



Final Recommendations and Initiatives

Solid Waste Management Strategy Update

Simcoe County
July 27, 2016

Final Report

Contents

1	Introduction.....	1
2	SWMS Update.....	1
3	Council Options Directed to Consultation	2
4	Public Consultation and Feedback Received.....	3
5	New Waste-Related Legislation	8
	5.1.1 <i>Waste-Free Ontario Act</i>	8
	5.1.2 Cap and Trade Program	9
6	Transfer and Processing	10
	6.1 OPF	10
	6.2 MMF	11
7	Strategy Recommendations and Implementation	12
	7.1 Identification of Recommended Options	12
	7.2 Garbage Disposal and Mixed Waste Processing.....	17
	7.2.1 Mixed Waste Processing.....	17
	7.2.2 Landfill Capacity in the County.....	18
	7.3 Garbage Collection.....	22
	7.3.1 Full Pay-as-You-Throw (PAYT).....	22
	7.3.2 Biweekly Garbage Collection	23
	7.3.3 Reducing the Curbside Garbage Limit (from 8 to 4)	24
	7.3.4 Standard Garbage Container Size	25
	7.3.5 Mandatory Diversion By-law	28
	7.3.6 Reduce the “Double-up” Program	30
	7.4 Curbside and Facilities Diversion.....	32
	7.4.1 Single Stream Recycling	32
	7.4.2 Expand Materials Accepted in Curbside Green Bin Collection	32
	7.4.3 Examine Level of Service for Leaf and Yard Waste Collection	35
	7.4.4 Examine Level of Service at County Waste Facilities.....	36
	7.4.5 Expand Diversion at County Waste Facilities	37
	7.5 Reduction and Reuse.....	40
	7.5.1 Advocacy.....	40
	7.5.2 Rewards Program	41
	7.5.3 Food Waste Reduction.....	42
	7.5.4 Expand Textile Collection.....	43
	7.5.5 Disposal Bans	45
8	Projected SWMS Performance	46
	8.1 Estimated Waste Projections	47
	8.2 Projected Diversion Rates.....	48
9	Implementation Plan.....	51
	9.1 Summary of Additional System Costs and Staffing Requirements	52
	9.2 Monitoring and Plan Review	58
10	Summary and Conclusions	60

Tables

Table 3-1: Summary of Options from the Council Resolution, December 2015.....	3
Table 7-1: Summary of Options and Rationale for Inclusion (✓) or Exclusion (×) in the Strategy Update.....	12
Table 8-1: Waste Projections for the Recommended Strategy Update (2015-2030)	50
Table 9-2: Summary of Additional Annual Estimated Strategy Implementation Costs ('000s).....	53
Table 9-3: Summary of Proposed Monitoring Measures for Recommended Initiatives	58
Table 10-1: Summary of Options Considered and Recommended in the Strategy Update.....	60

Figures

Figure 4-1: Summary of Public Feedback from Surveys	5
Figure 8-1: Overall Waste Generated and Diverted (2015-2030).....	47
Figure 8-2: Curbside Waste Generated and Diverted (2015-2030).....	48
Figure 9-1: Overview of the Proposed Implementation Plan	51

Glossary of Acronyms

AD	Anaerobic Digestion
CCME	Canadian Council of Ministers of the Environment
ECA	Environmental Compliance Approval
EPR	Extended Producer Responsibility
FTE	Full Time Equivalent
GHG	Greenhouse Gas
GTA	Greater Toronto Area
kg	kilogram
L	Litre
LYW	Leaf and Yard Waste
MHSW	Municipal Hazardous and Special Waste
MMF	Materials Management Facility
MOECC	Ministry of the Environment and Climate Change
MRF	Material Recovery Centre
MWP	Mixed Waste Processing
OPF	Organics Processing Facility
P&E	Promotion and Education
PAYT	Pay as you throw
Q	Quarter
RFI	Request for Information
RFP	Request for Proposal
RFPQ	Request for Pre-Qualification
RRCEA	<i>Resource Recovery and Circular Economy Act</i>
SWMS	Solid Waste Management Strategy
U.K.	United Kingdom
U.S.	United States
WDTA	<i>Waste Diversion Transition Act</i>
WEEE	Waste Electrical and Electronic Equipment
WFOA	<i>Waste-Free Ontario Act, 2016</i>

1 Introduction

In 2010, Simcoe County Council approved a comprehensive, multi-staged Solid Waste Management Strategy (SWMS) designed to guide short and long-term diversion and waste disposal programs for the next 20 years. Since that time, more than 25 of the recommended initiatives in the SWMS have been implemented, allowing Simcoe County (the County) to achieve higher diversion rates, synergies and efficiencies in waste collection and innovations in waste management.

Simcoe County is one of the top-diverting communities in Ontario with residents making good use of the blue box program and diversion opportunities provided at County waste facilities. However, waste diversion rates have been relatively stagnant and waste generation rates are increasing, and performance of the Green Bin organics diversion program requires improvement. The original SMWS needs to be updated with a new plan for managing waste for the 20-year planning period, including diversion, processing, and disposal. This SWMS update outlines the results of implementation of the first five years of the Strategy and identifies potential options and initiatives considered by the County as well as the recommended initiatives and implementation plan for the next 5 years. The implementation of these options will assist the County in reaching the County Council approved targets of 71% diversion by 2020 and 77% diversion by 2030.

2 SWMS Update

The update to the Strategy was initiated in 2015 and has been completed in a series of reports.

- Current Status Report – The County prepared a summary of initiatives undertaken since 2010 and the resulting performance of the County's waste management system. (**Appendix A**)
- Technical Memorandum #1 (Potential Options and Initiatives) – HDR provided an assessment of the Strategy and system performance, an overview of other municipal programs and initiatives and identified potential options for consideration by the County. (**Appendix B**)
- Presentation to County Council on December 8, 2015 – HDR presented the recommendations and options to County Council to obtain direction on which options would be carried forward for further consideration and public consultation. Additionally, further direction on various items related to the County's disposal system was provided through Council resolution 2015-317. (**Appendix C**)
- Public Consultation, May 2016 – The County conducted two sets of public consultation in May 2016 to solicit public feedback on the options being considered. Input was also solicited through a survey available at the public consultation events and online on the County's website. Please see **Appendix D** for the Public Consultation Summary Report.

This final report includes a summary of the options recommended for implementation over the next five years, considering feedback received, additional research and discussion with County Staff.

3 Council Options Directed to Consultation

In December 2015, County Council considered the options presented for garbage collection service, curbside and facilities diversion, reduction and reuse as well as transfer, processing and disposal, as presented in **Appendix B**.

Council passed resolution # 2015-317 identifying which options would be directed to consultation and including decisions related to transfer, processing and disposal. Table 3-1 presents the options presented to Council and the decision on which options would be directed to public consultation (✓) and undergo further consideration and which options were identified as less viable (×).

With respect to transfer, processing and disposal, the Council resolution provided the following direction:

- That Mixed Waste Processing be further investigated and reported on to Council as the technology advances;
- To permanently close Sites 9 – Medonte and 12 – Sunnidale;
- To preserve one year of emergency capacity at Site 11 – Oro; and,
- Upon closure of Site 2 – Collingwood, that the County would export drop-off facility garbage for disposal/processing.

The Council resolution also confirmed the approved County diversion targets:

- 71% diversion by 2020
- 77% diversion by 2030
- 1% minimum annual reduction in per capita waste generation.

The County is proceeding with a separate, concurrent planning process for the Organics Processing Facility (OPF) and Materials Management Facility (MMF) both of which are infrastructure projects recommended in the 2010 Strategy. This was recognized at the Council session and progress on the OPF and MMF processes has been reported on separately to Council.

Table 3-1: Summary of Options from the Council Resolution, December 2015

Garbage Collection Options	Curbside and Facilities Diversion	Reduction and Reuse Options
✓ Full PAYT (pay by bag and not taxes)	✓ Expand curbside green bin collection (pet waste, diapers)	✓ Food waste reduction (encourage wasting less food)
✓ Biweekly garbage collection	✓ Examine level of service for leaf and yard waste collection ¹	✓ Disposal bans and diversion by-laws
✓ Standard garbage container	✓ Examine facilities level of service	✓ Textile collection (expand)
× Automated cart-based collection	✓ Expand facilities diversion	✓ Advocacy (Staff and Council)
× Clear garbage bags	× Single stream recycling	✓ Rewards program (recognize resident's diversion performance)
× Bag tag price increase		

4 Public Consultation and Feedback Received

The County undertook several public consultation activities. The purpose of these activities was to gather feedback from the County's residents on the various waste management programs and then consider that feedback to inform decisions on how to implement, monitor and structure the County's waste management programs over the next several years. The main consultation activities for the Strategy Update consisted of public consultation sessions and a survey regarding the recommended options.

A total of 32 people attended the public consultation sessions, another 118 watched the webinar. 35 surveys were received from the public on the options being considered.

Based on the results of the surveys (yes/no scores and comments), for the three garbage collection service options, respondents were generally against pay-as-you-

¹ This option originally considered expanding the level of service for Leaf and Yard Waste collection; further direction was received from County Council subsequent to December 2015 to maintain the current level of service for the next contract and re-examine this in the future.

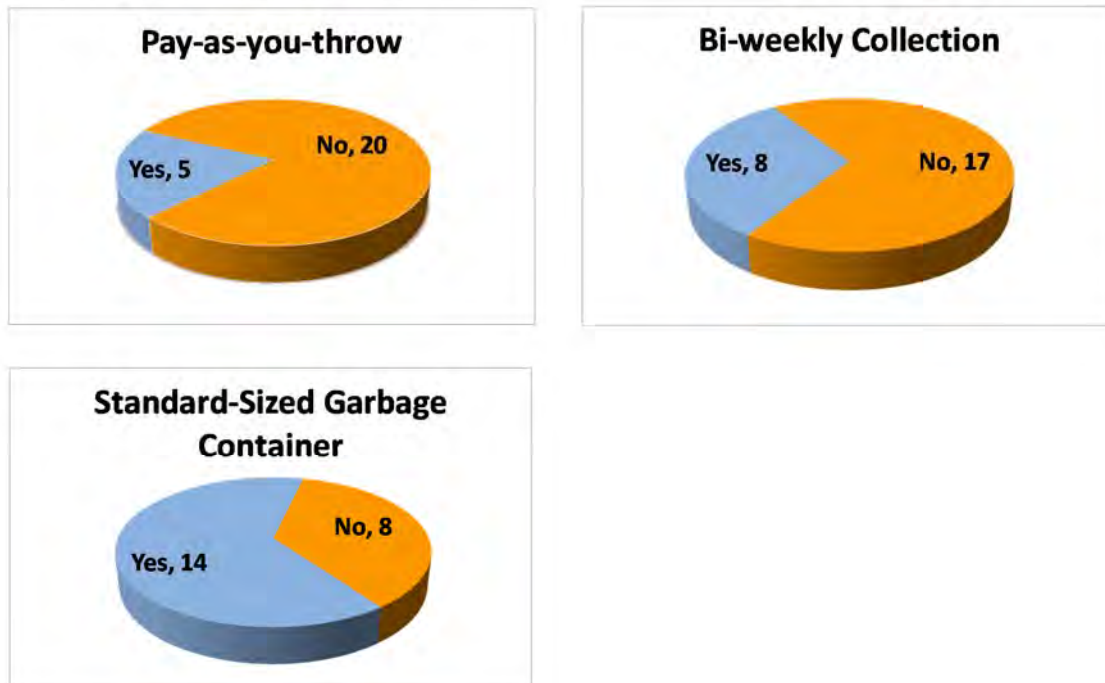
throw and generally in favour of standard sized garbage containers. Most of the additional comments discussed how paying as you throw is not a good idea and that paying for additional garbage tags is unwanted.

For the four curbside and facilities options, most residents felt that expanding the yard waste collection program was not necessary, but that expanding the other diversion programs would be reasonable. Overall, residents feel that both pet waste and diapers should be collected with the Green Bin program and that the County facilities services should be fully examined. Several additional comments addressed the need for adding diapers and pet waste to the Green Bin program.

For the four reduction and re-use options, it seemed that residents were generally split on implementing disposal bans and/or diversion by-laws and also implementing rewards programs, but were overall in favour of adding a textile collection program and increasing food waste reduction.

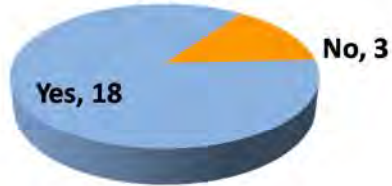
The following figures summarize the public feedback regarding the options the County should implement. Respondents were asked to indicate which options they felt the County should implement in the next five years by selecting “yes” or “no”. See **Appendix D** for more information about the feedback received through the consultation process.

Figure 4-1: Summary of Public Feedback from Surveys

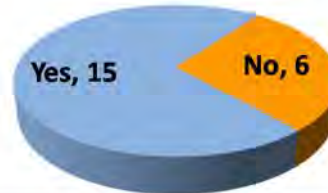
Garbage Collection Services

Curbside and Facilities Diversion Programs

Green Bin including pet waste



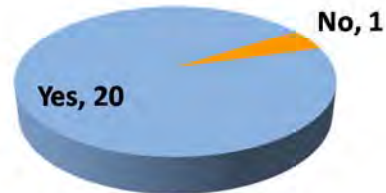
Green Bin including diapers and sanitary products



Expand yard waste collection



Examine services at County facilities

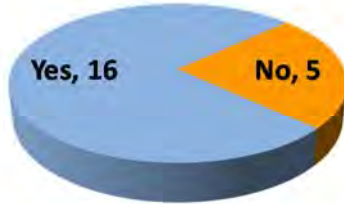


Expand diversion programs at County facilities

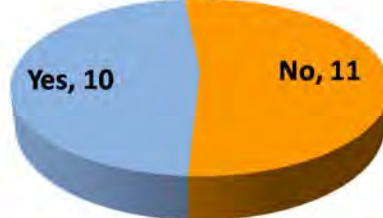


Reduction and Re-use

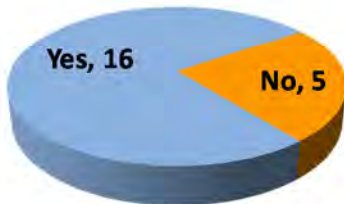
Food waste reduction



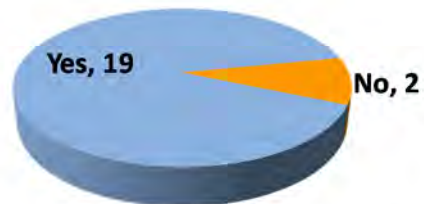
Implement disposal & diversion by-laws



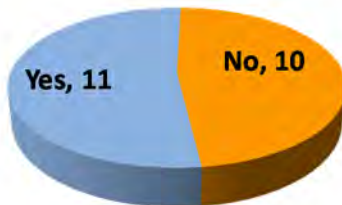
Advocacy



Textile collection



Rewards program



During the Strategy Update, the County was also conducting public consultation on the proposed Organics Processing Facility (OPF) and Materials Management Facility (MMF). Although the OPF and MMF form part of the overall Strategy, the feedback received at these specific information sessions was not considered as part of the Strategy Update as the feedback regarding these facilities was specific to siting and next steps in the project timeline.

5 New Waste-Related Legislation

There are two new pieces of legislation that have been passed in 2016 that have potential effects on municipal waste management and the County's roles and responsibilities that should be considered as part of the planning process for the County's new infrastructure. The *Waste-Free Ontario Act* may affect the quantities and types of materials requiring management by the County and the *Climate Change Mitigation and Low-carbon Economy Act* may provide additional financial opportunities for the County. Each of these pieces of legislation is further discussed below.

5.1.1 *Waste-Free Ontario Act*

On November 26, 2015, the Ontario Minister of Environment and Climate Change (MOECC) introduced for first reading, the *Waste-Free Ontario Act, 2016 (the Waste-Free Ontario Act or WFOA)*. The Act is intended to change the existing waste diversion framework in the Province of Ontario and support a circular economy, which will increase waste reduction and resource recovery. The enabling legislation consists of: the *Resource Recovery and Circular Economy Act* (RRCEA) and the *Waste Diversion Transition Act* (WDTA) which repeals and replaces the *Waste Diversion Act, 2002*, and lays out how Ontario stewardship programs will transition from the current structure to a full extended producer responsibility (EPR) framework². The bill was passed on June 1, 2016.

The legislation will impact how the County manages some materials in the waste stream, particularly blue box recycling. It is likely that the County will continue to manage residential garbage and Green Bin organics, however, the legislation provides opportunities for the County to examine and consider the extent to which it wants to continue to be involved in the management of blue box recycling, Municipal Hazardous and Special Waste (MHSW), Waste Electrical and Electronic Equipment (WEEE) and used tires, where producers will become physically and financially responsible for end of life management under the new legislation.

Future regulations under the Act are expected to designate a number of additional materials, which are managed by the County, including: textiles, mattresses, carpet, construction and demolition waste and furniture in particular. These materials are targets for the Canadian Council of Ministers of Environment (CCME) Phase 2 EPR program. All provinces in Canada, including Ontario, have committed to regulating EPR for these materials by 2017. If these regulations pass, then producers will be responsible for the end of life management of these materials. The County may have the option to continue to manage these materials on behalf of producers, subject to satisfactory financial arrangements, or the County may have the option to leave management of these materials entirely up to the responsible producers.

² The WDTA sets forth a legislative framework for transitioning existing Industry Funding Organization (IFO) programs for blue box materials, municipal hazardous and special waste (MHSW), Waste Electrical and Electronic Equipment (WEEE) and used tires to an extended producer responsibility (EPR) regime under the new *Resource Recovery and Circular Economy Act*.

Along with the *Waste-Free Ontario Act*, the government released a *Draft Strategy for a Waste-Free Ontario: Building the Circular Economy*³. This strategy sets out the Province's key goals with respect to waste recovery and a series of actions to shift the Province towards a circular economy and waste-free future. Several of the actions mentioned in the Draft Provincial Strategy will overlap with elements of this Strategy. In particular, as part of the Draft Provincial Strategy, the Province intends to:

- establish an organics action plan which may mandate organics bans at disposal facilities;
- consider material bans at disposal facilities, possibly including construction and demolition waste;
- put better data collection systems in place to address the need to divert more IC&I waste; and,
- demonstrate provincial leadership through green procurement.

5.1.2 Cap and Trade Program

On February 24, 2016, the Ministry of the Environment and Climate Change (MOECC) released Bill 172, the *Climate Change Mitigation and Low-Carbon Economy Act, 2016*⁴, and the draft *Cap and Trade Program Regulations* on February 25, 2016. Bill 172 received Royal Assent on May 18, 2016. In addition to codifying Ontario's Greenhouse Gas (GHG) reduction commitments, this legislation lays the foundation for Ontario's cap and trade program.

Under the cap and trade system, the Ontario government will impose a mandatory cap on the GHG emissions that regulated industries and sectors are allowed to produce within a given compliance period. To comply with the cap, which declines each year, emitters may either reduce their emissions or trade/purchase allowances and emissions credits in the carbon market.

The Bill could have several implications for this Strategy. The Act establishes a Greenhouse Gas Reduction Account, which is proposed to be used, in part, to fund programs that reduce or support the reduction of GHG emissions. Projects related to Green Bin organics processing are specifically listed as eligible for funding from the Greenhouse Gas Reduction Account.

The legislation could also mean potential new financial opportunities for the County through the sale of GHG emission offsets, or "credits." The first offset auction is expected in March 2017. Although the government has yet to define what constitutes an "offset credit," they have identified organics processing as a priority area for consideration and may also include landfill gas capture projects. While recycling results in significant GHG benefits, to date the Province has not indicated any immediate plans to create an offset protocol which would allow the sale of recycling-related GHG reductions as offsets. However, Ontario is part of a large trading pool which includes Quebec and California (through the Western Climate Initiative), therefore on-going protocol developments are anticipated which may benefit the Waste Strategy.

³ http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&BillID=3598

⁴ http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&Intranet=&BillID=3740

6 Transfer and Processing

The development of transfer and processing capacity was a significant component of the original Strategy. The Strategy considered options for organics processing within and outside the County with short term recommendations to continue to export organics to an out-of County facility and long term recommendations to assess the construction of an Organics Processing Facility (OPF) within its jurisdiction. The Strategy also recommended expansion of transfer capacity. Results of studies undertaken by the County resulted in the decision to develop a Materials Management Facility (MMF) as an integral part of the County's waste management system.

The County initiated planning and consultation for the OPF and MMF in 2014. These processes have continued separately and in parallel with the Strategy update. Progress on these initiatives and linkages to other recommended Strategy components are discussed below.

6.1 OPF

The County has made substantial progress in the planning process for the OPF. The preferred location has been selected, located at 2976 Horseshoe Valley Road West, Springwater. County Council approved the co-location of the OPF and MMF at this location on March 22, 2016.

Further to this, County Council approved a Development Strategy⁵ for the OPF and MMF on May 24, 2016, including a revised procurement process for the OPF that would allow for consideration of both aerobic and anaerobic processing technologies. Consideration of anaerobic technology may allow the processing of an expanded range of organic materials, including diapers, which was supported through public feedback. Additionally, anaerobic digestion has the potential to recover energy and may provide revenue opportunities through Bill 172 (see Section 5.1.2).

A revised procurement approach has been adopted, which will utilize a three-stage procurement process. The proposed timeline includes a Request For Information (RFI) issued in late 2016, a Request For Pre-Qualification (RFPQ) in Spring 2017, and Request For Proposal (RFP) mid-2017. The final OPF business case is scheduled to be complete in March 2018. Design and equipment procurement is expected to take approximately one year from March 2018 to April 2019 with construction of the facility commencing in April 2019 and lasting two years. It is anticipated that the OPF would be commissioned in Spring 2021. Timelines presented are reasonable estimates but are contingent on outside approvals that are within County control.

There is some potential that future consideration of mixed waste processing (MWP) by the County could identify an opportunity to recover the organic fraction of the waste stream. It is possible that the basis of design for the OPF could allow for some future expansion to accommodate additional material streams. MWP is discussed further below in the Strategy recommendations.

⁵ CCW 16-165, Solid Waste Management Infrastructure Projects – Development Strategy

Inclusion of the ability to manage organics from mixed solid waste will be particularly important when the Province moves forward with its Organics Action Plan which could include a disposal ban for certain materials, including residential organics.

6.2 MMF

As described above, the MMF will be co-located with the OPF. It is anticipated the development of the MMF will proceed in advance of the OPF as the delivery method and timing will be different for these facilities. The MMF, a transfer facility, will be an integral part of the County's waste management system – the link between collection operations and moving material to final waste disposal/processing locations. It will provide a location for consolidation of garbage, organics, and recycling from multiple collection vehicles into larger, higher-volume transfer vehicles for more economical shipment to disposal/ processing sites. There will be no long-term storage of materials or public drop-off at this facility.

At this time, the MMF is anticipated to be in operation by mid-2019, coinciding with the expiration of the current transfer, haulage and processing contract. Again, this timing is contingent on obtaining both Planning approvals and the Environmental Compliance Approval within the timeframe noted on the approved Development Strategy.

Flexibility for the following should be considered during the preparation of the procurement specifications for the facility:

- Potential increases in the volumes of recyclable and other divertible materials and decreases in the volumes of waste that would be managed at the facility. Regulatory measures such as the WFOA may affect the volumes of certain materials requiring management at the MMF by directing materials away from the municipal waste stream. A mandatory diversion by-law has the potential to shift materials out of the waste stream sent to disposal, to the recycling and organics streams.
- Potential changes for future recycling processing that could be co-located at the facility should circumstances warrant this change. The requirements for future recycling processing would be affected by the outcome of the WFOA implementation and/or if the County were to move to single-stream recycling which may be re-examined after 2021 as part of the second 5-year update of the Strategy.
- Potential for co-locating/integrating some form of mixed waste processing at the MMF to increase material capture.

These considerations would not impact the size or footprint of the actual facility but the internal configuration (e.g. capacity and/or number of bunkers required to manage each material stream). Flexibility should be built into the design of the MMF to reconfigure bunkers, push walls, etc. to allow for the ability to manage materials as they are removed from the garbage stream and diverted to other streams (recycling, organics, etc.).

7 Strategy Recommendations and Implementation

7.1 Identification of Recommended Options

Following completion of the public consultation process, HDR completed additional analysis of the options and updated supporting research where appropriate. The results were assessed and discussed with County staff.

In addition to the options carried forward from the December Council session, there were some supplementary options that arose out of discussion with the public and County staff that were identified and assessed as to their viability to increase diversion.

The following table summarizes the options considered and carried forward for the development of the Strategy recommendations.

Table 7-1: Summary of Options and Rationale for Inclusion (✓) or Exclusion (✗) in the Strategy Update

Option	Rationale
Garbage Disposal and Mixed Waste Processing	
✓ Mixed waste processing	<ul style="list-style-type: none"> County Council direction through resolution # 2015-317
✓ Permanent closure of Sites 9 and 12	
✓ Preserve one-year of emergency disposal capacity at Site 11	
✓ Export facilities garbage on closure of Site 2	

Option	Rationale
Garbage Collection	
✓ Standard garbage container size	<ul style="list-style-type: none"> • A standard-sized garbage container was supported by the majority of respondents during public consultation • Key measure to reduce waste sent to disposal and increase diversion • Would facilitate enforcement of the current limit • General public support for providing standard containers to each household. Provision and distribution of containers would have a budget impact. Some additional resources will be required for promotion, education and enforcement.
✓ Reduce the curbside garbage limit (from 1+7 to 1+3)	<ul style="list-style-type: none"> • Identified as an additional measure to reduce waste sent to disposal following public consultation • Minimal implementation requirements or additional costs to the system
✓ Reduce double-up program (eliminate double-up for Victoria Day and Thanksgiving)	<ul style="list-style-type: none"> • Identified as an additional measure to reduce waste sent to disposal following public consultation • Encourages diversion of organics and recyclables generated on Victoria Day and Thanksgiving weekends • Minimal implementation requirements or additional costs to the system
✓ Mandatory diversion by-law	<ul style="list-style-type: none"> • Efficient implementation mechanism identified, garbage will only be collected if a Green Bin is set out • Key measure to reduce waste sent to disposal and increase diversion • Public opinion was split, but more favorable for this versus full PAYT and biweekly garbage collection • This option was shifted from reduction and reuse as it will be implemented through curbside collection

Option	Rationale
× Biweekly garbage collection	<ul style="list-style-type: none"> • Biweekly garbage collection was not widely supported during public consultation • Significant implications are associated with the high seasonal population in the County and weather related impacts to collection services, making this more challenging than in an urban setting • Cannot implement optimal fleet configuration, resulting in minimal to no collection cost savings • Recommend reassessing this option as part of the 2021 Strategy update
× Full pay-as-you-throw (PAYT) (pay by bag and not taxes)	<ul style="list-style-type: none"> • Full PAYT is not recommended for implementation over the five-year implementation timeframe for the Strategy update • PAYT was not widely supported during public consultation • Concerns expressed regarding how cost recovery would change and if residents would observe a decrease in collection costs recovered through taxes • Was not anticipated to result in much increase in diversion, most communities with full PAYT have lower diversion rates than Simcoe
× Automated cart-based collection	<ul style="list-style-type: none"> • Not recommended as part of Council resolution # 2015-317 • Minimal potential to increase diversion • Significant potential implementation costs for the County to purchase and deliver automated carts • Automated recycling collection would require shift to single stream recycling, with minimal to no benefit based on performance of the County's current two stream recycling system

Option	Rationale
× Clear garbage bags	<ul style="list-style-type: none"> • Not recommended as part of Council resolution # 2015-317 • Minimal potential to increase diversion, it is difficult to observe and enforce presence of organics in the garbage bag and County residents already divert the large majority of recyclables • Concerns regarding privacy
× Bag tag price increase	<ul style="list-style-type: none"> • Not recommended as part of Council resolution # 2015-317 • Minimal potential to increase diversion • Current \$3 tag is already one of the highest tag fees in Ontario
Curbside and Facilities Diversion	
✓ Expand materials accepted in curbside green bin collection (pet waste, diapers)	<ul style="list-style-type: none"> • Key measure to improve diversion rates • Acceptance of more materials in the Green Bin was widely supported during public consultation • Concurrent with commissioning of the OPF as current processor does not accept these materials
✓ Examine level of service for leaf and yard waste (LYW) collection	<ul style="list-style-type: none"> • County has issued an RFP for LYW collection services and has decided to maintain the existing level of service • In advance of next contract in 2022, evaluate need to expand LYW collection
✓ Examine facilities level of service	<ul style="list-style-type: none"> • Examining the level of service at County facilities was widely supported during public consultation • County facilities are already running efficiently, further analysis could identify some improvements

Option	Rationale
✓ Expand facilities diversion	<ul style="list-style-type: none"> • Unanimous support from the public • Would contribute to increasing diversion rate • Would keep materials with viable markets out of the landfill
× Single stream recycling	<ul style="list-style-type: none"> • Not recommended as part of Council resolution # 2015-317 • Minimal potential to increase diversion - County already has very high participation and capture rates • Recommend reassessing this option as part of the 2021 SWMS update, pending changes to the blue box program resulting from the WFO
Reduction and Reuse Options	
✓ Food waste reduction (encourage wasting less food)	<ul style="list-style-type: none"> • Key issue with greater awareness by the public • Reducing food waste was widely supported during public consultation • Likely to be addressed in Provincial regulations
✓ Disposal bans	<ul style="list-style-type: none"> • County already has a differential tipping fee to encourage separation of recyclable materials • Mixed opinion from public consultation • Recommend the County continue with the current system but implement new bans consistent with those that may be set under regulations in accordance with the Waste Free Ontario Act
✓ Expand textile collection	<ul style="list-style-type: none"> • Represents a large portion of recyclable waste currently landfilled • Contributes to increased diversion rate • Expanding textile collection was supported by the majority of respondents during public consultation

Option	Rationale
✓ Advocacy (Staff and Council)	<ul style="list-style-type: none"> Ensures County and Council are kept apprised of and involved in key waste management initiatives and legislation It was widely supported during public consultation
✓ Rewards program (recognize resident's diversion performance)	<ul style="list-style-type: none"> Identified as an additional option by County Council May assist with encouraging residents to participate in Green Bin program Mixed support for this option from respondents during public consultation

The following sections discuss in greater detail, the options which were identified and the rationale for inclusion or exclusion from the Strategy update recommendations. Details are provided for the implementation of recommended options over the next five years, including estimates of potential implementation costs and staffing requirements.

7.2 Garbage Disposal and Mixed Waste Processing

Currently, the County disposes of a portion of the curbside collected garbage at three County operating landfills (Site 10 - Nottawasaga, Site 11 - Oro, and Site 13 – Tosorontio, and exports the remainder. Garbage collected at facilities is transferred to Site 2 – Collingwood landfill where it is shredded and landfilled at the site. The option of mixed waste processing may provide an alternative to recover additional materials from the County's garbage. Further discussion on garbage disposal and processing is presented in the following sections.

7.2.1 Mixed Waste Processing

The original Strategy recommended that the County continue to investigate potential partnerships with other municipalities and private sector companies for mixed waste processing (MWP). As noted in Section 3, County Council directed, through resolution # 2015-317, further investigation of MWP and future reporting to Council as the technology advances.

This technology is not widely used within Canada; however, has been used for some time in the U.S. with varying degrees of success. This technology is used with more success in some European jurisdictions. At this time, there are a few large municipalities in Ontario that are currently investigating MWP as a means to meet their diversion targets. Both the City of Toronto and Region of Peel are undertaking pilot studies on MWP to assess the viability of this approach, and to identify the quantity, quality and composition of the recovered materials. The Region of Durham plans to retain consultants to examine MWP and potential anaerobic digestion of recovered organic

materials. The County should dialogue with these and other municipalities, to obtain information on the results of these pilots and studies, as information becomes available.

Future consideration of MWP was recommended and approved by Council as:

- It has potential to significantly increase diverted organic material quantities. Increased recovery of recyclables is anticipated to be relatively minor given current recyclable material capture rates.
- MWP technologies are expected to continue to evolve in design and performance. This could improve effectiveness/recovery. Capital and operating costs for MWP systems vary; further study would clarify potential cost ranges.
- MWP would have a relatively minimal impact on residents, requiring little to no behavioural changes, or promotion and education in order to achieve additional diversion of materials. It would have an impact on system costs.

The following steps outline the implementation activities required to proceed with the consideration of MWP.

Timing	Activity
Q1 2018	<ul style="list-style-type: none"> • Investigate status and outcome of other mixed waste processing investigations by other jurisdictions (e.g. Region of Peel, Region of Durham) and report to Council.
2021	<ul style="list-style-type: none"> • Potentially assess within the 2021 Strategy update, pending the outcome of the investigations noted above and Council direction.

In regards to potential costs and staffing implications:

- For the purpose of the Strategy implementation, the investigation of MWP in 2018 would be undertaken by County staff, with no additional direct cost to the County.

7.2.2 Landfill Capacity in the County

The County currently exports a portion of its curbside waste stream, disposes the remaining portion of its curbside waste at County sites, and disposes all of the waste dropped off at County facilities at Site 2 – Collingwood.

The County has made every effort to preserve landfill capacity within their four remaining operating landfills for as long as possible in accordance with the Strategy, including site remediation, modifying operational practices and implementing shredding of bulky items destined for disposal (at Site 2 – Collingwood).

County Council, through resolution # 2015-317, provided direction to:

- Permanently close Sites 9 – Medonte and 12 – Sunnidale;

- Preserve one year of emergency capacity at Site 11 – Oro; and,
- That upon closure of Site 2 – Collingwood, the County would export drop-off facility garbage for disposal/processing.

Annual surveys of each operating landfill are conducted to determine the amount of remaining landfill capacity, the annual usage, and to provide topographical plans showing each site's progressing fill contours. The 2015 results indicate that, with consideration of maintaining one year of contingency disposal capacity, increasing population and waste generation, the combined remaining lifespan of Sites 10, 11 and 13 is nine years from late 2015 (i.e. approximately 2024). The majority of remaining airspace is at Site 11 – Oro; it is anticipated that Sites 13 – Tosorontio and 10 – Nottawasaga, will be at capacity before the end of the nine years⁶. The remaining capacity at Site 2 – Collingwood was estimated as seven years (i.e. approximately 2022).

Once this landfill capacity is fully utilized, the County would cease to have any County-owned landfill disposal capacity and all curbside and facility garbage would be exported to facilities outside the County.

Closure of Sites 9 and 12

The original Strategy had identified the potential option to develop existing approved landfill capacity at Sites 9 and 12, however, recent findings related to Source Water Protection makes this option nonviable.

Generally, there is less public support for development of landfill disposal capacity in the County than there is for all other waste management options identified in the Strategy and in this update.

Permanent closure of Sites 9 and 12 was recommended and approved by Council as:

- Developing the capacity at these sites is not viable or supported by the public;
- These sites have been temporarily closed for some time, but additional study and work is required to permanently close these facilities.

The following steps will be required to close Sites 9 and 12.

Timing	Activity
by Q4 2016	<ul style="list-style-type: none"> • Inform and consult with the MOECC regarding intent to close these sites. • Prepare draft landfill closure plans and undertake consultation (as required).
by Q4 2017	<ul style="list-style-type: none"> • Finalize landfill closure plans and submit to the MOECC.
from 2018 onwards	<ul style="list-style-type: none"> • Implement the closure plans including any remedial activities required at the sites and long-term monitoring plans.

In regards to potential costs and staffing implications:

⁶ CCW 16-170, Landfill Capacity Update,

- Consulting services will be required to assess the current site conditions and develop the landfill closure plans. A placeholder estimate of \$250,000 has been assumed for these services, however, the actual cost will be contingent on the site conditions and the amount of remedial measures required which will affect the design and components of the closure plans.
- Some minor costs to address consultation requirements associated with ECA approvals will likely be incurred.
- The closure work would be completed under the guidance of existing County staff and outside Contractors. The cost of undertaking the closure work will be contingent upon the assessment of the current site conditions and requirements for remedial measures, which could vary and cannot be identified at this time.

Preserve One-year of Emergency Capacity at Site 11 – Oro

As described above, County Council passed a resolution to preserve one year of emergency capacity at Site 11 – Oro as a contingency measure. This was recommended and approved by Council as it will provide the County with emergency capacity which could be required to manage waste from unexpected events such as severe weather which often have major costs associated with managing the waste that is generated from floods, power outages or other natural disasters. It could also help manage situations where access to export capacity is limited due to labour unrest or contractual issues.

Potential closure of Site 11- Oro is currently estimated as being approximately 2024/2025. At present, the estimate of remaining landfill capacity is based on an average tonnage/volume for the County's overall waste stream (curbside and facility waste) that could be sent for disposal over the planning period. It is recommended that the County continue to conduct annual surveys of the remaining landfills and proceed to develop and implement an interim closure plan for Site 11, to allow for retention of contingency disposal capacity when the annual survey results indicate that there is less than 3 years of remaining capacity at the site. The interim closure plan should allow for capping and closure of the operating area of the landfill such that it can be maintained in stable condition over the longer term (10 to 20 years), while facilitating resumption of landfill activities within a short time frame should an emergency arise that requires use of the remaining capacity.

The following steps outline the implementation activities associated with preserving contingency capacity at Site 11 - Oro.

Timing	Activity
ongoing	<ul style="list-style-type: none"> • Undertake calculation of the tonnage and volume required to dispose of one full-year's worth of waste currently disposed of by the County, assuming population increases and potential changes in diversion performance. • Identify the approximate timeframe at which this amount of capacity would remain.

ongoing	<ul style="list-style-type: none"> Review the Site 11 - Oro landfill design and operations plan. Identify any changes to optimize configuration of the landfill under interim closure conditions.
ongoing	<ul style="list-style-type: none"> Identify interim closure measures for Site 11 - Oro. Consult with the MOECC regarding any landfill design changes and proposed interim closure measures.
ongoing	<ul style="list-style-type: none"> As required, apply for an amendment to the Site 11 - Oro ECA approvals.

In regards to potential costs and staffing implications:

- Consulting services will be required to develop a draft and final design for interim closure. A placeholder estimate of \$120,000 has been assumed for these services, however, the actual cost will be contingent on the site conditions and the interim closure measures required which will affect the design and components of the closure plans.
- The closure work would be completed under the guidance of existing County staff and outside Contractors.

Export Facility Garbage on Closure of Site 2 - Collingwood

Currently all bulky waste dropped off at County facilities is hauled to Site 2- Collingwood where it is shredded prior to disposal which has resulted in substantial improvements in the material densities. This initiative has increased the remaining life of Site 2 and has saved the County millions in avoided waste export disposal costs.

Based on the current utilization rate, consideration of the impact of increased population and waste generation, it is estimated that this landfill will reach its approved disposal capacity in approximately seven years from the latest annual survey completed in late 2015, or approximately 2022⁷. It is recommended that a landfill closure plan be developed for this site in 2021, concurrent with, but not part of the SWMS update.

County Council directed, through resolution # 2015-317, the exportation of waste facility drop-off garbage for processing/disposal upon closure of Site 2 – Collingwood.

The composition of the facility garbage stream is different from the curbside waste stream, as it includes predominantly bulky materials and non-divertible construction and demolition materials. The County needs to determine the optimal export scenario for this material stream, which may include continuation of the shredding operations at a consolidation point in the County, and export of shredded waste material which may be suitable for other uses such as alternative solid fuel. To support the procurement of export capacity, it is recommended that the County undertake a compositional analysis of the material disposed at Site 2. This analysis should include sampling and physical testing of the shredded material stream, to provide sufficient data to the marketplace to determine if there is an alternative use of this material beyond landfill disposal.

The following steps outline the implementation activities associated with closing Site 2 - Collingwood and securing processing/disposal capacity outside the County.

⁷ CCW 16-170, Landfill Capacity Update

Timing	Activity
2021	<ul style="list-style-type: none"> Undertake a compositional analysis of the material disposed at Site 2 – Collingwood to identify if there are alternative approaches (e.g. solid fuel applications) for disposal of this material stream in preparation for a procurement process to be undertaken prior to facility closure. Develop draft landfill closure plan for Site 2 - Collingwood and undertake pre-consultation on the plan. Finalize landfill closure plan and submit to the MOECC.

In regards to potential costs and staffing implications:

- Consulting services will be required to complete compositional analysis of the facility garbage stream. Provisions for a four-season composition analysis and testing regime have been identified.
- Consulting services will be required to develop the landfill closure plan. A placeholder estimate of \$150,000 has been assumed for these services; however, the actual cost will be contingent on the site conditions which will affect the design and components of the closure plan.
- The Closure work would be completed under the guidance of existing County staff and outside Contractors.

7.3 Garbage Collection

This section discusses the garbage collection options that were considered as part of the development of the Strategy and include;

- Options that were carried forward for consultation, and that as a result of consultation and further analysis are not recommended to be carried forward (full pay-as-you-throw and biweekly garbage collection) for implementation in the Strategy update;
- Options that were carried forward for consultation, and that as a result of the consultation and further analysis are recommended to be included in the Strategy update (standard garbage container);
- Additional options arising out of review and discussion of the results of the consultation process (reduction in curbside garbage limits, reduce double-up program - eliminate double-up for Victoria Day and Thanksgiving); and,
- The option for a mandatory diversion by-law implemented through enforcement during collection and moved to the garbage collection options list from reduction and reuse.

7.3.1 Full Pay-as-You-Throw (PAYT)

Full pay-as-you-throw (PAYT) is not recommended to be carried forward for implementation in the Strategy update as:

- The County already has high participation and diversion rates, predominantly through the blue box program. It is unlikely that PAYT will have any effect on recycling tonnages or volumes. Household organics are a high tonnage, low volume material which can easily fit in a small container. The increased diversion potential for full PAYT is low.
- This option was not supported by the public, which expressed concerns regarding whether there would be any reduction in property taxes if waste collection costs were recovered from the PAYT revenues.
- Implementation of PAYT is likely to be administratively more complex.

Implementing this program is anticipated to be met with resistance from residents and is likely to cause more issues compared to the limited potential benefit it may have on diversion rates.

Predominantly for these reasons, this option is not recommended for implementation.

7.3.2 Biweekly Garbage Collection

This option is not recommended for implementation in the Strategy update for the following reasons:

- There is no strong rationale to implement this option during the current collection contract cycle (which expires on March 31, 2020) as minimal collection cost savings could be achieved. The County cannot implement the optimal collection system configuration, using a fleet of split trucks collecting garbage and organics one week and recycling and organics the next, without a shift to single stream recycling. Single Stream recycling was not one of the options carried forward for public consultation by Council resolution and offers little benefit to the County given the high performance of the County's existing two-stream program.
- This option was not widely supported during the public consultation process.
- At this time, it is unknown if potentially odorous materials may be added to the Green Bin (e.g. diapers and pet waste). Weekly collection of these materials in the Green Bin would make a switch to biweekly garbage collection more palatable to residents.
- A move to biweekly collection may present logistical issues as the County has a high seasonal population and significant weather related impacts to collection services that would make biweekly garbage collection more challenging than in an urban setting.
- Implementation of other options, such as a mandatory diversion by-law, is expected to achieve greater diversion.

It is recommended that this option be reassessed in the 2021 Strategy update which will allow for the outcome of the WFOA and changes to the Blue Box Program to come into effect which may result in a shift to single stream recycling in the Province. This will also allow for any changes to the Green Bin program to be implemented, which could result in pet waste and diapers being permitted as part of the Green Bin system and it would allow for the performance of other measures such as standardized garbage containers

and mandatory diversion by-laws to be assessed. These changes could make biweekly garbage collection more viable or may indicate that it is unnecessary.

The County should continue to assess the effects of the 2016 Strategy update recommendations on diversion of organics and other materials. Based on this assessment (and other factors as noted), biweekly garbage collection could be considered for potential inclusion as an option in the next waste collection contract

The Region of Waterloo has recently undertaken a similar waste master plan process with public consultation on biweekly garbage collection, reducing and standardizing garbage bag limits and a user-pay system. In March 2017, their program will change from weekly collection of three to ten containers (depends on municipality) to biweekly garbage collection of four garbage bag/containers with a bag tag program for all municipalities.

7.3.3 Reducing the Curbside Garbage Limit (from 8 to 4)

County Council and County staff are cognizant of the need for some sort of disincentive mechanism to drive diversion of organics. The previous two options discussed above, which would have encouraged participation in the County's organics program, were not recommended for implementation at this time. Although not brought forward to the public as part of the consultation process, it has been identified that a more stringent curbside garbage limit could provide an alternative. Currently, one (1) untagged container/bag and seven (7) tagged containers/bags may be placed out for garbage collection each week. The County could consider reducing the number of allowable garbage containers/bags to one (1) untagged and three (3) tagged containers/bags, similar to limits implemented by other municipalities.

Reduction of the curbside garbage limits to one untagged and three tagged garbage containers/bags is recommended for inclusion in the Strategy update as:

- The majority of households in the County would be able to meet this limit on a regular basis, given that on average less than 2 garbage tags per household per year are purchased by County residents;
- These limits are more consistent with those set by other jurisdictions;
- The assessment of Simcoe's program performance by the WDO is negatively affected by the high curbside garbage limit, affecting allocation of blue box funding to the County.
- Implementation of this option would complement other recommended options such as a standard garbage container and reduction in double-up days, all of which are measures to enforce or modify to existing programs. There is no real behaviour change required by the majority of County residents as would be the case of biweekly garbage, as these limits are still quite generous and are unlikely to impact the majority of residents.

This option is not expected to have a significant effect on diversion, as on average less than 2 garbage tags per year per household are purchased, but it does show consistency with policy development and application. It is not anticipated that this change would

have much impact on revenues from bag tag sales, as the average household only purchases less than 2 garbage tags per year.

The recommended timing for implementation of this option would be similar as enforcement of the standard garbage container (see proposed timing in the following section). The County's Waste Management by-law will require an amendment to account for the change in allowable containers.

Timing	Activity
Q3/Q4 2016	<ul style="list-style-type: none"> Report to Council with program implementation recommendations, including amendments to By-law No. 6256
Q1 2017	<ul style="list-style-type: none"> Develop and implement promotional program.
Q2/3 2017	<ul style="list-style-type: none"> Full implementation.
Q4 2017	<ul style="list-style-type: none"> Initial assessment of effect of this change on organics recovery and tonnages.
2021	<ul style="list-style-type: none"> Review success of this initiative as part of the 2021 Strategy update.

In regards to potential costs and staffing implications:

- It is not anticipated that implementation of this option would require significant additional staff resources. Existing County staff would develop the implementation plan.
- Promotion and education of this option would form part of the information prepared for the annual collection calendar, would be included on the County's website and through other standard promotional measures.
- Enforcement of the container limit would be undertaken primarily by collection staff which would be directed to tag and leave containers/bags that exceed the limit. There will be some extra demand on by-law enforcement staff and call centre staff, particularly when these measures are first introduced. Provisions for a portion of a by-law enforcement officer (25 to 30% of an FTE) should be included for the first year or two of implementation.

7.3.4 Standard Garbage Container Size

The County's Waste Management By-law No. 6256 currently sets a limit on the size of garbage containers accepted at the curb (80L container or 90cm x 75cm bags) with a 20 kg weight limit. Enforcement of these limits is generally applied by the collection contractor. Most residents are unaware of these limits despite ongoing promotion and education, and observations indicate that many residents use garbage containers readily

available in the marketplace that exceed the 80L limit and may regularly exceed the volume limit with untagged waste.

Provision of a standard garbage container size of 80L would remove the variability in the garbage set-outs, and limit the amount of untagged material that can be set out. The key to the success of this option is communication of the container limit to the public and enforcement of the limit, as the County has had this requirement in place for many years.

Enforcement of the standard garbage container size is recommended as part of the Strategy update as:

- This measure was the only option for restriction of garbage that was supported by the majority of respondents during public consultation.
- It is a key measure that could serve to limit garbage and encourage diversion.

It is recommended that County staff review the 80L container options available in the market and report to Council on implementation details for this program. Alternatives for implementation include:

- A 'low' cost option where the County could implement an intensive sticker campaign to identify non-compliant set-outs prior to the set implementation date, to ensure residents are aware of the need to comply with the 80L limit. Truckload sales across the County (over 8 or 9 locations) could be used to sell subsidized 80L containers. Under this option, it is likely that additional customer service and/or by-law enforcement resources would be needed following implementation to assist in addressing non-compliance issues.
- A 'higher' cost option where the County could distribute 80L containers to all residential households across the County.

Given that many residents currently regularly set-out containers and untagged waste that exceeds the 80L volume limit, it is expected that enforcement will result in additional diversion and that there is likely to be an upswing in bag tag sales, likely in the order of one or more additional tags per annum per household across the County.

A promotional campaign will be needed to implement the program under any alternative. It should be noted that the County's website currently identifies the use of oversized containers to contain standard-sized garbage bags. It would be advisable to remove this option from the website to avoid confusion and perception of condoning use of oversized containers for garbage.

It is recommended that the County implement this option as early as possible in order to determine the effect on organics recovery and resulting tonnages. This data will be helpful for consideration in the design and procurement of the OPF. As this is an important option contributing to increased diversion, the following timeline of implementation activities is heavily focused on activities for the remainder of 2016, leading up to full implementation by the end of 2017.

Timing	Activity
by Q4 2016	<ul style="list-style-type: none"> Undertake curbside set-out observations to determine the percentage of households currently setting out containers that exceed the current by-law limit of 80L. Scan current containers available on the market. Determine the range of options available in the market that meet the mandatory 80L container size, with preference for wheeled containers as indicated by respondents in public consultation. Report to Council with program implementation recommendations.
Q1 2017	<ul style="list-style-type: none"> Develop and implement promotional program. Clearly indicate that the container size limit is part of the County's existing by-law. Identify options that meet the 80L container size limit. Promote use of existing oversized containers for other purposes (e.g. yard waste).
Q2 2017	<ul style="list-style-type: none"> Pending program implementation recommendations and approval by Council, undertake pre-implementation activities including stickering campaign and/or 80L container distribution.
Q2/3 2017	<ul style="list-style-type: none"> Full implementation.
Q4 2017	<ul style="list-style-type: none"> Initial assessment of effect of this change on organics recovery and tonnages.
2021	<ul style="list-style-type: none"> Review success of this initiative as part of the 2021 Strategy update.

In regards to potential costs and staffing implications:

- It is not anticipated that development of this option would require significant additional staff resources. Existing County staff would develop the implementation plan.
- Promotion and education of this option will be critical, as it has the potential to affect weekly garbage set-outs by many households. A multi-component campaign reaching out through various media over some months leading up to full implementation will be needed.
- Procurement and distribution of a standard sized garbage container is expected to cost approximately \$25 per unit. Under a low cost, truckload sales scenario it is expected that around 10% of households would purchase a subsidized container at \$20, for a one-time only net cost to the County of \$137,500. Under a high cost scenario where containers are distributed across the County, this would cost in the order of \$670,000 annually if the cost is spread over 5 years.
- Given observations which indicate that many residents use garbage containers readily available in the marketplace that exceed the 80L limit and may regularly exceed the volume limit with untagged waste, it is likely that this measure could result in more residents purchasing tags for additional containers of waste. This is likely to increase bag tag revenues, however the actual potential increase is difficult to quantify. Should each household purchase one additional tag per year, revenues could increase by \$412,000 annually.

- A non-compliance rate of approximately 10% is assumed for the first year, falling to 5% in the second year and 2 percent in the third year if containers are not distributed widely across the County. 95% of the enforcement of the standard container size would be undertaken primarily by collection staff at the curb which would be directed to tag and leave containers/bags that exceed the limit. However, that would still result in the order of 137 non-complaint locations per day requiring some form of by-law enforcement in year one, decreasing in subsequent years. Some additional customer service and/or by-law enforcement resources would likely be required, in the order of one to two staff over the first year or two.

7.3.5 Mandatory Diversion By-law

The other options discussed in this report are likely to encourage some degree of diversion, but if the County wants to effect greater change, a regulatory instrument will be required to force people to utilize the diversion programs, particularly the Green Bin program provided by the County if they want their garbage collected. A mandatory diversion by-law is a high priority item for the County to incent the greatest diversion.

The County's By-law No. 6256 outlines the County's requirements for collection, processing, marketing transfer and/or disposal of waste. It does not require mandatory participation in diversion programs for residential households or at County waste management facilities. Only industrial, commercial and institutional units are stipulated to participate in County waste diversion programs in order to be eligible for the County's garbage collection service although this has not been enforced to date. The County has relied upon education and encouragement to use curbside diversion services, and differential tipping fees at the County's facilities to motivate participation in diversion.

In the absence of implementing other measures to encourage diversion (biweekly garbage collection, full PAYT), a mandatory diversion by-law is recommended. The recommended approach is that residential garbage would only be picked up if there is a Green Bin set out. Enforcement of a mandatory diversion by-law by looking for presence of organics in the garbage bag itself is very difficult to implement, as it cannot be quickly or easily applied by the collection contractor at a glance, it requires more time to observe the set-out including potentially opening the garbage bag. Enforcement of a mandatory by-law that requires set-out of organics in order for garbage to be collected would provide for more straightforward enforcement requiring less time and energy reducing potential effects on collection costs. It is simple for residents to understand and for collection staff to enforce. Collection staff could just take a picture of the set-out or otherwise document why material was not collected and sticker the garbage bag/container with an explanation to the resident.

There are very few jurisdictions with a mandatory diversion by-law. Some municipalities require certain streams to be separated (e.g. organics) or target certain sectors (e.g. multi-residential and IC&I sectors). Some examples of regulatory initiatives include;

- The City of San Francisco California has enacted a Mandatory Recycling and Composting Ordinance which requires everyone to separate their recyclables,

compostables and trash. Fines for non-compliance range between \$80.00 and \$500.00 dollars.

- A mandatory commercial organics Statute (Statute AB 1826) was signed in October 2014 for the state of California that will require businesses and multi-family units (5 or more units) to implement an organics recycling program as of April 1, 2016.
- The City of Owen Sound has a mandatory recycling by-law for IC&I facilities.
- The province of PEI has mandated source separation for all residential and business waste. Curbside enforcement is predominantly done by collection staff and incorrect set-outs are tagged or rejected. Additional “Waste Watchers” have been hired to work with collection staff to inspect and monitor set outs and also educate drivers.⁸

It is not clear to what extent these types of mandatory policies are enforced in other jurisdictions and whether garbage is still collected if other bins are not placed out as well. Additional research would be required to investigate successes and challenges experienced by other municipalities with similar by-laws. This option may be met with some resistance by residents; opinions were mixed during the public consultation process on implementation of mandatory measures.

In summary, implementation of a mandatory diversion by-law as part of the Strategy update is recommended as:

- It is a key measure that could serve to limit garbage and encourage diversion, specifically of Green Bin organics.
- The approach is relatively easy to enforce and comply with.
- It is a measure that does not require behaviour change for all households, only those that are not already using the County’s Green Bin organics program.
- This could be implemented with minimal direct costs. The County has already provided Green Bin containers and Green Bin promotional materials to households, although some reminders will be necessary and there may be some demand for replacement containers for some locations to ensure that they have a Green Bin for use on-site. Additional resources for by-law enforcement and to address the volume of call centre calls will need to be provided. The County should discuss with the collection contractor, the preferred method of documenting non-compliant set-outs so as to minimize any additional time required and effects on collection efficiency.

The following table provides a timeline for developing and implementing a mandatory diversion by-law.

⁸ Communication with H. Myers, Disposal Manager, IWMC, July 14, 2016

Timing	Activity
Q3/Q4 2016	<ul style="list-style-type: none"> Draft mandatory diversion by-law and implementation plan.
Q1 2017	<ul style="list-style-type: none"> Report to Council with recommended by-law and detailed implementation plan (including promotion and enforcement approach).
Q2 2017	<ul style="list-style-type: none"> Secure additional by-law enforcement staff required to implement the by-law.
Q4 2017/ Q1 2018	<ul style="list-style-type: none"> Full implementation and enforcement.
2021	<ul style="list-style-type: none"> Review the success of this initiative as part of the 2021 Strategy Update.

In regards to potential costs and staffing implications:

- It is not anticipated that development of this option would require significant additional staff resources. Existing County staff would develop the implementation plan.
- Promotion and education of this option will be critical, as it has the potential to affect weekly curbside set-outs by many households. A multi-component campaign reaching out through various media over some months leading up to full implementation will be needed. The County could choose to secure additional resources to assist residents, like providing compostable plastic bags as part of the campaign.
- A non-compliance rate of approximately 10% is assumed for the first year, falling to 5% in the second year and 2 percent in the third year. 95% of the enforcement would be undertaken by collection staff which would be directed to tag and leave set-outs without a Green Bin. However, that would still result in the order of 137 non-complaint locations per day requiring some form of by-law enforcement in year one, decreasing to 69 per day in year two and 27 in year three. It is estimated that the first year of implementation will require in the order of three additional by-law enforcement staff, decreasing to two and then one for the full implementation period. Some provisions for additional call centre support should also be assumed.

7.3.6 Reduce the “Double-up” Program

The County currently has a ‘double-up program’ that allows residents to place two untagged containers (i.e. one extra “free” container) for the first collection immediately following:

- Victoria Day (May)
- Thanksgiving Day (October)
- Boxing Day (December).

As an additional key measure to increase diversion, it is recommended that the “double-up” events following Victoria Day and Thanksgiving Day be eliminated to limit garbage and encourage diversion. These two holidays do not result in significant quantities of waste requiring extra disposal. Thanksgiving, in particular, results in increased food waste which should be managed through the Green Bin program. The week after Boxing Day is a reasonable period to remain as a “double up” collection week as residents may generate additional non-divertible wastes such as polystyrene packaging, etc.

Reducing the “double-up” program as part of the Strategy update is recommended as:

- It is an additional measure that could serve to limit garbage and encourage diversion.
- This would reinforce the consistent application of the one (free) container limit.
- The approach is relatively easy to enforce and comply with.
- It is a measure that does not require behaviour change for all households, only those that set out extra waste the week after Victoria Day and Thanksgiving Day. There are alternatives for managing additional materials generated on those periods including use of the curbside Green Bin and the County’s existing facilities for diversion.
- This could be implemented relatively easily and with minimal direct costs. By-law enforcement would be required in May and October of each year, for the first few years; however, it is anticipated that this could be managed with the existing complement of by-law enforcement officers. There may be an increase in the volume of call centre calls that will need to be addressed.

This is a relatively easy option to implement and could be accomplished for the first event traditionally held in May 2017 (Victoria Day). This option will require promotion and education so that residents understand the rationale for eliminating this program, options for generating less waste and/or disposal of additional waste well in advance of the first expected “double-up” event.

The following steps outline the implementation activities required to eliminate the “double-up” events.

Timing	Activity
Q4 2016	<ul style="list-style-type: none"> • Develop and implement promotional program through annual waste management calendar for 2017 distribution to eliminate the "double up" program as of 2017.
Q2 2017	<ul style="list-style-type: none"> • Prepare for implementation with additional by-law enforcement resources and through discussion with the County's collection contractor.
in effect as of Victoria Day 2017	<ul style="list-style-type: none"> • Implement as of Victoria Day 2017 (i.e. only one "free" container allowed)

In regards to potential costs and staffing implications:

- It is not anticipated that development of this option would require significant additional staff resources. Existing County staff would develop the implementation plan.
- Promotion and education of this option will be critical. A multi-component campaign reaching out through various media over April/May and September the first year of implementation will be needed.
- The majority of enforcement would be undertaken by the collection contractor, who would leave additional untagged bags behind with a non-compliance sticker. Any additional enforcement requirements are anticipated to be handled by existing by-law enforcement staff.

7.4 Curbside and Facilities Diversion

The following sections discuss the options related to curbside and facilities diversion including;

- single stream recycling;
- expanding the materials accepted in the curbside Green Bin collection;
- examining the level of service for leaf and yard waste collection;
- examining the level of service at County waste facilities; and,
- expanding diversion at County waste facilities.

7.4.1 Single Stream Recycling

A change to single stream recycling was not recommended as there is no rationale for the County to consider a transition to single stream recycling at this time, as the County has one of the best performing blue box programs in Ontario. The only potential benefit could be the facilitation of a more efficient collection system under a biweekly garbage and recycling collection scenario (see biweekly collection). It is more likely that the implementation of changes to the Blue Box Program in Ontario, as an outcome of the passage of the *Waste Free Ontario Act*, could result in a shift to single stream recycling depending on the proposed changes.

It is recommended that the County continue to assess the potential blue box program changes arising from the WFOA and report on implications should it appear that the program may shift to a single stream model province-wide. Pending the outcome of these activities, single stream recycling could be reviewed as part of the 2021 SWMS update.

7.4.2 Expand Materials Accepted in Curbside Green Bin Collection

Expanding the materials accepted in the Green Bin to include pet waste and potentially diapers was widely supported by those residents participating in the consultation process. In order to expand curbside Green Bin collection, processing capacity for these materials is required. Generally, pet waste can be managed by most aerobic and anaerobic technologies, while diapers are more difficult to process due to the plastic components of this material.

Considerations for expanding the materials collected in the curbside Green Bin collection program include:

- The waste stream is made up of around 4.7% of diapers and sanitary products and around 8% of pet waste.
- Diversion of pet waste has the potential for a reasonable contribution to diversion rates, depending on the assumed recovery rates. The diversion potential for diapers and sanitary products depends on the processing technology used, and the ability of the technology to separate and process the organic components of the diapers, from the plastic residues that would have to be disposed.
- Inclusion of diapers, sanitary waste may contribute to increased pre-processing and/or post processing costs to manage inorganic residue at the OPF due to the amount of plastic present in diapers and sanitary products.
- Inclusion of diapers and pet waste in the Green Bin would facilitate future implementation of biweekly garbage collection.
- The effect on collection costs for including diapers and pet waste in the Green Bin is very low. There would be sufficient capacity in the Green Bin and curbside collection system to manage these materials without additional cost.
- Pet waste is relatively easier to process (compared to diapers) and can be managed in facilities designed to process food waste. Therefore the additional cost for processing of pet waste could be low depending on the OPF design. An organics processing facility capable of processing diapers and sanitary waste is likely to be more costly than a facility capable of processing food waste. The impact on costs and diversion rates for including pet waste and diapers in the Green Bin cannot be fully assessed until the procurement for the OPF has proceeded which will identify potential costs.

The County's current organics processor does not accept pet waste, diapers or sanitary waste, which means that these materials cannot be added to the curbside program until new processing capacity is available to the County. The County will have to remain with the current stream of acceptable Green Bin materials until the contract with their current service provider is complete.⁹ The OPF, currently in the planning and early procurement stage, as indicated in Section 6, could potentially accept an expanded organics stream depending on the technologies proposed by competitors in the procurement process. Council has provided direction to include aerobic composting and anaerobic digestion for the OPF – the cost of adding pet waste, diapers will be considered through the procurement process for OPF technology.

The County's desire to include pet waste and potentially diapers in the Green Bin program should be addressed in the OPF procurement process. The capacity of the facility should be re-evaluated based on direction from County Council on the initiatives presented in this final report (i.e. the capacity to manage an expanded Green Bin material stream). The RFI stage should request that proponents indicate their ability to manage these material streams with their pre-processing and processing technology. This will allow for a decision to be made in advance of the OPF RFPQ and RFP on

⁹ The County negotiated a 5 year extension to the original contract which ended on September 30, 2013.

whether proponents will be directed to manage one or both of these streams or if they will be provided the option to manage one or both of these streams. Pet waste is anticipated to be more easily managed/addressed by a broad range of vendors/technologies versus diapers.

Even if these materials could be processed in the County's OPF, the facility is not expected to be operational until 2021, which leaves a gap between the end of the current processing contract and the commissioning of the OPF. The County will have to seek a new short term processing contract for three to four years once the existing contract ends in September 2018. The OPF RFP process, and development of the Business Case for implementation, is scheduled to be complete as of March 2018. At that time, it would be known if the selected contractor would be able to process diapers and pet waste. If the Business Case indicates that these materials could/would be managed by the OPF, the County could choose to include pet waste and potentially diapers in the new short term processing contract, should there be sufficient time for the County to issue procurement documents and award the contract to come into effect as of October 1, 2018. This would allow the County to expand the accepted Green Bin materials, three to four years early.

It is also recommended that the County continue with waste audits and waste stream analysis to confirm diversion assumptions and tonnages anticipated for these material streams, to support the OPF procurement and facility design.

Once these more odorous materials are out of the garbage stream, residents are likely to be more accepting of biweekly garbage collection, which could be reconsidered as part of the next Strategy update in 2021.

It is recommended that the County continue to assess the potential Provincial organics program arising from the WFOA and report on implications.

The following outlines the steps required to implement expansion of the curbside Green Bin program to include pet waste and diapers.

Timing	Activity
November 2016	Include information on the potential tonnes of pet waste and diapers that could be present in the residential Green Bin material stream in the OPF RFI issued in November 2016. Request that vendors identify their ability to manage these material streams in their submissions.
April 2017	Pending the outcome of the previous step, determine if these material streams should be addressed in the OPF RFPQ and RFP process.
April 2021	Pending outcome of the previous step, expand the accepted Green Bin program materials to include pet waste and potentially diapers, concurrent with the commissioning of the OPF. Expansion would be preceded by a promotion and education campaign. It is possible, that timing of key decisions in 2018 may allow for earlier implementation of this option as part of the short-term export contract (see preceding discussion).

In regards to potential costs and staffing implications:

- It is not anticipated that development of this option would require significant additional staff resources. Existing County staff would develop the implementation plan.
- Promotion and education of this option will be critical. A promotion and education campaign would be developed and implemented in Q4 2020 and Q1 and Q2 2021.
- No additional Green Bin collection costs are anticipated, as modelling for increased Green Bin tonnages does not identify any requirement for increased truck capacity or fleet requirements. The existing Green Bins should have sufficient capacity to manage these materials.
- The actual cost to manage these materials will be determined based on the outcome of the OPF procurement. Based on 2015 program costs for waste disposal and organics processing, there is currently only a \$3 per tonne differential in management costs. Processing costs could be significantly more for AD than a simple aerobic system.
- The differential in management costs for an expanded material stream and the anticipated processing technology required to manage these materials will be considered in the business case for the OPF following the procurement process.

7.4.3 Examine Level of Service for Leaf and Yard Waste Collection

The County issued an RFP for yard waste and Christmas tree collection services in April 2015. Vendors were asked to provide costing for:

- Maintaining existing level of service (biweekly collection of yard waste for eight consecutive weeks starting in April and ten consecutive weeks starting in October) such that each serviced unit receives nine collections annually.
- Extending yard waste collection through the summer with biweekly collection starting in April until December such that each serviced unit receives seventeen collections annually.
- Extra summer yard waste collection with biweekly collection of yard waste during eight consecutive weeks starting the third full week of April, during four consecutive weeks starting in the third full week of July, and during ten consecutive weeks starting the first full week of October, such that each serviced unit receives eleven collections annually.

Expanding this program did not receive wide public support. Subsequent to the public consultation process, Council Committee of the Whole has recommended that the existing level of leaf and yard waste (LYW) service be maintained for the next Yard Waste and Christmas tree collection services contract that will run until 2022.

It is recommended that the County re-examine the level of service for LYW collection to determine if expansion of LYW collection is required, in advance of procurement for the 2022 contract.

The following provides an overview of the implementation activities associated with expanding leaf and yard waste collection in the future.

Timing	Activity
2020	<ul style="list-style-type: none"> In advance of tendering the next LYW collection contract in 2022, determine if there is a need to expand LYW collection service.
2021	<ul style="list-style-type: none"> Pending the results of the previous step, seek alternative bid pricing in the next LYW and bulky collection tender/RFP.

No additional staffing or support costs would be incurred for this work during implementation of this Strategy update. Pending the outcome of the implementation activities noted above, there could be cost implications for expansion of LYW collection as part of the next 2021 Strategy update.

7.4.4 Examine Level of Service at County Waste Facilities

The County provides a considerable range of diversion services at waste facilities located throughout the County. As noted in the report in **Appendix B**, performance of the County's facility diversion program is second to none in Ontario, diverting the highest tonnes for any municipal program. That said, there may be some additional measures to further improve facility diversion performance and service to residents, which could include for example development of new facilities or adjustments to current operations (e.g. operating days and hours).

Examining the level of service at County waste facilities is recommended as:

- This option had very strong support from residents who provided feedback on the Strategy.
- There were some residents at the consultation sessions, who indicated that the facilities are inconveniently located, reducing their use of the facilities.
- This will require a low level of effort by County staff to collect and analyze data. Changes to the level of service at the facilities would likely be addressed as part of the 2021 Strategy update, should they be recommended.

It is recommended that the County undertake data collection through a four-season survey which would include users and non-users of County waste facilities. Input from County staff involved in the day-to-day operation of each facility should also be solicited.

As these facilities are already running efficiently, this is a low priority item for the County. The following outlines the steps involved in evaluating the level of service at County waste facilities.

Timing	Activity
Q2/Q3 2019	<ul style="list-style-type: none"> Undertake two part survey: <ul style="list-style-type: none"> (1) a survey of existing facility users to determine the degree of satisfaction with the current system and to determine if there are any specific issues or complaints; (2) a general survey of the population either through an on-line survey tool or through a recognized public opinion surveyor to determine the general public's use of the existing facilities and opinions on these facilities.
Q4 2019	<ul style="list-style-type: none"> Examine survey results and determine if: <ul style="list-style-type: none"> there are any specific issues that could be addressed easily through adjustments in operations and/or design of the current facilities; there is any need for an additional facility(s) to serve the County.
Q1/Q2 2020	<ul style="list-style-type: none"> Report to Council on the survey results and recommend appropriate changes.
Q3 2020 to Q3 2022	<ul style="list-style-type: none"> Implement recommended changes. This could take between a few months to a few years pending the recommended changes, and would likely be addressed in the next 2021 Strategy update.

No additional staffing and minimal support costs would be incurred for this work during implementation of this Strategy update. Support costs could include use of external services to complete the surveys noted above, if sufficient County staff are not available.

7.4.5 Expand Diversion at County Waste Facilities

Expanded diversion at County waste facilities is recommended for inclusion in the Strategy update as:

- It received unanimous support from residents providing feedback on the Strategy options;
- It offers an alternative to divert materials that are difficult to manage at the curb;
- The existing success of diversion initiatives at the County facilities is likely to result in successful diversion through expanded programs.

At present, recommendations for implementation are focused on polystyrene, plastic bags and used cooking oil, as there are potential markets for these materials in Ontario.

Expansion of materials collected at County waste facilities requires research on potential markets for materials and securing contracts for processors or end-markets. A large part of the success of the current diversion at County facilities has been identifying and securing markets for a wide range of materials. It is recommended that the County initiate a pilot at one or more County waste facilities to gauge the quantity and quality of materials received assess the cost to include these additional materials, and identify any implementation considerations prior to developing recommendations to roll out the program to all County waste facilities.

The following presents a timeline for implementation of diversion of these three material streams.

Timing	Activity
Q1/Q2 2017	<ul style="list-style-type: none"> Undertake additional research and assessment of the markets for film plastic bags, polystyrene cushion packaging and used cooking oil in Ontario.
Q3 2017	<ul style="list-style-type: none"> Develop refined cost and revenue estimates for implementing pilot(s) for acceptance of these materials at one or more facilities, based on the available markets.
Q4 2017	<ul style="list-style-type: none"> Report to Council on the potential pilot program(s).
Q1/Q2 2018	<ul style="list-style-type: none"> Implement pilot program(s).
Q1 2019	<ul style="list-style-type: none"> Report to Council on results including number of users, volume/tonnage diverted, develop cost/revenue estimates for full roll-out pending the outcome of the pilot program(s) following year one of the pilot(s).
Q3 2019	<ul style="list-style-type: none"> Pending the direction received from Council, implement and promote the expanded diversion program(s).

The following provides additional details on the materials recommended for the expanded program.

Polystyrene:

This material is a high volume, low density material which will not add significant tonnes to diversion, but would offer proportionately more landfill capacity savings. Expanded polystyrene makes up around 0.5% of the curbside waste stream, or around 380 tonnes per year. A reasonable capture rate target would be around 30%.

Polystyrene is 100% recyclable and about 35% of Canadian communities accept the material in their recycling programs¹⁰. The main barrier for communities in accepting this material is that it is bulky and voluminous making it expensive to collect and ship. It is estimated in the US, the cost to recycle polystyrene is about \$3,000.00/per tonne which is about 20 times the cost of most other materials¹¹. By comparison glass costs about \$89.00/per tonne¹².

¹⁰ Canadian Plastics Industry Association (CPIA). 2016.
<https://www.plastics.ca/PlasticTopics/RecyclingPlastics/RecyclingPlasticFacts/Polystyrene>

¹¹ Georgia Recycling Coalition. <http://www.georgiarecycles.org/environmental-education/citizen-resource-guides/citizen-resource-guides-polystyrene-styrofoam-guide/>

¹² Now and Forever: The Styrofoam Dilemma. Catherine Solyom. Canwest News Service
<http://www.canada.com/life/forever+Styrofoam+dilemma/1522634/story.html>

It is estimated that the annual cost of densifying polystyrene at a 30 to 40% recovery rate would be in the order of \$30,000 annually, and the current market cost for recycling polystyrene cushion packaging would cost in the order of \$75 per tonne.

Plastic Bags

Depot collection of film plastic (i.e. plastic bags) at the existing facilities would provide another outlet for film plastic recycling in the County, and may be more successful than other options like curbside collection, considering that the County has a well used depot program. Film plastic makes up around 2% of the curbside waste stream or around 1,500 tonnes per year. A reasonable capture target would be around 30%.

Film plastic can often cause challenges for manual sorters and sorting equipment at MRFs and therefore may not be included as acceptable blue box materials for some programs. Some municipalities and regions have developed programs to help their residents divert plastic bags from landfill; however most of these programs are in the form of take-back-programs or partnerships where locations that take back plastic bags are promoted on municipal websites and directories. In Ontario; Durham Region, York Region and Halton Region all have take-back programs listed on their waste management websites, but do not directly manage any film plastic diversion programs themselves.

Several studies show that the cost to recover plastic film is much lower at the retail or commercial level rather than at the curbside level and suggests why these programs are more prevalent within the retail sectors¹³. Current market costs for recycling film plastic from municipal programs can be in the order of \$450 per tonne.

Cooking Oil

Education and awareness regarding the diversion and proper disposal of cooking oil has become a prominent feature of many municipal and regional waste management programs. Several municipalities and cities have begun to provide collection opportunities for small amounts of cooking oil so that residents do not dispose of the oil down drains and sewers.

Several cities and regions in Ontario including; City of Toronto, York Region, the City of Hamilton and the City of Guelph all accept cooking oil at their drop-off depots and transfer stations. Residents are required to bring the oil in sealed containers with labels and some of the programs have restrictions on the amount that can be dropped-off. The used cooking oil and grease is primarily used for the production of biodiesel and is used as an alternative fuel to gasoline or diesel.

Several companies in Canada including; *Rothsay*, *Sanimax* and *West Coast Reduction Ltd.* collect used cooking oil and use it to produce biodiesel.

Based on an estimated generation rate of 0.033 litre (approximately 0.033 kilogram) per person annually¹⁴ and a capture rate of 30%, approximately 3 tonnes of used cooking oil could be captured for recycling.

¹³ <http://cif.wdo.ca/events/orw/documents/ORW-Spring-2016-Full.pdf>

¹⁴ <http://www.theglobeandmail.com/news/british-columbia/charting-the-path-from-stovetop-to-fuel-tank/article4097965/>

Collection and diversion of cooking oil has the potential to have no net cost to the County, based on the value of this material.

7.5 Reduction and Reuse

This section provides a discussion of the options designed to promote waste reduction, reuse and diversion through a variety of tactics. Encouragement of waste reduction and reuse is recommended through softer tactics such as continuation of the County's food waste reduction strategy and advocacy strategy, and new options including a rewards program. Reuse of textiles can be facilitated by an enhanced textile collection program. Lastly, regulatory tactics such as material disposal bans are considered to increase diversion through enforcement. These options are discussed in more detail below.

7.5.1 Advocacy

Simcoe County staff and Council members are currently involved with a number of organizations such as AMO (Association of Municipalities of Ontario), SWANA (Solid Waste Association of North America), and the OWMA (Ontario Waste Management Association), as are many other municipalities in Ontario. It is recommended that staff and Council continue their involvement, and with other municipalities, continue to advocate on behalf of municipalities and their residents. Collective advocacy efforts with other municipalities and organizations are critical to effecting changes in legislation promoting waste reduction and diversion. Although continued involvement with advocacy has the potential to effect change, it can require substantial time and effort by County staff which can take away from other important work within Simcoe County. It is recommended that Simcoe County Council members and waste management staff continue their efforts to advocate for change at the provincial and federal level.

Continued advocacy initiatives was widely supported by the public during the SWMS consultation and will be particularly important as the Province contemplates changes to waste management as part of the *Draft Strategy for a Waste-Free Ontario: Building the Circular Economy*.

The following provides a general overview of timelines associated with continued advocacy efforts.

Timing	Activity
ongoing	<ul style="list-style-type: none"> As part of each annual Solid Waste Management Strategy reporting cycle: <ul style="list-style-type: none"> Identify and report on all County staff and Council advocacy efforts; Note the success or lack of success in regards to influencing regulatory and policy initiatives; and, Include recommendations for the following year's advocacy measures.

No additional staff or resources would be required to continue the County's advocacy efforts. However, provisions for travel and attendance at meetings and conferences should be maintained at current levels.

7.5.2 Rewards Program

Development of a rewards program was regarded with mixed reviews in the SWMS consultation process with support generally split down the middle. This option is one of the only new promotional initiatives that were identified and is recommended for inclusion in the Strategy implementation to serve both as a promotional measure for diversion, and as a counterpart to the enforcement measures included for garbage collection.

At least two municipalities in Ontario utilize a reward program for residents by awarding a “Gold Box” to those residents who meet certain criteria and show their commitment to recycling. Several municipalities in the U.S. provide incentives in the form of cash, either through random selection of active recyclers at the curb or through a lottery type process for residents who have self-identified and enrolled in the reward program.

Several cities in the U.K. have utilized a rewards program for their Green Bin program. Some provided an incentive for participating residents to win a jackpot of £50 to £100 with the choice of a shopping voucher, donation of the money to charity or both¹⁵.

County residents already successfully utilize the blue box program with high participation and capture rates; however, the same cannot be said for the Green Bin program. It is recommended that any rewards program implemented by the County, focus on incentivizing use of the residential Green Bin program.

The County could consider providing a range of incentives (e.g. cash, gift cards, passes to County facilities) to encourage use of the Green Bin. There are different approaches that can be used to select recipients for a diversion reward, including;

- A nomination process whereby households could self-identify their organics diversion success and the County would examine the curbside set-out for that household (e.g. the County could observe the degree of fullness of the Green Bin). To be successful, a self-nomination process would have to be promoted so that residents are aware of the program. The majority of examples studied of rewards programs have some option for self-nomination; or,
- Random observations of curbside set-outs by County staff.

Rewards could include;

- financial awards (e.g. name placed in a draw for a cash award);
- product awards (e.g. receive a free stainless steel kitchen organics container); and/or
- name recognition on a diversion 'heroes' list.

The potential impact on diversion is anticipated to be relatively low (at less than 1%); however, a rewards program has the potential to increase overall awareness of the County's diversion programs, and is a counterpart to the various enforcement measures recommended for garbage collection. This program should be implemented after the mandatory diversion by-law is in place, with the goal to improve the quantity and quality of Green Bin material set-outs.

¹⁵ <http://www.feedmeandwin.co.uk/>

The following provides an overview of the implementation activities associated with a rewards program.

Timing	Activity
Q1/Q2 2019	<ul style="list-style-type: none"> Update research into successful rewards programs, used to identify and recognize residents' success in diverting materials. Current research and the status of the County's diversion system, indicates that a program focused on success in diverting Green Bin organic materials would be the most beneficial focus for a County-wide 'reward' program.
Q3/Q4 2019	<ul style="list-style-type: none"> Develop a County 'reward' program, and proposed promotional campaign.
Q1 2020	<ul style="list-style-type: none"> Report to Council with recommended program.
Q2/Q3 2020	<ul style="list-style-type: none"> Implement recommended program.
2021	<ul style="list-style-type: none"> Review success as part of 2021 SWMS update.

In regards to potential costs and staffing implications:

- It is not anticipated that implementation of this option would require significant additional staff resources. Existing County staff would complete the research and develop the rewards plan.
- A promotional campaign would be required to roll-out the program and to periodically engage residents.
- The annual cost of providing rewards to residents and promoting the program could range from \$4,000 to \$8,000 per year depending on the type of program that is implemented.

7.5.3 Food Waste Reduction

With the rising cost of food and increasing awareness of food insecurity, food waste reduction has become a significant issue for municipalities. In 2015, the County collected approximately 10,400 tonnes of organics through the Green Bin program. This represents less than half of the estimated food waste generated by single family households alone. Based on audit results, it is estimated that approximately 11,600 tonnes annually of edible food is wasted annually by single family households.¹⁶

Many people are aware of the need to reduce the amount of wasted food; this was reflected in the high level of support for this option during the Strategy consultation.

¹⁶ The County's 2015 waste audits indicated that, annually, single family households generate 174 kg of food waste. Based on 125,763 single family units, the summer 2015 audit indicated that residents generated 1.78 kg/hh/week of edible food waste and 1.41 kg/hh/week of inedible food waste.

The County, along with other GTA municipalities and non-governmental organizations, is involved with the Ontario Food Collaborative. This entity has the goal of developing common key messages for food waste reduction, exploring collaborative projects and advocating for change in policy to support food waste reduction. Common key messaging is important due to the fluidity of municipal borders, with residents living, working and playing in neighbouring municipalities.

The County should continue to monitor developments in the provincial organics strategy to determine the impact on the Green Bin program; however, even if some sort of organics strategy is implemented at a provincial level, it is unlikely to address reduction of residential food waste. It is recommended that the County continue to participate in initiatives promoting food waste reduction, but also to continue to develop and promote a Simcoe County program. The following table provides a timeline for developing and implementing a food waste reduction program/campaign.

Timing	Activity
ongoing	<ul style="list-style-type: none"> Review and report to Council on the implications of the provincial organics strategy.
ongoing	<ul style="list-style-type: none"> Continue participation in multi-jurisdictional food waste advocacy group including development of consistent messaging and promotion as well as key metrics.

No additional staff or resources would be required to continue the County's food waste reduction efforts.

7.5.4 Expand Textile Collection

Municipalities across Ontario are realizing the importance of diverting textiles from landfill and are developing textile collection programs to collect not only reusable items (e.g. clothing, shoes, blankets etc.) but also textiles that are not reusable (e.g. ripped, stained). People are very supportive of textile recycling, as shown by the feedback received during the Strategy consultation; however, there is often a lack of knowledge about what can be donated for recycling.

Recent studies show that Ontario generates more than 500,000 tonnes of residential textile waste annually. Nearly all textiles can be recycled, but it is estimated that 85% of all textile waste ends up in landfills¹⁷. Of the 15% of textiles that are collected, approximately 6.75% is reused, 4.5% is recycled, 3% is recycled into new fibres and 0.75% is sorted for landfill¹⁸. Studies show that people know to donate clothes, but that other items such as bed sheets and towels are often forgotten. Accessibility is cited as the main barrier to donation and that throwing it in the trash is much easier. However, a large market for textile recycling exists globally and is estimated that trade of used

¹⁷ Tip of the Iceberg Textiles Diversion Symposium. May 4th, 2016. Markham Ontario. <http://www.visionquestenvironmental.com/images/TOTIESInfoPack.pdf>

¹⁸ Resource and Recovery Workshop. June 23rd 2016. Waterloo Ontario. Presentation by Sabine Weber – Sustainable Strategies and Solutions. <https://wise.uwaterloo.ca/resource-recovery-partnership-workshop-2016>

textiles amounted to 4.2 million tonnes in 2014 with a value of 4.4 billion dollars¹⁹. The value of exports of used textiles per tonne has risen in the last few years, from \$895/tonne in 2007 to \$1470/tonne in 2013²⁰.

The County currently partners with the Canadian Diabetes Association Clothesline Program to collect some textiles, predominantly reusable clothing, at County Facilities. In 2015, the County collected approximately 28 tonnes of textiles; however, this represents just a fraction of the estimated 1,300 tonnes of textiles disposed annually²¹ in the curbside collected waste.

It is recommended that the County continue to collect textiles, and work to promote and expand the range of material collected and diverted. The following table provides a timeline for implementation of an expanded textile collection program.

Timing	Activity
2018	<ul style="list-style-type: none"> Determine the potential for expansion of the County's current program. Determine whether the County should play a direct role in managing a broader range of materials at its own facilities or if there are other options to divert more of this material.
Q1/Q2 2019	<ul style="list-style-type: none"> Develop recommendations and secure markets as appropriate for an expanded program.
Q3 2019	<ul style="list-style-type: none"> Report to Council with recommended program.
Q1/Q2 2020	<ul style="list-style-type: none"> Develop and implement program, including appropriate promotion and education.

In regards to potential costs and staffing implications:

- It is not anticipated that implementation of this option would require significant additional staff resources. Existing County staff would complete the research and develop the expanded textile collection program.
- A promotional campaign would be required to roll-out the program and to periodically engage residents.

¹⁹ WRAP Textiles Market Situation Report. 2016.
http://www.wrap.org.uk/sites/files/wrap/Textiles_Market_Situation_Report_2016.pdf

²⁰ http://www.wrap.org.uk/sites/files/wrap/Textiles_Market_Situation_Report_2016.pdf

²¹ Based on the County's 2015 single family audit, 10.62 kg/hh/year are disposed of in the garbage. Based on 125,763 single family units (including condos and mobile homes) and the summer 2015 audit results, at minimum, over 1,300 tonnes of textiles are being disposed annually.

- The annual cost for promoting, collecting and marketing textiles could range from \$40,000 to \$45,000 per year depending on the type of program that is implemented and the arrangements made with community partners.

7.5.5 Disposal Bans

The County has no disposal bans at present, and relies on a differential tipping fee to encourage separation of divertible materials. Tipping fees for mixed waste are currently set at double the regular garbage rate (i.e. \$310/tonne). While the current tipping fee for mixed waste loads encourages diversion, an escalated fee would encourage increased material separation.

Implementation of a higher differential tipping fee (e.g. five times higher for mixed loads of material) could serve the same purpose as a disposal ban and/or could be the means of implementing a ban.

The regulations promulgated under the WFOA have the potential to result in disposal bans for some material streams. Public opinion regarding disposal bans was mixed during the Strategy consultation.

It is recommended that the County continue with the current system – but implement new bans consistent with those that may be set under regulations in accordance with the WFOA as follows:

Timing	Activity
2016 onwards	<ul style="list-style-type: none"> • Assess the potential for any provincial disposal bans arising from the WFOA. • Report on implications should it appear that there may be some province-wide ban(s) affecting residential waste streams.
2021	<ul style="list-style-type: none"> • Pending the outcome of the step above, review the potential requirement of the County to pass-through any provincial bans as part of the 2021 SWMS update.

No additional staff or resources would be required to implement these recommendations.

8 Projected SWMS Performance

As of 2015, the County estimated their curbside diversion rate was approximately 53%, the facility diversion rate was approximately 72%²² and the overall diversion rate was approximately 60%. The Strategy identified the following targets for performance of the solid waste management system:

- Achievement of 71% diversion by 2020
- Achievement of 77% diversion by 2030
- A minimum 1% per year reduction in per capita waste generation

The diversion targets were reaffirmed through Council resolution 2015-317 passed in December 2015.

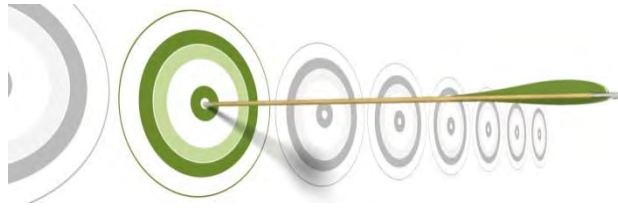
The following sections provide a discussion of the impact of implementing the recommended options on the County's waste diversion rates. As per capita waste generation rates have tended to increase since 2010, and as few effective measures to curb residential waste generation have been identified, these projections assume no change in overall per capita waste generation. These projections do account for projected population growth in the County.

It should also be noted that the technical memo presented in **Appendix B** identified the potential effect of various options on waste diversion, in isolation of each-other, for the purpose of comparing alternatives. The estimated waste projections reflect the performance of the existing system, enhanced with the package of recommended options identified in Section 7 that together should encourage increased diversion. These estimates are developed by examining the effect of the combination of new and existing programs on potential material capture rates.

²² Includes residential C&D material diverted from County facilities. The existing diversion rates as reported reflect the County's assessment of their system performance.

8.1 Estimated Waste Projections

The following figures present the estimates of projected tonnes of waste requiring management and the anticipated effects of the recommended options on the current estimated diversion rate. At this time, it is not known what the anticipated effects of the WFOA will be on diversion. Additionally, projections have not been developed for the effect of other diversion options such as mixed waste processing that would be addressed in the next update to the Strategy in 2021. For this reason, these estimates assume diversion rates remain unchanged after 2021.



At this time, it is not known what the anticipated effects of the WFOA will be on diversion. Additionally, projections have not been developed for the effect of other diversion options such as mixed waste processing that would be addressed in the next update to the Strategy in 2021. For this reason, these estimates assume diversion rates remain unchanged after 2021.

The following Figure 8-1 presents the estimates of projected tonnes of overall waste requiring management with the recommended options overlain on the current system and the effect on diversion, based on the current diversion rate.

Figure 8-1: Overall Waste Generated and Diverted (2015-2030)

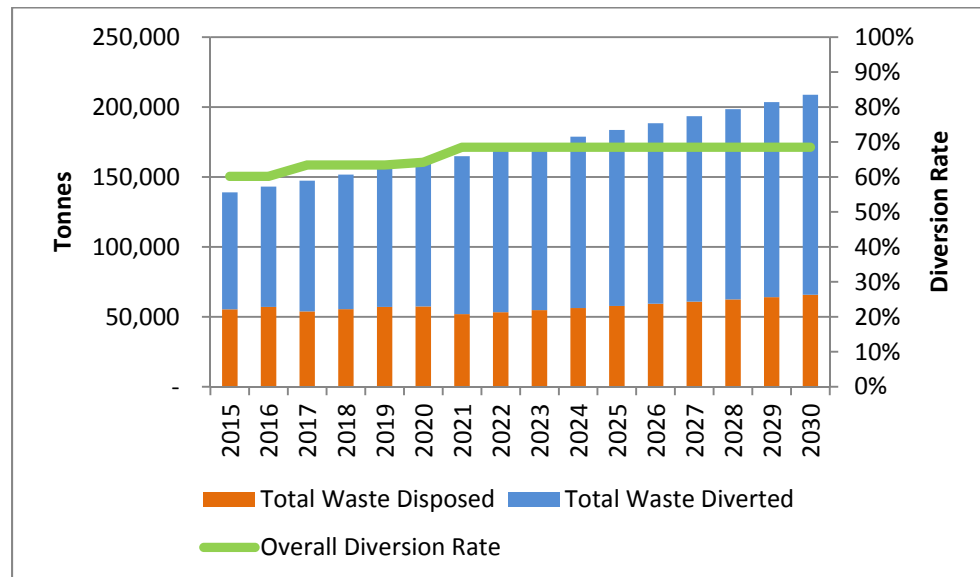
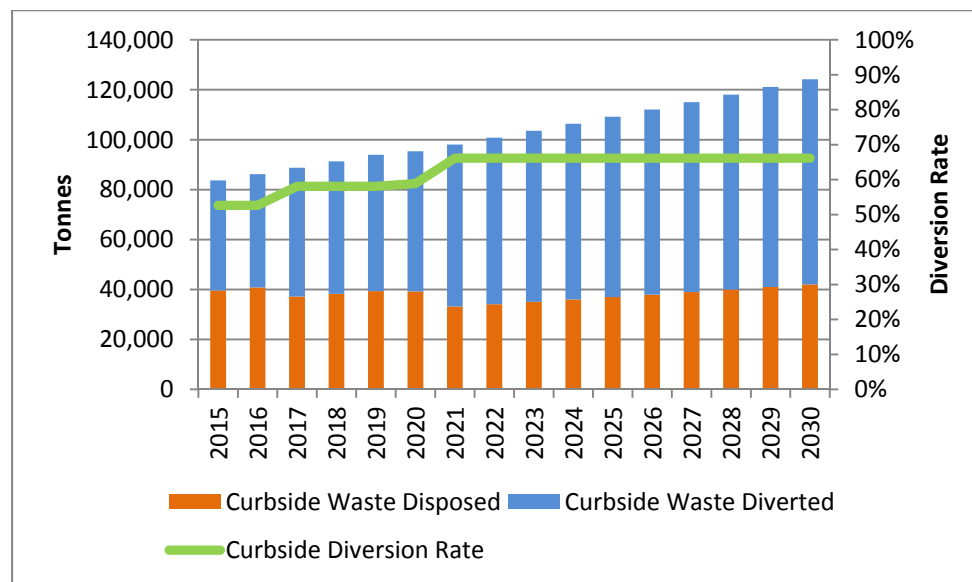


Figure 8-2 presents the tonnes of waste collected at the curb and diverted with the recommended options implemented. As discussed in the next section, the greatest impacts on diversion are anticipated to occur in 2017 with implementation of the mandatory diversion by-law and enforcement of a standard garbage container size and in 2021 with the potential expansion of the Green Bin program.

Figure 8-2: Curbside Waste Generated and Diverted (2015-2030)

8.2 Projected Diversion Rates

There are three main sets of options anticipated to have a significant affect on diversion rates. Increases in diversion rates are based on the current estimated 2015 diversion rate based on the County's calculations and including diversion of materials at County Facilities as well as curbside diversion.

The first set of options to be implemented is the mandatory diversion by-law, enforcement of the standard garbage container size and reduction in number of garbage containers allowed at the curb. This is expected to increase diversion of organics resulting from higher participation and capture of Green Bin materials as well as a small increase in capture rates for blue box materials. The increase in Green Bin organics was estimated by assuming an increased organics capture rate in 2017 (predominantly associated with an increase from 43% to 60% food waste capture, based on 2015 audit results). The change in capture rates for Green Bin organics and blue box materials results in a 5% increase in curbside diversion rates and a 3% increase in the overall diversion rate.

The next set of options to be implemented would be the diversion of additional materials (assumed to be polystyrene, film plastic and used cooking oil) and textiles at County facilities in 2020. It was assumed that these materials would be diverted from curbside garbage. The impact of adding these materials to the facilities diversion programs resulted in a very small increase in curbside diversion and facilities diversion rates, with less than 1% increase in overall diversion.

Expansion of the accepted Green Bin materials to include pet waste and potentially diapers is anticipated to have the most dramatic impact on diversion. Implementation of the expanded Green Bin would be concurrent with the commissioning of the OPF. Assuming both diapers and pet waste are diverted to the Green Bin program from garbage, and an associated uptake in capture rates for other organics and blue box

materials with a new P&E program, curbside diversion is anticipated to increase by approximately 7% and overall diversion by 5%.

Based on the current estimated diversion rate, these estimates indicate that the County may not achieve its 71% diversion target by 2020, but it has the potential to come very close as of 2021 when the next Strategy update would be undertaken.

The following Table 8-1 presents the overall waste projections associated with the recommended Strategy update.

Note: while Council retained the original goal of a 1% minimum annual reduction in per capita waste generation, the projections in Table 8-1 do not reflect any decrease in per capita waste reduction. As noted in Technical Memorandum #1 provided in **Appendix B**, per capita waste generation has been increasing in the County. There are no measures recommended for implementation in this Strategy update that have real potential to reduce residential waste generation rates. Full PAYT is a measure that would have had some potential for reducing residential waste generation, however, it is not recommended for inclusion based on other concerns regarding this approach. It is possible, that the WFOA may result in EPR measures being implemented that could encourage reduction in waste generation rates; this remains to be seen.

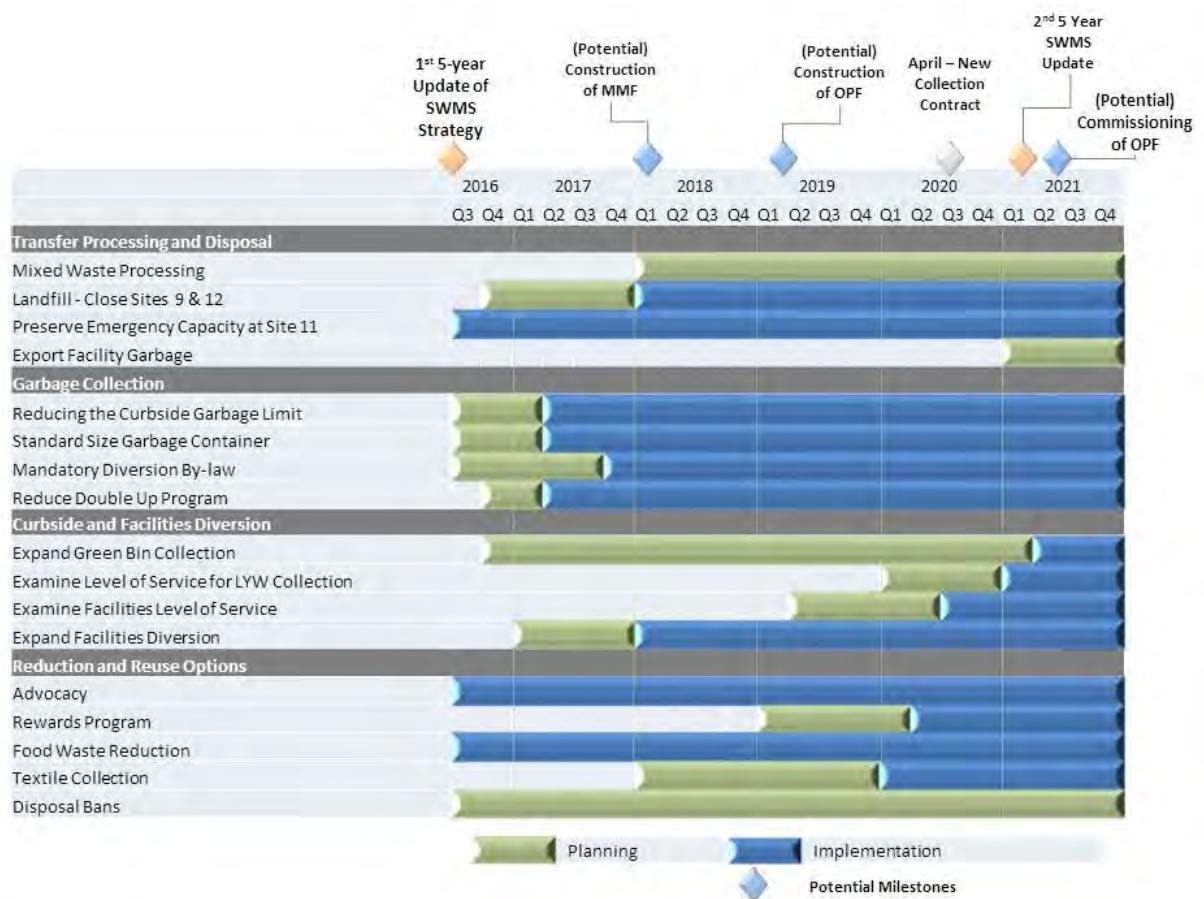
Table 8-1: Waste Projections for the Recommended Strategy Update (2015-2030)

Year	Population	Curbside Collection							Facilities					Total		
		Garbage	Green Bin Organics	Recycling	LW	Batteries	Collected	Diverted	Garbage	Organics	Recycling	LW	Other	Total Waste Generated	Total Waste Diverted	Increase in Overall Diversion Rate from 2015
2015	304,172	39,630	10,411	24,694	8,966	18	83,719	44,089	15,758	216	1,755	9,185	28,392	139,025	83,637	
2016	310,136	40,811	10,722	25,430	9,233	19	86,214	45,403	16,227	222	1,808	9,459	29,238	143,168	86,130	0.0%
2017	316,100	37,182	15,733	26,312	9,505	19	88,751	50,990	16,705	229	1,861	9,737	30,099	147,381	93,494	3.3%
2018	322,064	38,262	16,191	27,076	9,781	20	91,329	52,472	17,190	235	1,915	10,020	30,973	151,663	96,211	3.3%
2019	328,028	39,360	16,655	27,853	10,062	21	93,951	53,978	17,684	242	1,970	10,308	31,862	156,016	98,972	3.3%
2020	333,992	39,249	17,128	28,643	10,347	21	95,388	55,509	18,185	249	2,026	10,600	33,960	160,409	102,974	4.0%
2021	339,956	33,207	24,603	29,594	10,637	22	98,063	62,826	18,695	256	2,082	10,897	34,906	164,899	112,997	8.4%
2022	345,920	34,127	25,285	30,414	10,932	22	100,781	64,567	19,213	263	2,140	11,199	35,867	169,463	116,123	8.4%
2023	351,884	35,063	25,978	31,248	11,232	23	103,544	66,337	19,740	270	2,199	11,506	36,843	174,102	119,299	8.4%
2024	357,848	36,014	26,683	32,096	11,536	24	106,352	68,136	20,275	277	2,258	11,818	37,835	178,816	122,527	8.4%
2025	363,812	36,980	27,399	32,957	11,846	24	109,205	69,964	20,819	285	2,319	12,135	38,844	183,607	125,808	8.4%
2026	369,776	37,962	28,126	33,832	12,160	25	112,105	71,822	21,372	293	2,381	12,458	39,868	188,476	129,142	8.4%
2027	375,740	38,960	28,866	34,721	12,480	25	115,053	73,711	21,934	300	2,443	12,785	40,909	193,424	132,530	8.4%
2028	381,704	39,974	29,617	35,625	12,805	26	118,048	75,629	22,505	308	2,507	13,118	41,966	198,452	135,972	8.4%
2029	387,668	41,005	30,381	36,544	13,135	27	121,091	77,579	23,085	316	2,571	13,456	43,041	203,561	139,470	8.4%
2030	393,632	42,052	31,157	37,477	13,470	27	124,183	79,560	23,675	324	2,637	13,800	44,132	208,751	143,025	8.4%

9 Implementation Plan

Details regarding implementation of the Strategy recommendations were provided in Section 7. The following Figure 9-1 presents an overview of the timelines associated with implementing the recommended options. Note that the timing associated with the MMF or OPF is dependent on the timing of the planning and ECA approvals required for these facilities.

Figure 9-1: Overview of the Proposed Implementation Plan



As indicated in this figure, the primary focus in the first year of the Strategy is the implementation of garbage collection measures intended to reduce the amount of garbage set at the curb and promote the diversion of Green Bin organics. Implementation of other components of the Strategy update are spread throughout the five year timeframe, to allocate the requirement for staff time and resources evenly over the planning period. As noted in Section 9.1, this has also resulted in an even spread of potential additional system costs over the planning period.

9.1 Summary of Additional System Costs and Staffing Requirements

Throughout Section 7, the potential costs for the recommended components of the Strategy update were noted and discussed. Table 9-1 presents a summary of the recommended options and projected implementation costs over the five year planning period for the Strategy update.

The costs identified in Table 9-1 are primarily operational costs with the exception of the capital costs associated with the procurement and distribution of standard sized garbage containers which may be recommended to Council for implementation of this option. The lower cost scenario assumes limited sale of subsidized containers through truck load sales. The higher cost scenario assumes procurement and delivery of one standard sized garbage container per household and associated P&E costs and ongoing provision of containers to new households. Revenues from the sale of additional bag tags could offset some or all of the cost of implementing this option.

The second most significant cost component for the Strategy update is the requirement for additional by-law enforcement officers, to facilitate implementation of the garbage collection restrictions. It is estimated that in the order of 2 to 4 additional by-law enforcement officers will be required in the first few years of implementation (2017 to 2019). Demand is anticipated to reduce over time, as residents adjust to the proposed garbage collection measures.

Capital costs associated with landfill components or expansion of the County's waste facilities cannot be determined until further study is completed and would occur in the next five year planning timeframe. They would be addressed in the 2021 Strategy update.

Table 9-1: Summary of Additional Annual Estimated Strategy Implementation Costs ('000s)

		2016	2017	2018	2019	2020	2021
Garbage Disposal and Mixed Waste Processing							
Mixed waste processing							
Review and report on status of investigations of mixed waste processing in Ontario and report to Council.	No additional staff or resources required.						
Landfill - close Sites 9 & 12							
Prepare draft and final landfill closure plans and submit to the MOECC	No additional staff required. Consulting costs to assess current landfill conditions and develop landfill closure plans, prepare and submit ECA application.	\$150	\$100	\$25			
Consultation	Some costs associated with mailouts, advertising on County website.	\$2					
Implement closure plans and any remedial activities	TBD, depending on the outcome of the landfill condition assessment and landfill closure activities.						
Preserve emergency disposal capacity at Site 11							
Research	No additional staff or resources required.						
Amendment to ECA	Consulting costs to develop a draft and final design for interim closure, and submit documentation to the MOECC including ECA application as required.						\$120
Export facilities garbage on closure of Site 2							
Waste Composition Analysis and Landfill Closure Plan	Cost for consulting services to undertake sampling and compositional analysis of facilities garbage, over four seasons. Consulting costs for landfill closure plan.						\$190
Garbage Collection							
Reducing the curbside garbage limit (from 8 to 4)							
Draft by-law	No additional staff or resources required.						

		2016	2017	2018	2019	2020	2021
Develop and implement P&E campaign	Some costs associated with P&E campaign, including advertising, stickers for collection staff.		\$5				
Implement	Some provision for additional by-law enforcement and Call Centre demand. However, this should be relatively modest as a minority of households purchase and use container tags for set out of additional waste.		\$30	\$40	\$10		
Standard garbage container							
Research	No additional staff or costs required.						
P&E Program	Advertising on County website, radio ads etc. New stickers for incorrect set outs for collection staff. Included in annual collection calendar.		\$10				
Implementation - Staff Support	Additional staff support, potentially including by-law enforcement staff/time. This could range from the equivalent of 2 to 3 staff positions over the first year of implementation, with less staff required should the County distribute standard containers to all households.		\$165 to \$240	\$55 to \$170	0 to \$30	0	0
Implementation - Potential additional bag-tag revenue	As many residents typically exceed the garbage container limits every week, it is likely that residents will both use diversion services and may also purchase additional bag tags. It is anticipated that in the order of one additional tag per household each year would be purchased.		(\$309)	(\$412)	(\$412)	(\$412)	(\$412)
Implementation - Provision of Containers	Ranges from one-time-only subsidized truck-load sales in advance of implementation through to distribution of 80L containers to all County households (allocated over the five year implementation period).		\$137 to \$501	0 to \$668	0 to \$668	0 to \$668	0 to \$668
Mandatory diversion by-law							
Draft by-law	No additional staff or resources required.						

		2016	2017	2018	2019	2020	2021
Develop and implement P&E campaign	Some costs associated with P&E campaign, including advertising, stickers for collection staff.		\$15				
Implement	Provision for increased by-law enforcement and Call Centre demand. Assumes 10% non-compliance in year one, decreasing over time with 95% of non-compliance addressed by the collection contractor. Modelling assuming a higher set-out rate does not indicate any increase in curbside collection costs, as with garbage and organics already co-collected, the collection contractor already has provisions built into the cost of service to collect from each home weekly.		\$80	\$295	\$195	\$120	\$120
Reduce double-up program							
P&E (waste calendar)	No additional staff or cost required, would be included in cost of calendar						
Implement	No additional staff or costs required.						
Curbside and Facilities Diversion							
Expand Green Bin program							
P&E	Develop promotion campaign materials. Advertising on County website and other typical County promotional media. Include in annual collection calendar.						\$10
Cost of collecting additional materials	Unlikely to be any additional collection cost. Modelling increased annual tonnage does not result in any requirement for increased truck capacity.						
Cost for processing additional material	Actual cost to be determined based on the outcome of the OPF procurement. Based on 2015 program costs for waste disposal and organics processing, there is only a \$3 per tonne differential in costs.						\$6
Examine level of service for LYW collection							
Review program and determine if there is a need	No additional staff or resources required.						

		2016	2017	2018	2019	2020	2021
to expand service in next LYW collection contract in 2022							
Facilities level of service							
Two part survey (online and users)	\$10K for online and \$5K for user survey, assuming in-house resources used.				\$15		
Implement changes	Costs to be determined based on the outcome of the survey and analysis by staff. Implementation of a new drop-off facility would require capital and ongoing operating costs.						
Expand facilities diversion							
Research	No additional staff or resources required.						
Pilot	Costs associated with managing, transporting and marketing of pilot materials. Assumes pilot would include all three recommended material streams.			\$60			
Review pilot results and Report	No additional staff or resources required.						
Implement	Some capital costs associated with permanent infrastructure required to collect material TBD. Ongoing operating costs for managing, transporting and marketing additional materials. Assumes no tipping fee charged to recover costs of diverting materials.				\$80	\$240	\$240
Reduction and Reuse							
Advocacy							
Report as part of annual report	No additional staff or resources required.						
Rewards program							
Research	No additional staff or resources required.						

		2016	2017	2018	2019	2020	2021
Develop program and P&E campaign	Some staff time to identify partners, develop program, and obtain rewards. Some costs associated with obtaining rewards and developing P&E campaign.				\$10		
Implement	Some ongoing costs and staff time to maintain program (obtain and issue rewards).					\$15	\$20
Food waste reduction							
Research & Meetings	No additional staff or resources required.						
Expand textile collection							
Research	No additional staff or resources required.						
Develop program and P&E campaign	Cost to develop and implement P&E campaign and expanded textile program.					\$45	\$40
Disposal bans							
Review potential developments based on the WFOA	No additional staff or resources required.						
	Total Estimated Additional Costs ('000s by year)	\$152	\$308 to \$597	\$178 to \$731	-\$72 to \$566	\$8 to \$676	\$334 to \$1,002
	Total Estimated Additional FTE (by-law enforcement)		2.5	4	2	1	1
	Total Estimated Implementation Cost over Five Years	\$908,000 to \$3,724,000					

9.2 Monitoring and Plan Review

County staff continuously monitor the progress of the Strategy implementation, reporting regularly back to Council on specific system components and on an annual basis in regards to overall system performance. The County has also continued to undertake periodic curbside audits, to assess household generation rates, waste composition and material capture rates. These activities would continue through the Strategy implementation.

The majority of initiatives recommended in the Strategy update have integrated monitoring requirements as summarized in the following table. Ultimately, the success of these initiatives over the next five years, will determine the need for additional system changes as part of the 2021 Strategy update in order to achieve the County's diversion targets.

Table 9-2: Summary of Proposed Monitoring Measures for Recommended Initiatives

Option	Monitoring Measures
Garbage Disposal and Mixed Waste Processing	
✓ Mixed waste processing	<ul style="list-style-type: none"> Monitor the outcome of other mixed waste processing investigations undertaken by other jurisdictions
✓ Permanent closure of Sites 9 and 12	<ul style="list-style-type: none"> NA
✓ Preserve one-year of emergency disposal capacity at Site 11	<ul style="list-style-type: none"> Continue annual landfill surveys to indicate when there is less than 3 years of remaining capacity at the site. This will trigger the implementation of interim closure measures.
✓ Export facilities garbage on closure of Site 2	<ul style="list-style-type: none"> Monitor/test the composition of the facility garbage stream to identify if there are processing alternatives for this material.
Garbage Collection	
✓ Standard garbage container size	<ul style="list-style-type: none"> Assess the effect of these changes on organics recovery, Green Bin tonnages and waste disposed. This would include: <ul style="list-style-type: none"> observations of curbside set-outs tracking call centre activity
✓ Reduce the curbside garbage limit (from 8 to 4)	

Option	Monitoring Measures
✓ Reduce double-up program (eliminate double-up for Victoria Day and Thanksgiving)	<ul style="list-style-type: none">○ tracking by-law enforcement activity○ at least one four-season curbside waste audit undertaken in 2019/2020 prior to the 2021 Strategy update
✓ Mandatory diversion by-law	<ul style="list-style-type: none">• Review success as part of the 2021 Strategy update.
Curbside and Facilities Diversion	
✓ Expand materials accepted in curbside green bin collection (pet waste, diapers)	<ul style="list-style-type: none">• Use four-season curbside waste audit noted above to assess the quantity of pet waste and diapers generated annually.
✓ Examine level of service for leaf and yard waste (LYW) collection	<ul style="list-style-type: none">• Assess level of public interest in expanding LYW collection service in 2022 through monitoring calls, conducting surveys etc.
✓ Examine facilities level of service	<ul style="list-style-type: none">• Undertake surveys to assess the needs of facility users and the general public.
✓ Expand facilities diversion	<ul style="list-style-type: none">• Monitor and report on the performance of pilot expansion program(s)
✕ Single stream recycling	<ul style="list-style-type: none">• Monitor changes to the blue box program resulting from the WFOA
Reduction and Reuse Options	
✓ Food waste reduction (encourage wasting less food)	<ul style="list-style-type: none">• Review and report to Council on the implications of the provincial organics strategy.
✓ Disposal bans	<ul style="list-style-type: none">• Assess the potential for any provincial disposal bans arising from the WFOA
✓ Expand textile collection	<ul style="list-style-type: none">• Review success as part of the 2021 Strategy update
✓ Advocacy (Staff and Council)	<ul style="list-style-type: none">• Report on advocacy measures in each annual solid waste reporting cycle
✓ Rewards program (recognize resident's diversion performance)	<ul style="list-style-type: none">• Review success as part of the 2021 Strategy update

10 Summary and Conclusions

This SWMS update outlines the results of implementation of the first five years of the Strategy and identifies potential options and initiatives considered by the County as well as the recommended initiatives and implementation plan for the next 5 years. The following table provides a summary of the options considered in the development of this Strategy update, and highlights the options recommended for implementation over the next five years.

Table 10-1: Summary of Options Considered and Recommended in the Strategy Update

Option	Option identified in Technical Memo #1 for County Council consideration	County Council Resolution - Approved Options for Consideration	Option identified following public consultation	Options recommended for implementation over the next five years	Options recommended for review in the next strategy update (2021)
Garbage Collection					
Standard garbage container size	✓	✓		✓	
Reduce the curbside garbage limit (from 1+7 to 1+3)			✓	✓	
Reduce double-up program (eliminate double-up for Victoria Day and Thanksgiving)			✓	✓	
Mandatory diversion by-law	✓	✓		✓	
Biweekly garbage collection	✓	✓			✓
Full PAYT (pay by bag and not taxes)	✓	✓			✓
Automated cart-based collection	✓	x			
Clear garbage bags	✓	x			
Bag tag price increase	✓	x			
Curbside and Facilities Diversion					
Expand materials accepted in curbside green bin collection (pet waste, diapers)	✓	✓		✓	
Expand leaf and yard waste collection	✓	✓		✓	
Examine facilities level of service	✓	✓		✓	
Expand facilities diversion	✓	✓		✓	

Option	Option identified in Technical Memo #1 for County Council consideration	County Council Resolution - Approved Options for Consideration	Option identified following public consultation	Options recommended for implementation over the next five years	Options recommended for review in the next strategy update (2021)
Single stream recycling	✓	✗			
Reduction and Reuse Options					
Food waste reduction (encourage wasting less food)	✓	✓		✓	
Disposal bans	✓	✓		✓	
Expand textile collection	✓	✓		✓	
Advocacy (Staff and Council)	✓	✓		✓	
Rewards program		✓		✓	

Option / Goal	Option identified in Technical Memo #1 for County Council consideration	County Council resolution 2015-317
Garbage Disposal and Mixed Waste Processing		
Investigate mixed waste processing	✓	✓
Permanent closure of Sites 9 and 12	✓	✓
Preserve one-year of emergency disposal capacity at Site 11	✓	✓
Export facilities garbage on closure of Site 2	✓	✓
Goal		
71% diversion by 2020		✓
77% diversion by 2030		✓
1% minimum annual reduction in per capita waste generation		✓

The implementation of these options has the potential to increase overall diversion by over 8% compared to 2015, allowing the County to get very close to reaching the County Council approved target of 71% diversion by 2020. Success in achieving additional diversion will be dependent on the participation of County residents in existing and new diversion initiatives, which will be encouraged by the various measures recommended to discourage generation of curbside garbage.

The potential effect of the recommended options on overall program costs ranges over the five year implementation period, with the two most significant influences on program costs being:

- the need for additional by-law enforcement which ranges from 2 to 4 additional FTE over 2017 to 2019, to 1 additional FTE in 2020 and 2021;
- the approach used to implement the standard size garbage container including distribution of standard sized 80L garbage containers in 2017; and,
- potential increases in garbage bag tag revenues.

It is estimated that the total cost over the five year implementation period will range from approximately \$900,000 to \$3.7 million, with the average annual change in the solid waste program costs ranging between approximately \$180,000 to \$745,000.

The large majority of the projected costs relate to changes to the County's curbside program with a small component related to implementation of garbage disposal recommendations and changes to the County's Facilities. In comparison, the total County budget for solid waste management expenditures in 2016 is \$50 million. The projected annual program cost changes are estimated to range from 0.5% to 1.5% of the County's 2016 solid waste budget.

County staff will continue to monitor the progress of the Strategy implementation, reporting regularly back to Council on specific system components and on an annual basis in regards to overall system performance, including periodic curbside audits, to assess household generation rates, waste composition and material capture rates.

Ultimately, the success of these initiatives over the next five years, will determine the need for additional system changes as part of the 2021 Strategy update in order to achieve the County's diversion targets.