycling of agricultural waste, among others.
2. As feasible, provide ongoing support to assist agricultural stakeholders identify and capitalize on waste diversion opportunities.



## 6.2.12 Encourage Extended Producer Responsibility

### Description of Initiative

Ontario has a number of Extended Producer Responsibility (EPR) or other industry-funded product stewardship initiatives in place. Most of these include some form of retail take-back, but industry also contributes to the funding of the municipal Blue Box recycling program.

With the passing of the Waste Free Ontario Act, the landscape of EPR in Ontario is currently undergoing a shift. While the decisions for how EPR will be implemented in Ontario are evolving at the provincial level, the County will continue to contribute to EPR and promote existing product stewardship initiatives by:

- Providing the County's perspective on EPR and product stewardship during consultations or other opportunities;
- Support municipal waste associations (e.g. MWA and AMO) in their efforts to lobby for product stewardship;
- Promoting the use of existing provincial product stewardship programs, such as:
  - Orange Drop HHW Program ([www.makethedrop.ca](http://www.makethedrop.ca));
  - Tire recycling program ([www.rethinktires.ca](http://www.rethinktires.ca));
  - Electronics recycling ([www.recycleyourelectronics.ca](http://www.recycleyourelectronics.ca)); and
  - The Beer Store deposit-return program ([www.thebeerstore.ca](http://www.thebeerstore.ca)).

The level of additional diversion and long-term cost implications from this option are undetermined at this time, as they will depend heavily on the future policy decisions made at the Provincial level. However, the operational cost of undertaking this option should not require any additional County resources and should be covered under the waste management systems existing administrative and promotion/education budget.

### Implementation

Staff efforts on this initiative are currently on-going and will continue.



### 6.2.13 Explore Multi-Municipal Partnerships for Waste Management Services

#### Description of Initiative

Multi-municipal partnerships for the collection and processing of waste is viewed as a municipal best practice by the RPRA. These types of partnerships allow municipalities to take advantage of economies of scale through co-operation with neighbouring municipalities. This could include joint contracts for collection tenders, shared processing facilities for divertible materials, or shared opportunities for disposal of residual waste.

The County currently acts as a de facto multi-municipal partnership for its local municipalities. However, the County will continue to be mindful of additional partnership opportunities that may exist beyond the County's borders, in particular with its border neighbours such as Peel Region, Wellington County, and the County of Simcoe.

#### Implementation

This option will involve evaluating existing waste management service contracts and prioritizing those that would benefit most from potential multi-municipal joint ventures. At least one year prior to the end of the term for waste service contracts, County staff will explore and evaluate feasible opportunities as they arise. This may include (but not be limited to) partnerships with neighbouring municipalities for MHSW depots, which would allow for cost-sharing and potentially improved distribution of services based on population centres. This may require a discussion with MOECC to amend designated service areas for the collection of wastes such as MHSW.

The multi-municipal partnerships may also include partnerships for other waste diversion/collection programs.



## 6.3 3<sup>rd</sup> Priority Group

### 6.3.1 Assess Garbage Collection Frequency (Every Other Week Collection)

#### Description of Initiative

Reducing garbage collection frequency to every other week (EOW) is an option that has demonstrated increased waste diversion and reduced costs in other jurisdictions, and it is most commonly used by municipalities that have a household organics collection program. Reducing garbage collection from weekly to every other week encourages residents to make greater use of available diversion programs, such as the Blue Box and Green Bin programs.

EOW garbage collection would reduce annual garbage collection costs by approximately 10 to 20 percent and is expected to help divert an additional 5% of the waste stream from disposal (through increased use of other diversion programs).

#### Implementation

While this option is within the 3rd Priority Group, its potential for implementation should be aligned with the start of a new County waste collection contract. While the current contract ends in May 2020, this option would need to be considered in 2019 and added as an option to the next waste collection contract procurement process.

The steps to implement this option include:

1. At a minimum of one year prior to the end of the current waste collection contract, consider the feasibility and requirements of implementing every-other-week (EOW) garbage for the next collection contract.
2. Include an option for every-other-week (EOW) garbage collection in the next waste collection RFP process.
3. If EOW garbage collection is considered feasible (and approved) after evaluation of the new waste collection contract, then proceed with developing an implementation plan for EOW garbage collection, including timing of the roll-out, and emphasis on the need for a comprehensive promotion and education campaign for the collection change.
4. Carry out the implementation plan as part of implementing the 2020 waste collection contract.



## 6.4 4<sup>th</sup> Priority Group

### 6.4.1 Enforcement of Waste Collection By-law

#### Description of Initiative

The County has in place By-law number 2012-36 to “provide for the collection of waste within the County of Dufferin.” The By-law describes what and how waste materials may be set out for collection. The By-law provides definitions for the various waste streams, and obligates residents to keep garbage, recyclables, organics, and special collection waste separate. For example, the Schedules for Garbage (Schedule A), Organics (Schedule C), and Recyclables (Schedule D) each clearly define what materials are considered acceptable for those categories of waste. They also include an “Unacceptable Material” section, which prohibits contamination. For example, under Schedule A for Garbage, the section under “Unacceptable Materials” reads:

*Every Waste Generator or Property Owner shall ensure that Garbage set out for collection does not contain Recyclables, Organics, Special Collection Waste, or any other item in accordance with the provisions of this By-law.*

The By-law also prohibits scavenging. For instance, under the header of “No Scavenging”, Section 14 reads in part:

*No Person shall pick over, interfere with or remove any Waste set out for collection pursuant to this By-law, whether on public or private property, without the consent of the Director of Public Works and the applicable Property Owner.*

The By-law provides the County with a legislative backdrop that it can use to encourage increased waste diversion and to curtail problematic scavenging, which can impact the County’s measured diversion rate and negatively impact its revenues from the sale of recyclable materials.

The County will develop and implement an enforcement strategy to help enforce this by-law. The estimated costs for enforcement, and public education and promotion is approximately \$1,000.

#### Implementation

While this option is within the 4<sup>th</sup> Priority Group, the County intends to proceed with the development and implementation of an enforcement strategy (based on the Waste Collection By-law) in 2018 to enforce the “no scavenging” provision. The enforcement strategy will include the following key steps:

- applying for short form wording from the Province;
- obtaining the “Set Fines Schedule”; and
- by-law enforcement training for County staff.





## 6.4.2 Preparation of Multi-Residential Development Standards

### Description of Initiative

Waste diversion is often problematic in multi-residential buildings, as waste segregation may not be considered during building design. The County will address this by developing waste management program design standards for future multi-residential developments.

As no single-family and multi-family waste audits have been completed for the County, it is unclear how much additional diversion would be achieved. Multi-residential households make up less than 10% of the households serviced County therefore, the estimated amount of additional diversion would likely be less than 3% of the waste stream. However, as development pressures continue to increase, multi-residential developments may become more of a factor. The estimated cost to develop waste management building design standards is approximately \$8,000.



### Implementation

While this initiative is within the 4th Priority Group, the County intends to proceed with implementation of this option in 2018. As the pressures for intensification continues in southern Ontario, the County wishes to have guidelines or design standards in place to ensure future multi-residential developments and re-developments allow for the inclusion of waste diversion programs in their design, particularly if the Province proceeds with a landfill organics ban.

The steps to implement this initiative include:

1. Review multi-residential waste diversion best practices and development design guidelines from other jurisdictions.
2. Identify issue areas and areas of opportunity for multi-residential waste diversion, including how development design provides barriers to or facilitates waste diversion among its occupants.
3. Consult with and survey relevant internal stakeholders (relevant County departments, lower tier municipalities) and external stakeholders (developers, engineering and/or architectural firms specializing in multi-residential developments, waste collection contractors, etc.).
4. Based on the above, develop and implement the multi-residential development standards, in consultation with relevant stakeholders as necessary.

## 6.5 5<sup>th</sup> Priority Group

### 6.5.1 Add Additional Materials to the Recycling Program: Polystyrene

#### Description of Initiative

Expanding the types of materials accepted in the recycling program is one way for the County to divert more materials, but this is contingent on being able to effectively collect and process the material and locate sustainable markets for these materials. Currently, the County accepts all available recyclable materials except for LDPE film and polystyrene packaging (foam and crystal).

The County will include an option for polystyrene recycling in the next collection and processing procurement process to assess whether it is feasible to add the material to the Blue Box program. Adding polystyrene to the Blue Box program would divert an additional 0.2% of the waste stream.



#### Implementation

While this initiative is within the 5th Priority Group, its implementation must be aligned with the start of the County's waste collection and processing contracts. While the current contracts end in May 2020, consideration of this initiative would be required in 2019 in order to be included in the next recyclables processing contract procurement process (request for proposal) and, if chosen, to allow for implementation.

The steps to implement this initiative include:

1. Follow stewardship developments that arise from the Waste-Free Ontario Act that may have an effect on the collection and processing of Blue Box materials.
2. Consider the feasibility and requirements of incorporating polystyrene collection and processing into the Blue Box program should it be selected through the 2020 recyclables processing RFP process.
3. As feasible, include an option for the collection and processing of polystyrene in the next waste collection and recyclables processing RFP processes.
4. If collection and processing of polystyrene is selected as part of the preferred collection and processing bids, then proceed with developing an implementation plan, including timing of the roll-out and promotion and education efforts.
5. Carry out the implementation plan as part of implementing the new 2020 waste collection contract.

## 6.5.2 Add Additional Materials to the Recycling Program: Plastic Film

### Description of Initiative

Plastic film is another Blue Box program material that could potentially be added to the County's Blue Box list of acceptable materials. It is estimated that adding plastic film to the County's Blue Box program could divert an additional 0.5% of the waste stream. The feasibility of adding plastic film to the County's Blue Box program will be assessed during the next blue box collection and processing procurement process, where it will be added an option.

Another option for recycling plastic film continues to be through drop-off locations at participating retail outlets, such as grocery stores. The County's "Take it Back" guide will continue to promote locations where residents can drop off plastic film for recycling.

### Implementation

While this option is within the 5th Priority Group, its implementation should be aligned with the start of the County's new recyclables collection and processing contract. While the current contract ends in May 2020, consideration of this option would be required in 2019 in order to be included in the next contract procurement process.

The steps to implement this option include:

1. Follow stewardship developments that arise from the Waste-Free Ontario Act that may have an effect on the collection and processing of Blue Box materials.
2. Promote the existing alternatives for recycling plastic film in Dufferin County through take-it-back initiatives (i.e. through TIB participant locations).
3. Consider the feasibility and requirements of incorporating plastic film collection and processing into the Blue Box program should it be selected through the 2020 recyclables collection and processing RFP processes.
4. If collection and processing of plastic film is selected as part of the preferred collection and processing bids, then proceed with developing an implementation plan, including timing of the roll-out, and emphasis on developing a comprehensive promotion and education campaign for the collection change.
5. Carry out the implementation plan as part of implementing the 2020 waste collection contract.



### 6.5.3 Review Public Space Recycling

#### Description of Initiative

Public space recycling is available in some areas of the County. Some recycling receptacles have been placed in arenas and on sidewalks by the local municipalities, which are collected by the County under its contract with GFL. The County will continue to monitor potential locations for public space recycling and assess their feasibility. Adding about 20 additional public space recycling locations would divert an additional 0.01% of the waste stream. Installing the 20 additional locations would have an estimated capital/implementation cost of about \$50,000 and an annual operating cost of about \$1,600.



#### Implementation

The County will likely undertake a review of the Long Term Solid Waste Management Strategy before this initiative is scheduled for action. As such, this initiative and its potential implementation steps should be reassessed at that time. The review of public space recycling should include, but not be limited to:

- locations of existing public space recycling (this can be tracked through the development of a Community Asset Plan, which is a tool or document that identifies community assets);
- performance of existing public space recycling locations in Dufferin County, including the amount of Blue Box material collected, contamination rates, operating costs, etc.;
- public demand for public space recycling (based on consultation efforts and public feedback);
- research on public space recycling in other jurisdictions, including typical performance, equipment, approaches to communications, and best practices;
- based on the research:
  - potential diversion available from adding new public space recycling locations;
  - potential issues and challenges relating to public space recycling; and
  - strategies for addressing the potential issues;
- status of industry stewardship under the Waste-Free Ontario Act and how it affects public space recycling;
- as applicable, identification of new locations for public space recycling and the number and type of waste receptacles required; and
- estimated operating and capital costs.

## 6.5.4 Consider a Maximum Bag Limit

### Description of Initiative

County residents are currently allowed to set out one clear bag of garbage for collection free of charge, and additional bags providing they have a bag tag (\$2 each). There are no limits on how many tagged bags of garbage can be set out.

Based on the County's 2016 waste collection participation study, approximately 91% of garbage set-outs consist of one bag, while about 7% of set-outs included two bags or containers. The remaining 2% of set-outs included three or more bags or containers.

Given that most set-outs are one bag or container, there is limited value to implementing the initiative at this time. However, implementation of bag limits should be reassessed if the County proceeds with EOW garbage collection.

### Implementation

The County will likely undertake a review of the Long Term Solid Waste Management Strategy before this option is scheduled for action. As such, this option should be reassessed at that time. The following considerations should be included (but not be limited to) in its review:

- data from the waste management program participation studies, including the amount of households estimated to set out more than the minimum bag limit;
- waste audit findings, including the potential for additional waste diversion based on how much divertible waste remains in the waste stream; and
- survey of public attitudes regarding this option.



### 6.5.5 Shift to Full User Pay

#### Description of Initiative

User pay programs, also known as Pay-As-You-Throw (PAYT), unit-based pricing, variable rate, and user fee, are becoming an accepted method for financing public sector waste management services. By directly charging residents for their waste production, residents are more directly aware of their waste generation and disposal habits. User pay schemes can be full or partial. In full schemes, residents pay for each unit (i.e. bag or container) of garbage set out for collection. In partial systems, residents only pay over a set limit (e.g., they can set out one bag without a tag, while subsequent bags must be tagged).



The County currently operates as a partial user pay system, as residents only pay for disposal of waste over the one bag garbage limit. Reducing the number of free bags from one to zero may have a beneficial impact on the County's diversion rate, particularly if implemented with EOW garbage collection. In this scenario, it is expected that if residents have to pay for every bag set out for collection then they would maximize their recycling and source separated organics programs. Exemptions would continue to be available for diapers, accessory apartments, and medical exemptions.

User fees collected would be applied against the tax levy, making this option revenue neutral.

#### Implementation

The County will likely undertake a review of the Long Term Solid Waste Management Strategy before this option is scheduled for action. As such, this option should be reassessed at that time. The following considerations should be included (but not be limited to) in its review:

- review of data from the waste management program participation studies (for example, the proportion of households setting out more than the minimum bag limit, and therefore using bag tags);
- relevant success factors and lessons learned from other municipalities that have full user pay for solid waste;
- approaches for implementing full user pay, including methods of collection and application/calculation of user fees; and
- administrative implications for its implementation, including the County's waste collection contracts, integration (if applicable) with the County's finance department, and promotion and education considerations.

## 6.6 Disposal

### 6.6.1 Export of Garbage for Disposal

#### Description of Initiative

Based on a review of potential disposal options, it is recommended that the County continue with its current practice of exporting garbage for disposal.

## 6.7 Implementation Schedule

The LTWMS's proposed schedule is presented in Table 14 (following page). The schedule is organized according to priority groups and when programs/initiatives are scheduled to be implemented. Generally, higher-level priority group options (e.g., the 1<sup>st</sup> Priority Group) are implemented before those found in lower level priority groups (e.g., 5<sup>th</sup> Priority Group), with a few exceptions. These are illustrated and commented on in Table 14.



Table 14: Implementation Schedule

Program	2018 1st Qtr	2018 2nd Qtr	2018 3rd Qtr	2018 4th Qtr	2019 1st Qtr	2019 2nd Qtr	2019 3rd Qtr	2019 4th Qtr	2020 1st Qtr	2020 2nd Qtr	2020 3rd Qtr	2020 4th Qtr	2021 1st Qtr	2021 2nd Qtr	2021 3rd Qtr	2021 4th Qtr	2022 1st Qtr	2022 2nd Qtr	2022 3rd Qtr	2022 4th Qtr	2023	2024 +
Waste Audit	1																					
<b>1st Priority Group</b>																						
Option 2: Food Waste Reduction Campaign		2									Sept <sup>3</sup>				Sept				Sept			
<b>2nd Priority Group</b>																						
Option 3: Expand Curbside Collection Capacity for Recyclables: Additional Blue Box						4																
Option 11: Promote "Green" Purchasing								5														
Option 8: Increase Support for Household Organics Collection and Composting		6																				
Option 1a: Promote On-Site Management of Organics: Backyard Composting						7																
Option 1b: Promote On-Site Management of Organics: Grasscycling)																						
Option 10: Conduct Targeted/Expanded Promotion and Education																						
Option 6: Textile Recycling							8															
Option 12: Encourage Events to be "Zero Waste"											9											
Option 18: Promotion of Waste Minimization/ Diversion in the IC&I Sector																						
Option 20: Expand MHSW and E-waste Diversion Program												10										
Option 7: Agricultural Waste Diversion Support	on-going, as opportunities arise																					
Option 13: Encourage Extended Producer Responsibility (EPR)	on-going, as opportunities arise																					
Option 19: Explore Multi-Municipal Partnerships for Waste Management Services	on-going, as opportunities arise																					
<b>3rd Priority Group</b>																						
Option 9: Assess Garbage Collection Frequency (every-other-week, EOW)					11																	
<b>4th Priority Group</b>																						
Option 16: Enforcement of Waste Collection By-law			12																			
Option 17: Preparation of Multi-Residential Development Standards			12																			

Program	2018 1 <sup>st</sup> Qtr	2018 2 <sup>nd</sup> Qtr	2018 3 <sup>rd</sup> Qtr	2018 4 <sup>th</sup> Qtr	2019 1 <sup>st</sup> Qtr	2019 2 <sup>nd</sup> Qtr	2019 3 <sup>rd</sup> Qtr	2019 4 <sup>th</sup> Qtr	2020 1 <sup>st</sup> Qtr	2020 2 <sup>nd</sup> Qtr	2020 3 <sup>rd</sup> Qtr	2020 4 <sup>th</sup> Qtr	2021 1 <sup>st</sup> Qtr	2021 2 <sup>nd</sup> Qtr	2021 3 <sup>rd</sup> Qtr	2021 4 <sup>th</sup> Qtr	2022 1 <sup>st</sup> Qtr	2022 2 <sup>nd</sup> Qtr	2022 3 <sup>rd</sup> Qtr	2022 4 <sup>th</sup> Qtr	2023	2024 +
<b>5<sup>th</sup> Priority Group</b>																						
<b>Option 4a:</b> Add Additional Materials to the Recycling Program: Polystyrene (i.e. Styrofoam)					11																	
<b>Option 4b:</b> Add Additional Materials to the Recycling Program: Plastic film					11																	
<b>Option 5:</b> Review Public Space Recycling																						
<b>Option 14:</b> Consider a Maximum Bag Limit																						
<b>Option 15:</b> Shift to Full User Pay																						

**Table Legend**

**Legend**

	Planning
	Implementation/Roll-out
	Seasonal promotion and education emphasis
1 <sup>st</sup> Qtr	Jan - Mar
2 <sup>nd</sup> Qtr	Apr - Jun
3 <sup>rd</sup> Qtr	Jul - Sep
4 <sup>th</sup> Qtr	Oct - Dec

**Table Notes**

1. The planning period for the 1st and 2nd quarters of 2018 are to provide time to investigate and secure possible funding opportunities with CIF. The waste audits could potentially occur earlier if the County funds the entire project. It is assumed the waste audit would occur in each season, as per the CIF/Stewardship Ontario municipal audits. In addition to the CIF/ Stewardship Ontario waste audit initiative, the CIF also provides funding for municipal projects through a Request for Expressions of Interest (REOI) process. The CIF accepts applications for funding each spring (see <http://thecif.ca/cif-funding-process-overview/>).
2. While a 1st Priority Group option, this option would require waste audit data results in its messaging, therefore implementation/roll-out is delayed into the latter half of 2019. However, initial planning and partnership-building could take place before the waste audit is completed.
3. Based on GFL curbside tracking data, the months with the highest average green bin tonnage are September, October and November. Therefore, seasonal promotion and education emphasis have been aligned for these periods. However, this may change depending on the results of the waste audits.
4. Program would include seasonal promotion and education emphasis in the spring. However, it is anticipated that after three years, the need for these can be re-evaluated.
5. Seasonal promotion and education emphasis to coincide with December holidays, as GFL curbside tracking data shows highest periods for Blue Box tonnage is December/January. May and July are also high.
6. Having waste audit results prior to developing the campaign would be beneficial, as they may influence what materials or audiences are targeted when promotion and education initiatives are rolled out, and where seasonal emphasis is placed.
7. Planning to incorporate waste audit data. Extended planning period and phased implementation to provide opportunity to develop campaign support/relationships with gardening/senior/active living/food sustainability partners.
8. Planning period delayed in order to investigate/develop partnership(s) with textile collectors/organizations and for uncertainty in stewardship obligations to stabilize. Can include gradual roll-out, with on-going seasonal promotion before December holidays.
9. Program roll-out and seasonal promotion and education emphasis would coincide with when event planners would be planning their events.
10. While an important option, planning and implementation for this option delayed until uncertainty over steward obligations resolved.
11. While a lower "Priority Group" option, planning for this option should be aligned with the close and start of the collection and processing contracts, which can include provisional options for EOW garbage collection, the collection and processing of expanded blue box materials (such as polystyrene or plastic film), or other options. End of current contract period is May 31, 2020; however, planning for and confirmation to include these items in the contract would be required in advance of the contract start. Planning phase only noted. Implementation/roll-out would depend on the results of the next waste collection and processing bid process.
12. While these initiatives are in a lower priority group, they have been moved up in the schedule to reflect on-going activities and initiatives underway in the County. This includes updates to the Waste Collection By-law and steps to ensure future developments allow for three streams of waste diversion. The latter may be especially important if the Province proceeds with a landfill organics ban.

## 7. LTWMS Financial Plan

This section presents the financial implications of the LTWMS and includes the following subsections:

1. Assumptions;
2. Projected Tonnage; and
3. Projected System Costs

## 7.1 Assumptions

The projected operating and capital costs are based on the implementation schedule presented in Section 6. In developing the projected costs, the following approaches and assumptions were used:

- program costs have been organized based on the following waste management initiatives:
  - garbage collection and disposal;
  - Blue Box program collection and processing;
  - household organics (Green Bin) program collection and processing;
  - leaf and yard waste collection and processing;
  - HHW and E-waste;
  - on-property diversion;
  - Take it Back program; and
  - promotion and education;
- for the purpose of the financial review, administrative costs (which are contained within its own financial grouping in the statements) have been allocated to each initiative based on tonnage;
- cost projections are based on 2015 program costs. No adjustments have been made for future inflation;
- in lieu of projected future household counts, per capita cost values have been used as an alternative for per household;
- future costs are based on current per tonne or per capita costs, as appropriate;
- population projections are based on the County's Official Plan population projections for 2031, 2036 and 2041;
- Blue Box program revenue projections are based on the County's average Blue Box per tonne revenues/commodity values for 2014 and 2015;
- future Blue Box program tonnage has been adjusted based on the "Evolving Tonne", whereas the proportional composition of the mix of recyclable materials has shifted over recent years; and
- waste diversion projections do not include any potential changes due to the Province's implementation of the Waste-Free Ontario Act. The County will monitor future Provincial policies as it proceeds with the Act's implementation, and update the County's programs and initiatives accordingly.

## 7.2 Projected Tonnage

Compared to the projected baseline (i.e., assuming the existing waste management system remains Status Quo), successful implementation of the LTWMS will reduce the total amount of solid waste generated, increase diversion, and reduce the amount of waste disposed. The LTWMS achieves this

through waste reduction initiatives, as well as increasing the efficiency and effectiveness of its existing waste diversion programs, including the Blue Box, and Green Bin programs. Figure 9 illustrates the future solid waste tonnage trends for implementing the LTWMS.

**Figure 9: Future Waste Tonnage (Status Quo vs Implemented LTWMS)**

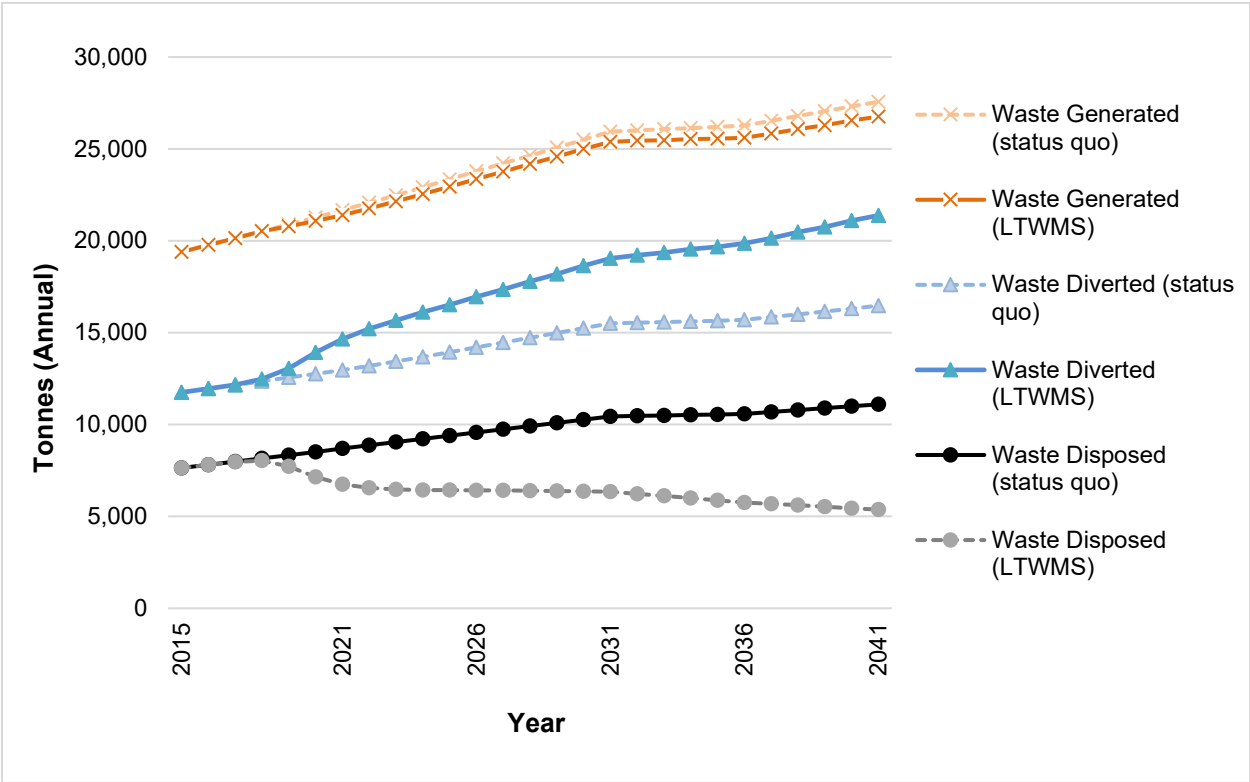


Figure 10 projects the amount of waste generated, diverted and disposed per capita for both the Status Quo and for the implemented LTWMS. As may be expected, the amount of waste disposed for the Status Quo scenario decreases slightly however, the total waste generated and diverted for the Status Quo scenario decreases slightly. This is due to the Blue Box “evolving tonne”, where packaging becomes lighter, plastic packing becomes more prevalent, and the use of printed media decreases. With the implementation of the LTWMS, the decrease in the amount of waste generated and disposed per capita is greater than the Status Quo scenario, while the amount of waste diverted per capita increases with the implantation of the LTWMS initiatives.



**Figure 10: Future Per Capita Waste (Status Quo vs Implemented LTWMS)**

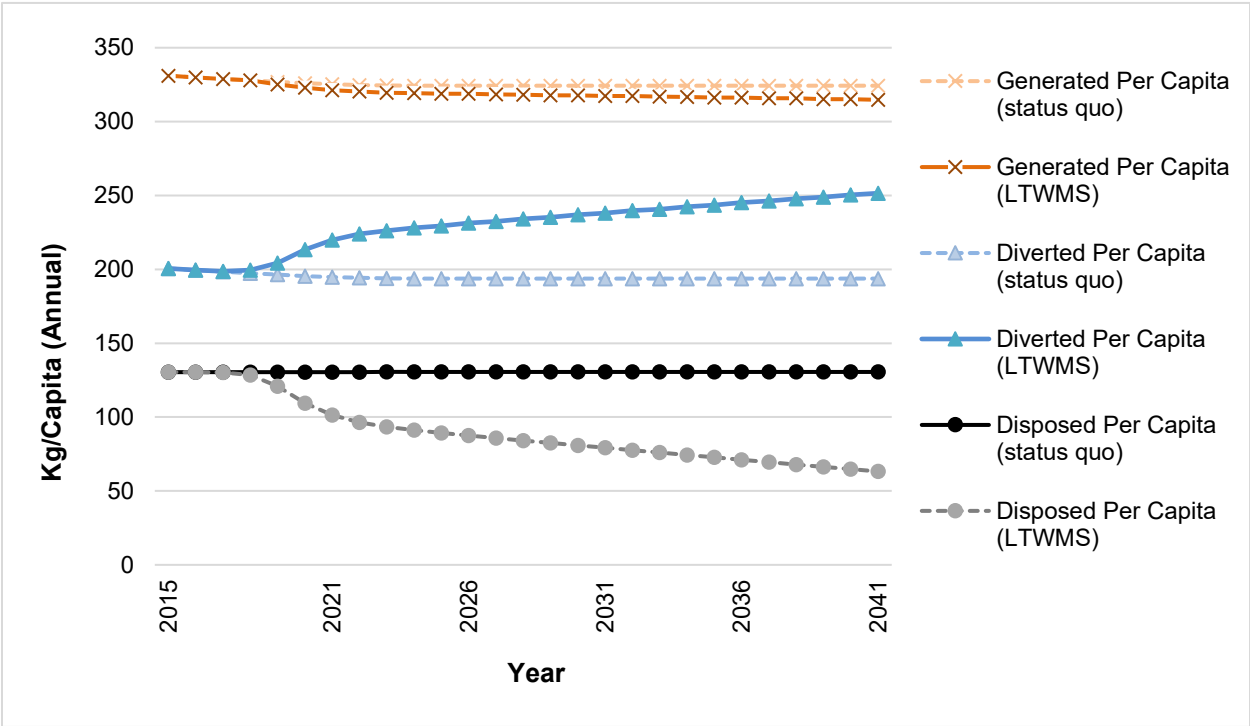
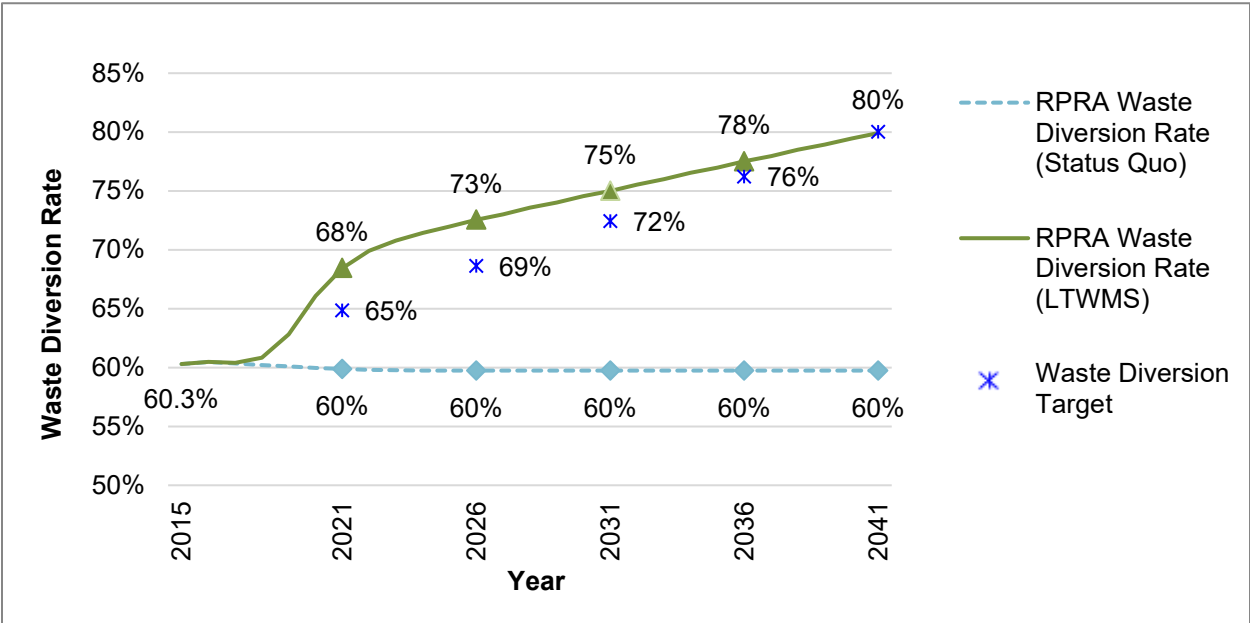


Figure 11 compares the County’s projected waste diversion rate for the Status Quo scenario and the implemented LTWMS (as calculated by the RPRAs). While the Status Quo scenario waste diversion rate remains relatively unchanged, the LTWMS is projected to reach 80% by 2041. The LTWMS waste diversion targets are also depicted in the figure.

**Figure 11: Future RPRAs Waste Diversion Rates (Status Quo vs LTWMS)**



### 7.3 Projected Operating and Capital Costs

#### 7.3.1 Projected Operating Costs

Figure 12 presents the County’s total solid waste management system net costs to 2041 for both the Status Quo and implemented LTWMS scenarios. In general, system costs are expected to increase, largely due to the projected population increase, which in turn results in more residential units and an increase in the amount of solid waste to be managed. As Figure 12 illustrates, the projected system costs for the implemented LTWMS (Total System Projected Cost, solid black line) are lower than the baseline costs (Baseline Projected Cost, dashed red line). This is likely due to the following reasons:

- savings due to implementing EOW garbage collection;
- as programs achieve higher recovery rates, they become more efficient and effective and achieve a lower per unit operating cost; and
- the LTWMS includes waste prevention/waste reduction initiatives. This reduces the amount of waste that requires collection and processing, resulting in cost savings.

**Figure 12: Projected Waste Management System Net Cost**

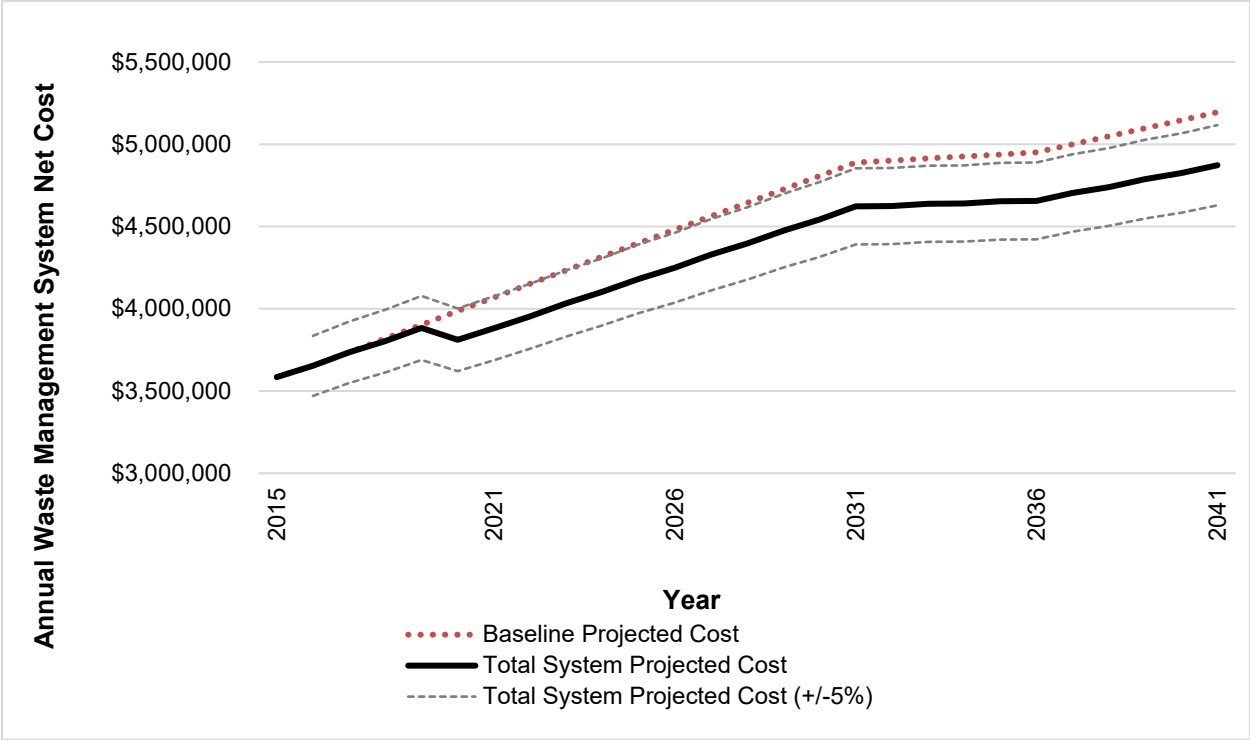


Table 15 presents a summary of the operating costs for the County’s waste management programs/initiatives based on implementation of the LTWMS.



**Table 15: Projected Operating Cost per Waste Management Program / Initiative (\$ Millions)**

Program / Initiative	2015	2021	2026	2031	2036	2041
<b>Garbage Collection and Disposal (including bulky waste)</b>	\$1.62	\$1.56	\$1.64	\$1.74	\$1.70	\$1.74
<b>Blue Box Collection and Processing</b>	\$0.19	\$0.16	\$0.17	\$0.17	\$0.16	\$0.16
<b>Household Organics Collection and Processing</b>	\$1.18	\$1.43	\$1.62	\$1.80	\$1.85	\$1.97
<b>Leaf and Yard Waste</b>	\$0.45	\$0.52	\$0.58	\$0.63	\$0.64	\$0.68
<b>Household Hazardous Waste / E-Waste</b>	\$0.07	\$0.09	\$0.13	\$0.15	\$0.17	\$0.19
<b>On-Property Diversion</b>	\$0.01	\$0.01	\$0.02	\$0.02	\$0.02	\$0.02
<b>Take it Back Initiative</b>	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
<b>Promotion and Education / Other Policies</b>	\$0.07	\$0.09	\$0.10	\$0.11	\$0.11	\$0.11
<b>Total Annual System Cost (\$ Millions)</b>	<b>\$3.58</b>	<b>\$3.88</b>	<b>\$4.25</b>	<b>\$4.62</b>	<b>\$4.66</b>	<b>\$4.87</b>



### 7.3.2 Estimated Capital Costs

Table 16 summarizes the estimated capital costs for the LTWMS initiatives. The capital costs include:

- equipment; and
- planning and development costs (e.g. staff and/or consulting costs).

**Table 16: Estimated Capital Costs**

Initiative	Estimated Capital Cost (including Planning & Development)							Total Potential Capital Cost 2018-2024
	2018	2019	2020	2021	2022	2023	2024 +	
Waste Audit	\$13,000			\$13,000			\$13,000	<b>\$39,000</b>
Option 2: Food Waste Reduction Campaign	\$8,500	\$8,500						<b>\$17,000</b>
Option 3: Expand Curbside Collection Capacity for Recyclables: Additional Blue Box	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	<b>\$140,000</b>
Option 8: Increase Support for Household Organics Collection and Composting	\$18,000	\$60,120	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	<b>\$88,120</b>
Option 1a: Backyard Composting	\$14,800	\$14,800						<b>\$29,600</b>
Option 7: Agricultural Waste Diversion Support	\$1,000	\$1,000						<b>\$2,000</b>
Option 17: Preparation of Multi-Residential Development Standards	\$4,000	\$4,000						<b>\$8,000</b>
Option 1b: Grasscycling		\$1,000						<b>\$1,000</b>
Option 6: Textile Recycling		\$3,250	\$3,250					<b>\$6,500</b>
Option 9: Assess Garbage Collection Frequency (every-other-week, EOW)			\$5,000					<b>\$5,000</b>
Option 20: Expand MHSW and E-waste Diversion Program			\$187,500	\$187,500				<b>\$375,000</b>
Option 14: Consider a Maximum Bag Limit							\$2,000	<b>\$2,000</b>
Option 15: Shift to Full User Pay							\$3,000	<b>\$3,000</b>
<b>Total</b>	<b>\$79,300</b>	<b>\$112,670</b>	<b>\$217,750</b>	<b>\$222,500</b>	<b>\$22,000</b>	<b>\$22,000</b>	<b>\$40,000</b>	<b>\$716,220</b>

## 8. Evaluation and Monitoring Plan

## 8.1 Overview

The County currently undertakes regular monitoring of its solid waste management programs. The monitoring activities have been incorporated into the LTWMS's Monitoring and Evaluation Plan, which is presented in Table 17 on the subsequent pages. While the plan provides guidance on the evaluation metrics, tools and timing for the various programs and initiatives, there are a number of tools that overlap or are recurring. These include:

- RPR Datacall - the RPR Datacall is where municipalities in Ontario report the results of their waste management programs. The Datacall measures the County's waste diversion rate and allows the County to compare its performance against that of other municipalities in Ontario.
- Curbside tonnage tracking data - this is data that measures the amount of material collected and processed for the relevant waste streams. This data can be used to analyze monthly or annual trends to help assess the performance of initiatives.
- Dufferin County rebate data - the rebate data tracks the amount of Blue Box materials marketed, contamination levels, and revenues from the sale of the materials.
- Opinion or awareness survey - this is a survey of a targeted audience (e.g., the general public, businesses, farmers, etc.) to identify their opinions, attitudes or reported behaviours on waste management topics. The method of undertaking the survey can vary, for example via telephone, in-person, or online.
- Waste audit - a waste audit would measure the composition of the County's garbage, blue box and green bin waste stream. The data in combination with the RPR Datacall can be used to update the County's waste profile. Ideally, the waste audit should be completed prior to implementation of the options, as the data will be useful when implementing the options and in providing a benchmark against which future waste management performance can be measured.
- Participation study - the County's participation study measures the participation of a sample of households having access to the County's waste collection programs.

## 8.2 LTWMS Review and Update

To ensure the success of the LTWMS, its performance will be tracked regularly, and the County's waste management programs and initiatives will be modified or updated on an as needed basis. Recommendations for the LTWMS's review and update include:

- Progress of the LTWMS and performance of the County's waste management system will be reviewed annually by the County. At a minimum, the review will include an assessment of:
  - Waste generation;
  - Waste diversion;
  - Waste disposed; and
  - Waste diversion rate.
- The annual review of the LTWMS will be completed after the release of the RPR Datacall results; and
- The LTWMS to undergo a comprehensive review and update every five years.

### 8.3 Waste Audit

The use of waste audits are a key component of the LTWMS's monitoring and evaluation plan. In particular, a seasonal (i.e., winter, spring, summer and fall) multi-sector waste audit will provide a performance baseline for the County and assist with the implementation of the LTWMS's waste diversion initiatives. For example, the waste audits will help to confirm the type and amount of divertible waste still being disposed in garbage and requires additional targeted effort, and which sectors require greater support or motivation to divert waste.

During the development of the LTWMS, a waste profile was prepared based on a waste audit completed for a different but similar municipality. However, a waste audit prepared for the County would help to confirm or adjust the waste profile and provide a greater understanding of the County's waste stream.

The waste audit should include a comprehensive review of the County's waste stream, including specific waste materials of interest, such as:

- Food waste, including avoidable food waste;
- Textiles;
- Recyclables currently not collected, such as polystyrene and plastic film; and
- Any other materials that may be of interest to the County.

The waste audits should consider multiple sectors or locations, which could be completed in phases. Sectors and locations may include:

- Single-family households;
- Multi-residential households;
- IC&I sector; and
- Bulky waste collections.

Stewardship Ontario and the Continuous Improvement Fund have conducted curbside and multi-residential waste composition studies in partnership with various municipalities. Participating in this initiative may greatly reduce the County's cost of the waste audits. The emphasis of the funded waste audits is on Blue Box program materials; however, participating municipalities can request to include additional items (e.g., organics) at their expense.

**Table 17: Monitoring and Evaluation Plan**

Program	Evaluation Metrics	Tools	Timing
<b>Long Term Waste Management Strategy</b>	<ul style="list-style-type: none"> <li>Changes in waste collection tonnages (garbage, blue box, organics, etc.)               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in waste diversion rate</li> <li>Change in recovery rates for divertible materials</li> <li>Measured participation in waste diversion activities</li> </ul>	<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>RPRRA Datacall</li> <li>Dufferin County rebate data</li> <li>Waste audit</li> <li>Participation study</li> </ul>	<ul style="list-style-type: none"> <li>LTWMS comprehensive review and update completed every five years</li> <li>Supporting studies completed as baseline and repeated every 2 to 4 years, as appropriate</li> </ul>
<b>1<sup>st</sup> Priority Group</b>			
<b>Option 2: Food Waste Reduction Campaign</b>	<ul style="list-style-type: none"> <li>Reported participation in food waste reduction activities</li> <li>Awareness of food waste reduction campaign/messages</li> <li>Reduction in organics collected/processed               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Reduction of avoidable food waste</li> </ul>	<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> <li>Focus groups for baseline data</li> </ul>	<ul style="list-style-type: none"> <li>At conclusion of campaign</li> <li>Recurring every two or three years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>RPRRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of campaign (baseline)</li> <li>One year after commencing campaign, then every 2 to 3 years</li> </ul>

Program	Evaluation Metrics	Tools	Timing
<b>2<sup>nd</sup> Priority Group</b>			
<b>Option 3: Expand Curbside Collection Capacity for Recyclables: Additional Blue Box</b>	<ul style="list-style-type: none"> <li>Changes in Blue Box collection tonnage               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in the number of house holds setting out more than one blue box for collection</li> <li>Change in amount of Blue Box material in garbage stream</li> <li>Change in recovery rates for Blue Box materials</li> </ul>	<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> <li>RPRRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Participation study</li> </ul>	<ul style="list-style-type: none"> <li>Before implementation</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of campaign (baseline)</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
<b>Option 11: Promote “Green” Purchasing</b>	<ul style="list-style-type: none"> <li>Reported adoption of green purchasing practices</li> <li>Awareness of green purchasing</li> <li>Reduction in packaging waste (particularly post-Christmas)</li> </ul>	<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>At conclusion of campaign</li> <li>Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> <li>RPRRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
<b>Option 8: Increase Support for Household Organics Collection and Composting</b>	<ul style="list-style-type: none"> <li>Change in organics collection tonnage               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in Green Bin set-outs</li> <li>Change in recovery rates for organics</li> </ul>	<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Participation study</li> </ul>	<ul style="list-style-type: none"> <li>Before implementation</li> <li>Semi-regular basis after implementation (every 2 to 4 years)</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of campaign (baseline)</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>

Program	Evaluation Metrics	Tools	Timing
<b>Option 1a: Promote On-Site Management of Organics: Backyard Composting</b>	<ul style="list-style-type: none"> <li>Reported adoption of backyard composting</li> <li>Change in amount of backyard composters sold</li> <li>Change in Green Bin tonnage               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in recovery rates for organics</li> </ul>	<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> <li>Report uptake of target audiences through campaign partners</li> </ul>	<ul style="list-style-type: none"> <li>At conclusion of campaign</li> <li>Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>County backyard composter sale data</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>RPRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of campaign (baseline)</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
<b>Option 1b: Promote On-Site Management of Organics: (Grasscycling)</b>	<ul style="list-style-type: none"> <li>Public awareness of what grasscycling is and how to do it</li> <li>Reported adoption of grasscycling</li> <li>Change in amount of grass clippings for disposal</li> </ul>	<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>At conclusion of campaign</li> <li>Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>Audit yard waste/green bin waste and garbage (to see if grass clippings included)</li> </ul>	<ul style="list-style-type: none"> <li>Intermittently before and after implementation (during April/May and Late August/September)</li> </ul>

Program	Evaluation Metrics	Tools	Timing
<b>Option 10: Conduct Targeted/Expanded Promotion and Education</b>	<ul style="list-style-type: none"> <li>Decline in participation (including proper involvement)</li> <li>Awareness of campaign messaging</li> <li>Changes in amount of material diverted/disposed               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in diversion rate</li> <li>Change in contamination rates</li> <li>Change in recovery rates for divertible materials</li> </ul>	<ul style="list-style-type: none"> <li>Participation study</li> </ul>	<ul style="list-style-type: none"> <li>Before implementation</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
		<ul style="list-style-type: none"> <li>Program user tallies (e.g., number of MHSW participants at events, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>At conclusion of campaign</li> <li>Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> <li>RPRAs Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of campaign (baseline)</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
<b>Option 6: Textile Recycling</b>	<ul style="list-style-type: none"> <li>Participation</li> <li>Awareness of program</li> <li>Changes in amount of material diverted/disposed               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in diversion rate</li> <li>Change in recovery rates for textiles</li> </ul>	<ul style="list-style-type: none"> <li>Participation study</li> </ul>	<ul style="list-style-type: none"> <li>Prior to implementation</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
		<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>At conclusion of campaign</li> <li>Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>RPRAs Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Before campaign (baseline)</li> <li>Semi-regular basis after implementation (every 3 to 5 years)</li> </ul>



Program	Evaluation Metrics	Tools	Timing
<b>Option 12: Encourage Events to be “Zero Waste”</b>	<ul style="list-style-type: none"> <li>• Participation               <ul style="list-style-type: none"> <li>○ Number of waste free events</li> <li>○ Number of downloads of zero waste event materials</li> </ul> </li> <li>• Reported attitudes toward and adoption of zero waste event practices by event coordinators/hosts</li> <li>• Changes in amount of material diverted/disposed               <ul style="list-style-type: none"> <li>○ Overall tonnes</li> <li>○ Tonnes/kg per event</li> </ul> </li> </ul>	• Website traffic data	• Review annually
		• Survey of event organizers/hosts	• Annually
		• Event waste collection data	• Review annually
		• Event waste audits (a select number, conducted randomly)	• Annually
<b>Option 18: Promotion of Waste Minimization/ Diversion in the IC&amp;I Sector</b>	<ul style="list-style-type: none"> <li>• Amount and type of informational resources available to IC&amp;I sector</li> <li>• Reported waste minimization/ diversion attitudes and behaviours among the IC&amp;I sectors</li> <li>• Number of information requests or meetings regarding IC&amp;I waste minimization/ diversion</li> </ul>	• Opinion/awareness survey (e.g., telephone, online, in-person, etc.)	<ul style="list-style-type: none"> <li>• Prior to start of campaign</li> <li>• Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		• Participation study	<ul style="list-style-type: none"> <li>• At conclusion of campaign</li> <li>• One year after commencement of initiative, then every 2 to 3 years</li> </ul>
<b>Option 20: Expand MHSW and E-waste Diversion Program</b>	<ul style="list-style-type: none"> <li>• Change in participation</li> <li>• Awareness of campaign messaging</li> <li>• Changes in amount of material diverted               <ul style="list-style-type: none"> <li>○ Overall tonnes</li> <li>○ Per household</li> <li>○ Per capita</li> </ul> </li> </ul>	• Participation study	<ul style="list-style-type: none"> <li>• Before implementation</li> <li>• Semi-regular basis after implementation (every 2 to 4 years)</li> </ul>
		• Program user tallies (e.g., number of MHSW participants at events etc.)	• Review annually
		• Opinion/awareness survey (e.g., telephone, online, in-person, etc.)	<ul style="list-style-type: none"> <li>• At conclusion of campaign</li> <li>• Recurring every 2 or 3 years (possibly combined with an over-reaching solid waste opinion/awareness survey)</li> </ul>
		<ul style="list-style-type: none"> <li>• Tonnage data</li> <li>• RPRA Datacall</li> </ul>	• Review annually

Program	Evaluation Metrics	Tools	Timing
<b>Option 7: Agricultural Waste Diversion Support</b>	<ul style="list-style-type: none"> <li>Awareness of agricultural waste diversion opportunities among target audience</li> <li>Number of waste diversion opportunities available to agricultural sector</li> <li>Amount and type of informational resources about waste diversion available to the agricultural sector</li> <li>Estimated amount of waste available for diversion vs. amount diverted</li> </ul>	<ul style="list-style-type: none"> <li>Opinion/awareness survey (e.g., telephone, online, in-person, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of campaign</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
<b>Option 13: Encourage Extended Producer Responsibility (EPR)</b>	N/A		
<b>Option 19: Explore Multi-Municipal Partnerships for Waste Management Services</b>	N/A		

Program	Evaluation Metrics	Tools	Timing
<b>3<sup>rd</sup> Priority Group</b>			
<b>Option 9: Assess Garbage Collection Frequency (every-other-week, EOW)</b>	If implemented: <ul style="list-style-type: none"> <li>Changes in amount of material diverted/disposed               <ul style="list-style-type: none"> <li>Overall tonnes</li> <li>Per household</li> <li>Per capita</li> </ul> </li> <li>Change in diversion rate</li> <li>Change in recovery rates for divertible materials</li> <li>Garbage collection cost               <ul style="list-style-type: none"> <li>Overall cost</li> <li>Per household</li> <li>Per tonne</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> <li>RPRRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Before campaign (baseline)</li> <li>One year after commencement of initiative, then every 2 to 3 years</li> </ul>
		<ul style="list-style-type: none"> <li>Collection costs</li> </ul>	<ul style="list-style-type: none"> <li>Annually and 6 months to 1 year prior to end of contract</li> </ul>
<b>4<sup>th</sup> Priority Group</b>			
<b>Option 16: Enforcement of Waste Collection By-law</b>	<ul style="list-style-type: none"> <li>Number of fines or warnings issued</li> <li>Changes in amount of material diverted</li> <li>Change in revenue from sale of recyclable materials</li> </ul>	<ul style="list-style-type: none"> <li>By-law enforcement tracking data</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>

Program	Evaluation Metrics	Tools	Timing
<b>Option 17: Preparation of Multi-Residential Development Standards</b>	<ul style="list-style-type: none"> <li>Development of multi-residential standards document</li> <li>Awareness of standards document (once developed)</li> <li>Number of new developments complying with standards document (once developed)</li> <li>Diversion rates for new multi-residential developments (once developed)</li> </ul>	<ul style="list-style-type: none"> <li>Develop multi-residential unit database</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of initiative</li> <li>Update annually</li> </ul>
		<ul style="list-style-type: none"> <li>Stakeholder assessment (telephone/in person/consultation meetings)</li> </ul>	<ul style="list-style-type: none"> <li>Prior to start of initiative</li> <li>Every 2 years</li> </ul>
<b>5<sup>th</sup> Priority Group</b>			
<b>Option 4a: Add Additional Materials to the Recycling Program: Polystyrene (i.e. Styrofoam)</b>	<ul style="list-style-type: none"> <li>Amount of polystyrene diverted</li> <li>Change in diversion rate</li> <li>Change in recovery rate for polystyrene</li> </ul>	<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> <li>RPRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to implementation (baseline)</li> <li>Semi-regular basis after implementation (every 3 to 5 years)</li> </ul>
<b>Option 4b: Add Additional Materials to the Recycling Program: Plastic Film</b>	<ul style="list-style-type: none"> <li>Amount of plastic film diverted</li> <li>Change in diversion rate</li> <li>Change in recovery rate for plastic film</li> </ul>	<ul style="list-style-type: none"> <li>Curbside tonnage tracking data</li> <li>Dufferin County rebate data</li> <li>RPRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>Prior to implementation (baseline)</li> <li>Semi-regular basis after implementation (every 3 to 5 years)</li> </ul>

Program	Evaluation Metrics	Tools	Timing
<b>Option 5: Review Public Space Recycling</b>	<ul style="list-style-type: none"> <li>• Number of public locations where recycling receptacles are available</li> <li>• Amount of Blue Box material diverted</li> <li>• Change in diversion rate</li> </ul>	<ul style="list-style-type: none"> <li>• Community Asset Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>• Tonnage tracking data</li> <li>• RPRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>• Review annually</li> </ul>
<b>Option 14: Consider a Maximum Bag Limit</b>	<ul style="list-style-type: none"> <li>• Changes in amount of material diverted/disposed               <ul style="list-style-type: none"> <li>○ Overall tonnes</li> <li>○ Per household</li> <li>○ Per capita</li> </ul> </li> <li>• Change in diversion rate</li> <li>• Change in recovery rates for divertible materials</li> <li>• Number of set-outs that exceed maximum bag limit</li> </ul>	<ul style="list-style-type: none"> <li>• Curbside tonnage tracking data</li> <li>• Dufferin County rebate data</li> <li>• RPRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>• Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>• Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to implementation (baseline)</li> <li>• Semi-regular basis after implementation (every 3 to 5 years)</li> </ul>
		<ul style="list-style-type: none"> <li>• Waste collector tracking data</li> </ul>	<ul style="list-style-type: none"> <li>• Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>• Participation study</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to implementation</li> <li>• Semi-regular basis after implementation (every 2 to 4 years)</li> </ul>
<b>Option 15: Shift to Full User Pay</b>	<ul style="list-style-type: none"> <li>• Changes in amount of material diverted/disposed               <ul style="list-style-type: none"> <li>○ Overall tonnes</li> <li>○ Per household</li> <li>○ Per capita</li> </ul> </li> <li>• Change in diversion rate</li> <li>• Change in recovery rates for divertible materials</li> </ul>	<ul style="list-style-type: none"> <li>• Curbside tonnage tracking data</li> <li>• Dufferin County rebate data</li> <li>• RPRA Datacall</li> </ul>	<ul style="list-style-type: none"> <li>• Review annually</li> </ul>
		<ul style="list-style-type: none"> <li>• Waste audit</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to implementation (baseline)</li> <li>• Semi-regular basis after implementation (every 3 to 5 years)</li> </ul>

## 8.4 Target Evaluation Metrics

To aid in the evaluation, target evaluation metrics have been prepared that consist of:

- Per capita targets for waste generated and waste disposed per capita;
- Percentage (or “market share”) of waste stream diverted through the County’s solid waste programs; and
- The County’s overall solid waste diversion rate.

Table 18 presents the targets for the milestone year of 2021 (based on the LTWMS objectives), as well as year-by-year targets to aid in annual progress tracking.

For the milestone year of 2021, the targets include:

- Per capita targets:
  - Waste generated per capita: 321 kg per person per year or less;
  - Waste disposed per capita: 101 kg per person per year or less;
- Waste stream diversion targets:
  - At least 27.3% of the waste stream diverted through the Blue Box program;
  - At least 17.2% of the waste stream diverted through the Green Bin program;
  - At least 13.0% of the waste stream diverted through the Leaf and Yard Waste program;
  - At least 0.8% of the waste stream diverted through the MHSW and WEEE programs;
  - At least 0.4% of the waste stream diverted through the textile recycling;
  - At least 0.03% of the waste stream diverted through the other diversion programs, such as scrap metal, bulky waste, etc;
  - At least 4.1% of the waste stream diverted through the provincial stewardship programs, such as the Ontario Tire Stewardship or LCBO/Deposit-Refund programs;
- Waste Diversion Rate
  - At least 65% of the waste stream is diverted from disposal.

The targets have been set based on the implementation schedule described in Section 7.

**Table 18: Evaluation Performance Targets**

Year	2018	2019	2020	2021 *	2022	2023	2024	2025	2026	2027
<b>Waste per Capita</b>										
Kg of Waste Generated Per Capita	328	325	323	<b>321</b>	320	319	319	319	319	318
Kg of Waste Disposed Per Capita	129	122	110	<b>101</b>	96	93	91	89	87	85
<b>Diversion by Program (Percent of Waste Stream)</b>										
<b>Program</b>	<b>Percent of Waste Stream Diverted/Disposed</b>									
Blue Box	26.9%	27.0%	27.2%	<b>27.3%</b>	27.6%	27.8%	28.1%	28.3%	28.6%	28.9%
Green Bin Program	16.1%	16.5%	16.8%	<b>17.2%</b>	17.4%	17.6%	17.9%	18.1%	18.5%	18.7%
Leaf and Yard Waste	12.8%	12.9%	12.9%	<b>13.0%</b>	13.1%	13.2%	13.3%	13.4%	13.6%	13.6%
MHSW/E-Waste	0.59%	0.61%	0.64%	<b>0.8%</b>	0.8%	0.9%	0.9%	0.9%	1.0%	1.0%
Textiles	0.0%	0.0%	0.24%	<b>0.4%</b>	0.6%	0.6%	0.7%	0.7%	0.8%	0.8%
On-Property Diversion (e.g., Backyard Composting and Grasscycling)	1.8%	1.9%	2.0%	<b>2.1%</b>	2.1%	2.2%	2.2%	2.3%	2.3%	2.4%
Other Diversion	0.03%	0.03%	0.03%	<b>0.03%</b>	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Tire Recycling and LCBO Deposit/Return Programs	4.11%	4.13%	4.14%	<b>4.1%</b>	4.1%	4.2%	4.2%	4.2%	4.2%	4.2%
<b>Waste Diversion Rate</b>	<b>60.5%</b>	<b>62.0%</b>	<b>63.5%</b>	<b>65.0%</b>	<b>65.7%</b>	<b>66.4%</b>	<b>67.1%</b>	<b>67.8%</b>	<b>68.9%</b>	<b>69.6%</b>

\* Target Year: Target Waste Diversion Rate for 2021 is 65%

# 9. Contingency Plan





The LTWMS has been designed to maximize the performance of the County's existing waste management system and build upon its success. This section discusses the factors that will assist the LTWMS achieve its goals and objectives, identify potential risks that may reduce the LTWMS's ability to achieve its goals and objectives, and provide possible contingencies to mitigate negative influences.

## 9.1 Success Factors

The LTMWS provides a comprehensive framework that will help the County achieve its waste management goals and objectives. The factors that will lead to its success include:

- **Customer Participation** – The success of any program depends on the participation of its intended audience (i.e., the customer). The initiatives identified in the LTWMS will seek to foster not only increased participation in waste diversion activities, but also proper participation. Improper participation can negatively impact programs by creating processing challenges and increasing contamination.
- **Self-Assessment and Continual Improvement** – Moving forward towards a target requires the understanding of existing performance and a willingness to make improvements as required. The monitoring and evaluation plan discussed in the previous section will allow the County to actively monitor the performance of the waste management system, assess areas that are under-performing, and identify methods for their improvement.
- **Research and Experience-sharing** – While several ideas for improving how waste is managed will come from within the County, often opportunities are identified and innovated based on the experience of others. The County will gather useful insight for its own programs through on-going research into waste management innovation, and the lessons learned from other municipalities in Ontario and beyond.
- **Financial Sustainability** – Financial considerations are a fundamental part of waste management planning. Excessive costs for diversion make waste diversion programs economically and politically challenging to implement and sustain. The success of the County's waste management system will depend on its ability to manage costs. The County will be able to influence this to some degree through its competitive tender process for waste collection, processing and disposal services. However, there are a number of factors beyond the County's control, such as the global commodities market for recyclable materials, industry stewardship, and government programming.

## 9.2 Risk Factors and Contingencies

While the LTWMS provides a robust framework for achieving the County's waste management goals, there are a number of risks that require careful consideration and contingency planning. These are reviewed in Table 19 on the following page.

**Table 19: Risk Factors and Possible Contingencies**

Risk	Contingencies
<p><b>Low participation rates in diversion programs</b></p>	<ul style="list-style-type: none"> <li>• Track participation rates through monitoring/evaluation activities</li> <li>• Characterize those under-participating (e.g., geographic location, demographics, etc.)</li> <li>• Use surveys to identify barriers to participation</li> <li>• Develop strategies to overcome the identified barriers</li> <li>• Update/modify waste diversion initiatives/programs as necessary</li> </ul>
<p><b>Incorrect participation / high levels of material contamination</b></p>	<ul style="list-style-type: none"> <li>• Track material contamination levels through processing vendor feedback, waste audit results, etc.</li> <li>• Identify potential contamination trends and causes</li> <li>• Update/modify waste diversion initiatives/programs as necessary (particularly targeted promotion/education)</li> </ul>
<p><b>Changes in Provincial waste regulations / strategies</b></p>	<ul style="list-style-type: none"> <li>• Continue to monitor Provincial activities relating to the <i>Waste-Free Ontario Act</i>, including stewardship responsibilities</li> <li>• Provide formal and informal feedback into the Provincial solid waste planning process</li> <li>• Delay or schedule initiatives with significant cost implications in relation to confirmed Provincial direction</li> </ul>
<p><b>Challenges related to Blue Box Evolving Tonne</b>            (e.g., reduced waste diversion rate, increased diversity of Blue Box program materials, increased use of plastic film, etc.)</p>	<ul style="list-style-type: none"> <li>• Monitor and track changes in composition of Blue Box materials collected/marketed</li> <li>• Assess for potential impacts to processing requirements and revenue potential</li> <li>• Evaluate reallocating high cost/low tonnage material from curbside collection programs to a depot based program</li> <li>• Update/modify Blue Box processing tender and waste diversion initiatives/programs as necessary</li> </ul>
<p><b>Negative Changes to Waste Collection/ Processing/ Disposal Costs</b>            (e.g., reduced Blue Box material commodity values, increased contractors costs, etc.)</p>	<ul style="list-style-type: none"> <li>• Monitor trends in global Blue Box material commodity markets</li> <li>• Continue with competitive tendering process for waste management services</li> <li>• Review future tender documents and contracts for economic efficiencies and protection</li> <li>• Assess municipal partnership for collection and processing</li> <li>• Manage Blue Box contamination levels to minimize Blue Box residue penalties</li> </ul>

# 10. Conclusion



The Dufferin County LTWMS includes a broad range of initiatives that will enhance the performance of what is already one of Ontario's leading solid waste management systems. The initiatives will provide a greater emphasis on waste reduction, improve the performance of its existing waste diversion programs, and include future initiatives that will further increase the system's diversion efforts. This will include incorporation of leading-edge innovations such as food waste reduction, as well as the advancements to existing components such as promotion and education.

The LTWMS consists of initiatives that work toward its mission statement and its four goals, which include:

- Goal 1: Maximizing diversion of waste from disposal. This includes the long-term goals of 80% waste diversion by 2041 and zero-waste by 2051.
- Goal 2: Exploring waste management opportunities that are either local or located within Central Ontario.
- Goal 3: Involving stakeholders and the public through continual education and feedback to support and facilitate individuals and businesses taking responsibility for their waste.
- Goal 4: Continuing with waste diversion programming that is consistent with provincial waste management policy.

The success of the Strategy will be owed in large part to those stakeholders that have contributed their efforts, thoughts and opinions during the development of the LTWMS. The feedback and direction received during the process has led to a LTWMS that has been designed for and by those that work, live, and play in Dufferin County.