



THE REGIONAL MUNICIPALITY OF NIAGARA  
WASTE MANAGEMENT  
PLANNING STEERING COMMITTEE  
AGENDA

WMPSC 1-2019

Monday, February 25, 2019

9:15 a.m.

Committee Room 4

Niagara Region Headquarters

1815 Sir Isaac Brock Way, Thorold ON

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Pages

1. CALL TO ORDER

2. DISCLOSURES OF PECUNIARY INTEREST

3. SELECTION OF CHAIR AND VICE-CHAIR

3.1 Call for Nominations of Committee Chair

3.2 Motion to Close the Nominations for Committee Chair

3.3 Voting for Position of Committee Chair

3.4 Call for Nominations for Committee Vice-Chair

3.5 Motion to Close the Nominations for Committee Vice-Chair

3.6 Voting for Position of Committee Vice-Chair

4. PRESENTATIONS

4.1 Overview of Waste Management Services Division

Catherine Habermbel, Acting Commissioner, Public Works

4 - 21

5. DELEGATIONS

## **6. ITEMS FOR CONSIDERATION**

6.1	<u>WMPSC-C 1-2019</u>	22
	2019 Meeting Schedule	

## **7. CONSENT ITEMS FOR INFORMATION**

7.1	<u>WMPSC-C 2-2019</u>	23 - 43
	2019 Social Marketing and Education Plan and Overview of 2018 Initiatives	
7.2	<u>WMPSC-C 3-2019</u>	44 - 48
	Councillor Information Request	
7.3	<u>WMPSC-C 4-2019</u>	49 - 60
	Illegal Dumping	
7.4	<u>WMPSC-C 5-2019</u>	61 - 242
	Public Stakeholder Engagement Results on Proposed Collection Service Options	
7.5	<u>WMPSC-C 6-2019</u>	243 - 248
	Special Events Recycling and Organics – 2018 Program Results	
7.6	<u>WMPSC-C 7-2019</u>	249 - 371
	2015/2016 Waste Composition Study Results	
7.7	<u>WMPSC-C 8-2019</u>	372 - 373
	Ontario Waste Management Association's State of Waste in Ontario: Landfill Report	
7.8	<u>WMPSC-C 9-2019</u>	374 - 445
	A Made-in-Ontario Environment Plan	
7.9	<u>WMPSC-C 10-2019</u>	446 - 478
	Proposed Producer Responsibility Framework for Waste Electrical and Electronic Equipment and Batteries	

Closed-top Recycling Containers

8. OTHER BUSINESS

9. NEXT MEETING

The next meeting will be held on Monday, April 29, 2019, at 9:15 a.m. in the Council Chamber, Regional Headquarters.

10. ADJOURNMENT

If you require any accommodations for a disability in order to attend or participate in meetings or events, please contact the Accessibility Advisory Coordinator at 905-980-6000 (office), 289-929-8376 (cellphone) or [accessibility@niagararegion.ca](mailto:accessibility@niagararegion.ca) (email).

# **Waste Management Services Divisional Overview**

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Waste Management Planning Steering Committee  
February 25, 2019

# Waste Management Services Sections

**Catherine Habermehl**

Director

Waste Management Services (32 Permanent FTEs)

Collections and Diversion (8 FTEs)

**Sherri Tait**, Associate Director

Waste Disposal Operations and Engineering (16 FTEs)

**Emil Prpic**, Associate Director

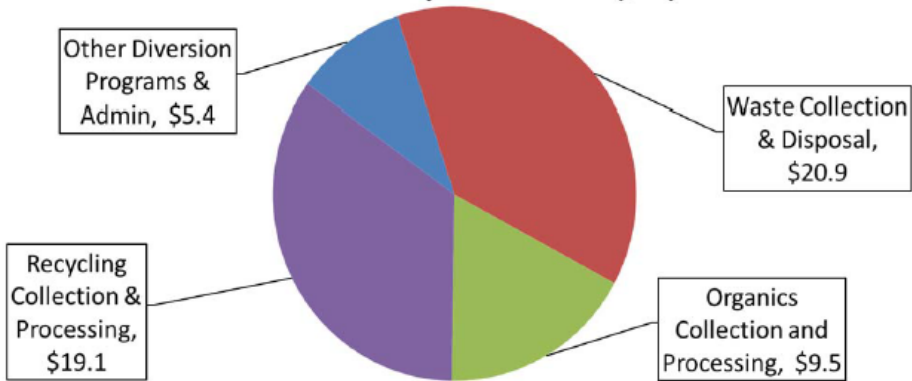
Waste Policy & Planning (5 FTEs)

**Lydia Torbicki**, Manager

# Waste Management Services Overview

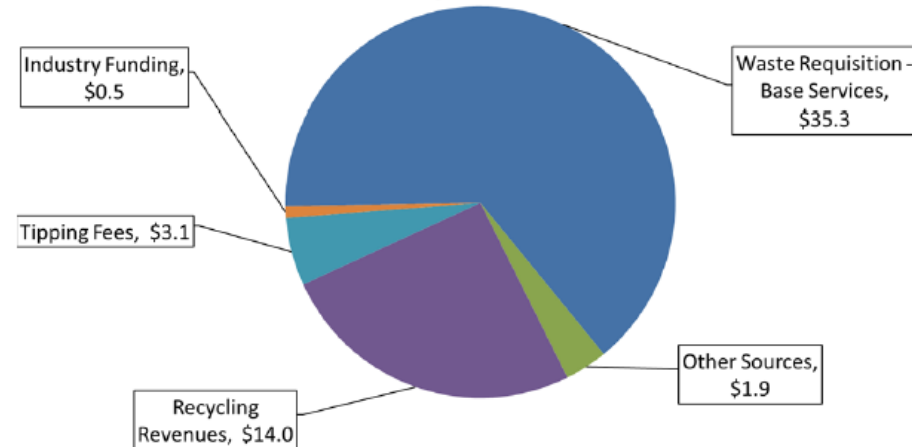
2019 Operating Budget: \$54.9 Million (Gross); \$35.3 Million (Net)

Gross Costs by Service Area (\$M)



78.2% of these costs are outsourced

Funding Sources (\$M)



# Waste Management Services Overview

- Responsible for the planning, management and operations of waste management facilities, programs and services throughout the Region
  - Private sector service contracts for collection, organic composting and landfill disposal
- In 2017:
  - Managed 278,000 tonnes of material
  - Landfilled 118,000 tonnes of waste
  - Diverted 130,000 tonnes of material
- Current diversion rate is 56%
- Diversion goal of 65% by 2020



# Facilities

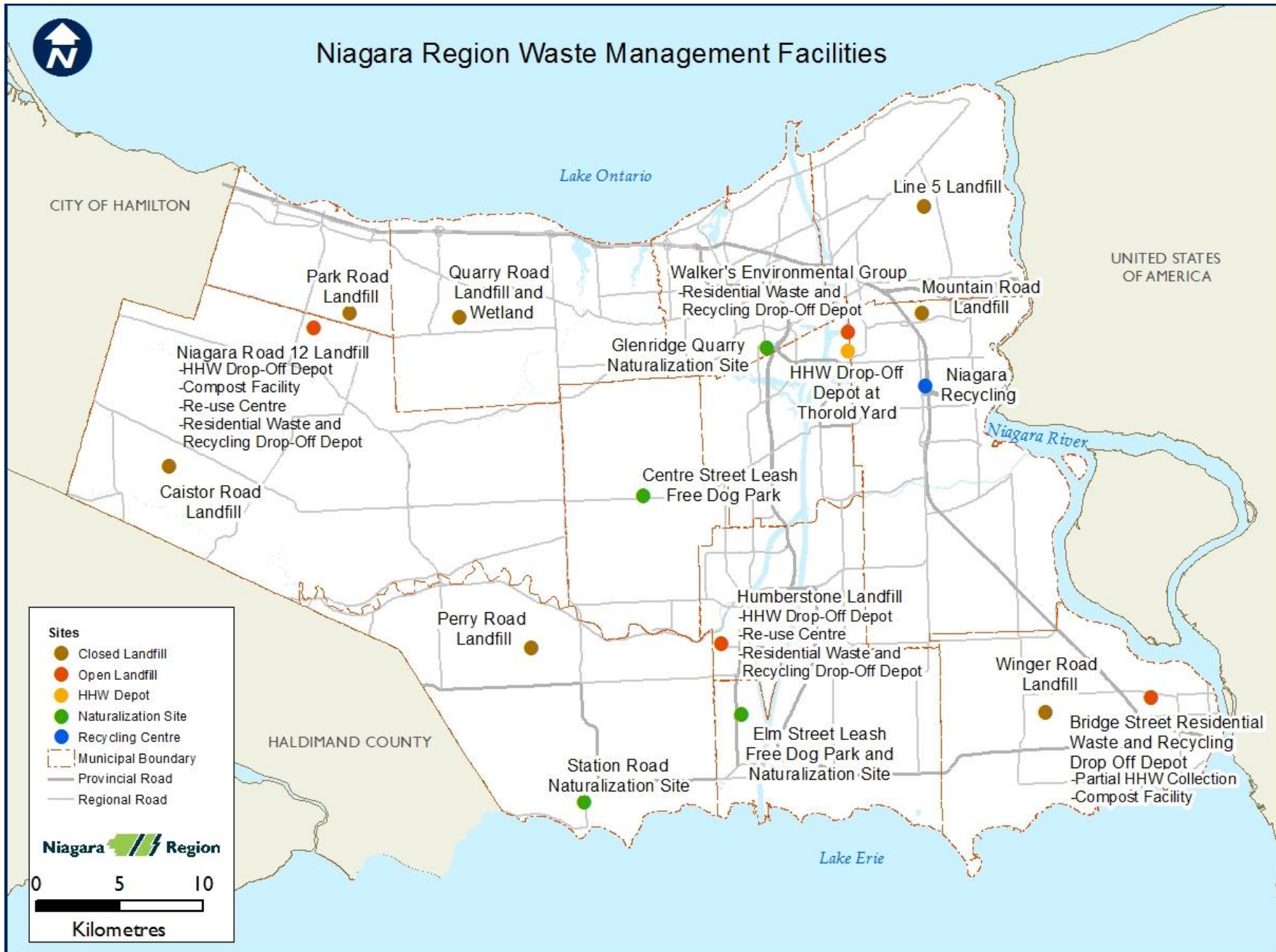
Management and maintenance of:

- 3 Household Hazardous Waste Depots
- 4 Residential Drop-off Depots
- 2 Reusable Good Centres
- 2 Regional Landfills
- 1 Composting Facility
- 1 Recycling Centre
- 12 Closed Landfills
- 4 Naturalization Sites





## Niagara Region Waste Management Facilities



# Collection Services Program Summary

## Base Services:

- Weekly; Garbage (one container limit per unit), Blue/Grey Box Recycling (unlimited), Green Bin Organics (unlimited), Leaf/Yard Waste (no grass clippings), Bulky/White Goods (call or schedule online)
- Seasonal Brush/branches (eight times-per-year)
- Once-per-year Christmas Trees (grounded/shredded) and curbside Household Battery collection (April)
- Multi-Residential (apartments/condos), Mixed-Use and Industrial, Commercial and Institutional (IC&I) recycling and organics collection (cart-based and curbside collection)

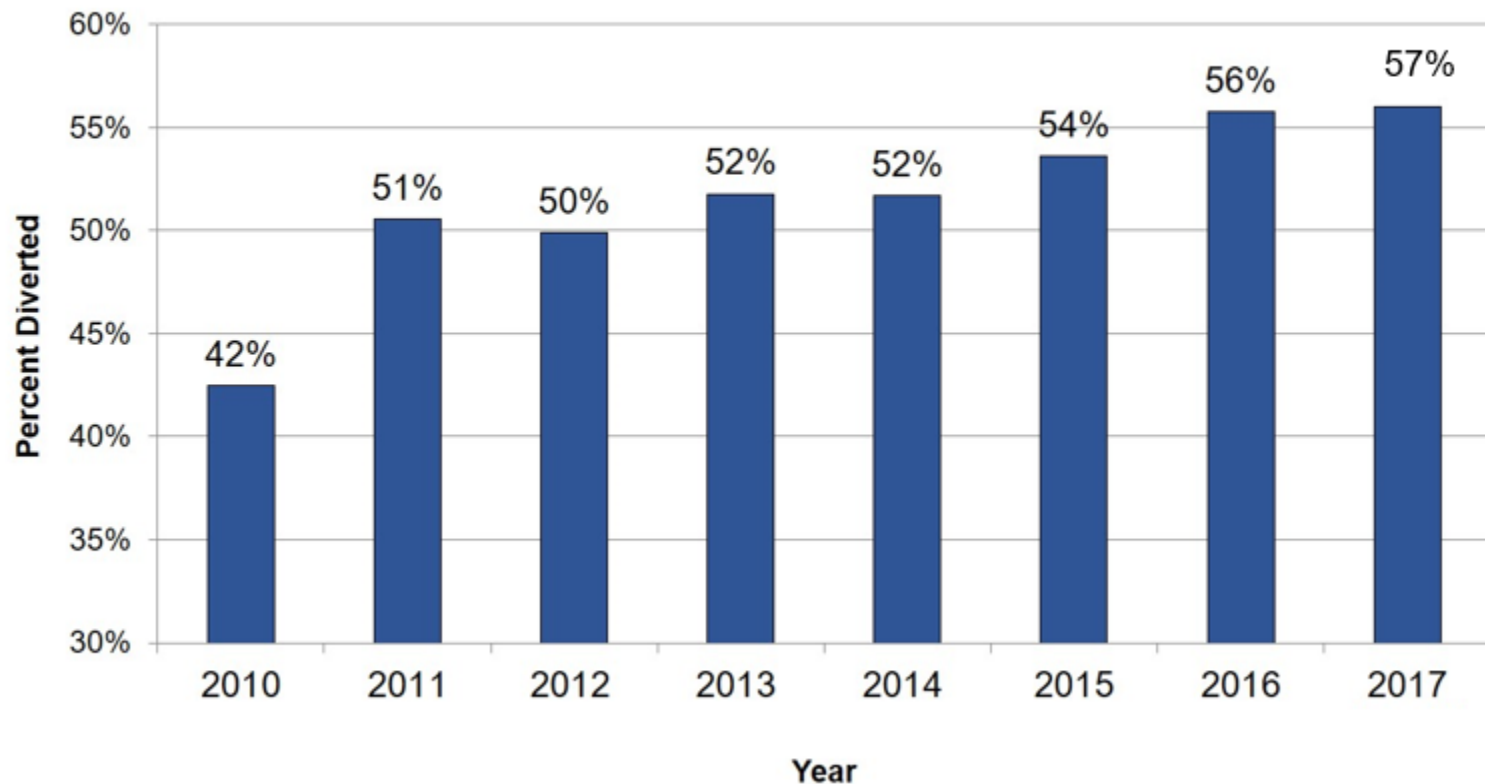
## Enhanced Services:

- Front-end garbage collection at Multi-Residential properties
- Additional street litter/public space garbage and recycling collection
- Additional waste/recycling collection in Designated Business Areas

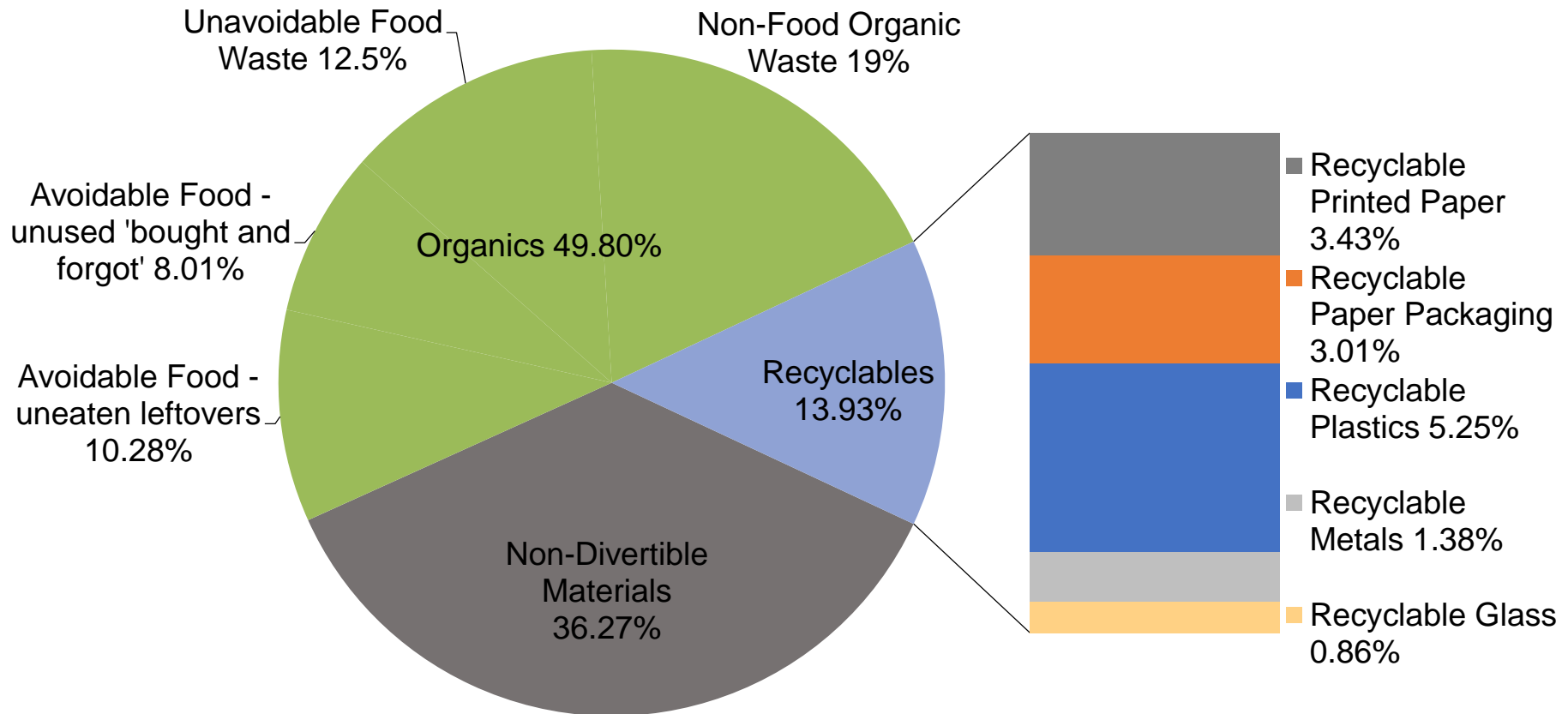
# Diversion Programs & Other Initiatives

- Special events recycling and organics collection
- Public space recycling (with funding to local municipalities)
- Curbside battery collection
- Multi-residential electronics recycling and battery collection program; textile recycling pilot in progress
- Waste and residential drop-off depots with special diversion programs for electronics, construction and demolition material, porcelain recycling, Broken Spoke bicycle recycling program, large rigid plastic household items for recycling
- Household hazardous waste program
- Eco-Ambassador and ReThink Your Waste at the Workplace programs
- Social marketing and outreach with rewards programs (e.g. Gold Star program) and by-law enforcement
- Multi-stakeholder Illegal Dumping Working Group

# 2010-17 Residential Diversion Rates – Niagara Region



# 2015-16 Garbage Composition (319 kg/hh/yr)



# Governing Legislation

- Environmental Protection Act
- Ontario Water Resources Act
- Environmental Assessment Act
- Province's Waste Free Ontario Act, 2016 :
  - Comprised of Resource Recovery and Circular Economy Act (RRCEA) and Waste Diversion Transition Act (WDTA)
  - High-level enabling legislation provides the framework to place full responsibility of the end of life management of products and packaging on producers i.e. producers have full financial and operational responsibility for designated diversion programs

# Provincial Initiatives

- Related strategies, regulations and other initiatives which are impacting/will impact Regional waste management include:
  - Food and Organic Waste Framework, April 2018
  - Proposed [Made-in-Ontario Environment Plan](#)
- Transition of the following program plans to full producer responsibility:
  - Used Tires Program by December 31, 2018
  - Waste Electrical and Electronic Equipment (WEEE) and Battery Programs by June 30, 2020
  - Municipal Hazardous or Special Waste (MHSW) Program by December 31, 2020

# Provincial Initiatives

- Transition of the residential Blue Box program to full producer responsibility:
  - Details on transition, impact to collection and processing contracts, definition of the service delivery framework and potential compensation for surplus assets have not been defined
  - Anticipated that a Blue Box program regulation under RRCEA (similar to tires, WEEE, MHSW programs) is the next step
  - In the case of the Region's Blue Box program, based on the 2018 program cost, approximately \$3.5m would be removed from the taxpayer burden
  - Recycling Centre (or Material Recycling Facility (MRF)) could be a potentially devalued asset

# Provincial Initiatives

- Transition of the residential Blue Box program to full producer responsibility cont'd:
  - In order to try to mitigate risk to the Region, the MRF Opportunity Review was initiated in 2016 to develop a recommendation for the preferred MRF ownership structure (i.e. possible sale of the MRF or a joint venture arrangement, etc.)
  - Three of four phases of the review are complete
  - **Niagara Region Council direction is to proceed with the last phase of the review although transition of the Blue Box program to full full producer responsibility has been delayed and the status and future timing is still unknown**

# Major 2019 Initiatives

- Service level review – recommendation report to PWC on March 19
  - Development of communication strategy and campaign – RFP issuance Q4 2019
- Development of new waste, recycling and organics collection contracts – issuance in May 2019 (target date)
- Social marketing and outreach campaigns:
  - Anti-litter Campaign – Q2 2019
  - Rebranding of Illegal Dumping initiative – Q2 2019
  - Green Bin Campaign – Q3/Q4 2019
- Long Term Strategic Plan – RFP development Q4 2019
- Phase 4 MRF Opportunity Review - RFP issuance March 2019

# Major 2019 Initiatives

- By-law and related policy review and updates
- Humberstone infrastructure upgrades for landfill expansion – Phase 1
- Asset inventory and asset condition project
- Glenridge decommissioning leachate collection system
- Drop-off depot improvement design - Bridge Street and Niagara Road 12
- Annual projects:
  - Benchmarking report
  - Assessment/monitoring of alternative technologies

# Waste Management Advisory Committee (WMAC)

- Max of 18 individuals from the community at large representing residents, institutions or businesses from across Niagara; one of which shall be a representative of the Ontario Federation of Agriculture
- Chair of the WMAC and a second member of the WMAC shall sit on WMPSC
- Motions from WMAC are received by WMPSC for consideration
- Mandate is to provide advice and recommendations that will facilitate the implementation of new programs, initiatives and implementation of the Region's Long-term Waste Management System



More Recycling  
Less Waste

# Rethink YOUR Waste

## Questions?

**WASTE MANAGEMENT PLANNING STEERING COMMITTEE**

**2019 MEETING SCHEDULE**

<p><b>Meetings take place MONDAYS at 9:15 a.m.</b></p>
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**February 25**

**April 29**

**June 24**

**August 26**

**October 28**

**RULES OF PROCEDURE**

1. No oral updates are permitted as per Council direction.
2. Materials must be submitted per the CAO's deadline.
3. Proceedings must adhere to the Region of Niagara's Procedural Bylaw No. 120-2010, as amended.

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## **MEMORANDUM**

**WMPSC C 2-2019**

**Subject: 2019 Social Marketing and Education Plan and Overview of 2018 Initiatives**

**Date: Thursday, February 28, 2019**

**To: Waste Management Planning Steering Committee**

**From: Ashley Northcotte, Engagement & Education Coordinator**

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### **Background**

The purpose of this memorandum is twofold: to provide an overview of Waste Management Services' 2019 Social Marketing and Education Plan and to provide an update on the social marketing and education initiatives that took place in 2018. The effectiveness of the 2018 initiatives and their contribution to the Waste Management goals, objectives and targets are detailed below.

### **Overview**

The Social Marketing and Education Plan include a multi-tiered approach to promotion and education, e.g. radio components, TV, print material and website offerings. Wherever possible, existing communication tools were utilized to minimize costs. Measurements of the effectiveness of the plan and assessments of the messages and communications mechanisms also occur. On an annual basis, the plan is reviewed and revised based on program changes and results of intermittent communication monitoring/assessments.

The objectives of the Social Marketing and Education Plan are to:

- Increase use of the Blue Box and Grey Box to capture recyclables;
- Educate residents on the proper preparation of Blue/Grey Box material;
- Build commitment to ongoing preparation of Blue/Grey Box material;
- Improve quality of materials received at the Recycling Centre;
- Reduce the processing residue rate;
- Improve collection and processing efficiencies; and
- Decrease incidences of maintenance issues at the Recycling Centre, which are related to incorrect set-out of inappropriate materials in the Blue/Grey Box.

### **2018 Summary**

Waste Management Services uses social marketing initiatives, including public outreach and communication activities, as a strategy to educate and inform the public. The 2018 initiatives were developed as a part of a social marketing strategy to inform, persuade, influence, motivate, reinforce or change behaviours toward improved waste reduction and recycling.

The social marketing and education initiatives were financially managed within the 2018 approved operating budget. In 2018, promotion and education (P&E) costs were as follows:

- \$219,178 - P&E costs (including Net HST) for all waste management programs;
- \$185,866 – 2017 P&E costs (including Net HST) for residential Blue Box programs, of which approximately 50% (or \$92,933) in funding is expected to be received from Resource Productivity and Recover Authority (RPRA).

A highlight of key initiatives is provided below:

### **Proposed Collection Service Options Stakeholder Consultation**

Waste Management Services conducted a stakeholder consultation with various groups (i.e. residents, business owners and associations, etc.) to obtain input on the proposed garbage collection service options being considered for the next curbside waste collection contract (i.e. garbage, recycling, organics).

Residents and businesses that use the Niagara Region's curbside garbage collection services were able to provide their comments on the proposed collection service options for the next contract by:

- Visiting the Region's website and completing the online survey before November 30, 2018
- Attending one of the public open houses or community booths being held in each of the twelve Local Area Municipalities. Attendees were able to complete the online survey at the event. Dates and locations for the events were available on the Region's website.

To aid in the promotion and education of the proposed service options, stakeholder engagement sessions were arranged with business organizations (Municipal Economic Development and Tourism Agencies, Downtown Business Improvement Associations, local Chambers of Commerce, etc.), and letters were sent to Industrial, Commercial and Institutional (IC&I) and Mixed-Use business associations. Print materials were developed, including poster boards with the proposed service level changes to display at the open houses and community booths, and post cards with the survey information for residents to complete the online survey at another time. The online survey was promoted through newspaper, web-based content and social media advertising.

Additionally, a statistically representative, random telephone survey was conducted for residents to receive their feedback on the proposed collection service options. The telephone survey questions were similar to those from the online survey.

### **Keen on Green Desk-side Waste Diversion Program**

After completing the roll out of the Desk-side Waste Diversion Program at Niagara Regional Police Headquarters, Niagara Region Headquarters and the Environmental Centre in 2017, this program was rolled out across the entire corporation.

As part of the program, each employee's desk was provided with small, desk-side containers (small garbage can, Grey Box and Green caddy) at a total of 77 Regional buildings. Similar to the roll out at Regional Headquarters, staff were provided with promotion and education pieces, including a 'coming soon' flyer to inform staff about the upcoming changes, an FAQ to answer program questions, and sorting guide and full informational flyer. To ensure the program continues to run smoothly, staff are considering an annual review at all buildings.

### **Multi-Residential Textile Pilot Program**

The Multi-Residential Textile Pilot Program was launched in 2018 in partnership with three (3) local non-profit organizations selected through an RFQ process. Site visits were conducted in early 2018 and 22 properties were recruited for the Pilot. These properties were divided among the three (3) non-profit organizations (Diabetes Canada, Goodwill Niagara and Big Brothers, Big Sisters). Textiles collected as part of the Pilot will generate revenue for the local charities and divert textile materials that could not be resold from landfill.

### **Recognition and Awards**

This year, Niagara Region was the recipient of two silver awards, recognized for their outstanding solid waste programs, from the Solid Waste Association of North America ([SWANA](#)) and the Municipal Waste Association ([MWA](#)).

Niagara Region won a silver award in the Communication, Education and Marketing (CEM) tools category for the 'Recycle your Bicycle' program from SWANA. Niagara Region Waste Management Services recognized an opportunity to recover unwanted or damaged bicycles in favour of reuse, and established a community partnership with the Broken Spoke Bicycle Refurbishment Program at Port Colborne High School. Through an extensive public information campaign, Niagara Region has been able to provide the Broken Spoke program with 4,542 bicycles since the inception of the partnership in 2016. These bicycles were repaired by the students at Port Colborne as part of their special skills credit program, and donated to community members, charitable organizations, and communities overseas.

Niagara Region received a silver award in the campaign category for the Desk-side Waste Diversion Program from MWA. Waste audits at Regional Headquarters and the Environmental Centre revealed that seventy-nine per cent of the material in the garbage stream consisted of material that could have been diverted through a recycling or

composting program. The Keen on Green Committee implemented the Desk-side Waste Diversion Program to take a collaborative approach to workplace waste management.

In combination with the communication and outreach tools outlined above, the Region utilized a variety of other promotional tools, such as presentations, displays, newspaper ads, newsletters, and web/social media ads. Appendix A provides more details of each initiative described above and other major social marketing initiatives undertaken in 2018. Appendix B contains samples of promotion and educational materials.

### **2019 Outlook**

Staff will continue to promote programs through a variety of communication methods. The main 2019 initiatives currently being considered include:

- Continuation of the Illegal Dumping awareness campaign and development of an Anti-litter awareness campaign;
- Green Bin campaign to encourage greater diversion of organic waste through increased participation in the Niagara Region's Green Bin program;
- Communications on curbside battery collection;
- Expand the Multi-residential Textile Diversion Program and launch the IC&I Recognition Program
- Continuation of the Gold Star Recycler program
- Development of promotional plan for new collection contract services
- Development of a Waste Management cell phone application for residents
- Expand existing partnership with Links for Greener Learning (dependent on budget)

Appendix C provides further details of the major marketing initiatives planned for 2019.

Respectfully submitted and signed by,



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Ashley Northcotte,  
Engagement & Education Coordinator,  
Waste Management Services

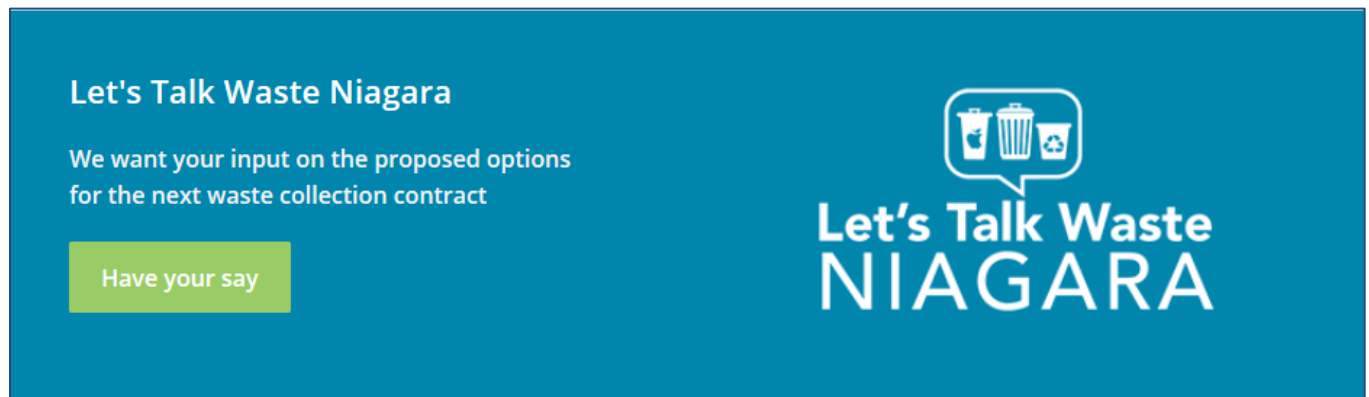
### **APPENDICES**

Appendix A – Details of 2018 Promotion and Education Outreach	Pages 5 - 14
Appendix B – Examples of Promotion and Education Materials	Pages 16 - 18
Appendix C – Details of Social Marketing and Education Planned for 2019	Pages 19 - 21

## Sample Promotion and Education Material

### 1. Web-based content

- a. Web banner at [niagararegion.ca/waste](http://niagararegion.ca/waste)



- b. Web artwork provided to Local Area Municipalities



## 2. Print/newspaper Advertising



The advertisement features a green and blue gradient background. At the top left, there is a white speech bubble icon containing three trash can symbols (one with a recycling symbol, one with a recycling symbol, and one with a recycling symbol). To the right of the icon, the text "Let's Talk Waste NIAGARA" is displayed in white. Below this, the text "Do you use Niagara Region's curbside garbage collection service? If so, we want to hear from you!" is written in bold. The main body of the ad contains two paragraphs of text. The first paragraph states that Niagara Region is consulting with various groups on proposed collection service options. The second paragraph provides information on how to find out more, including completing an online survey or attending public open houses, and directs visitors to the website [niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste). A note at the bottom indicates that the survey closes at midnight on November 30, 2018. The footer includes the Niagara Region logo and the Waste Info-Line contact information: 905-356-4141 or 1-800-594-5542.

**Let's Talk Waste NIAGARA**

**Do you use Niagara Region's curbside garbage collection service? If so, we want to hear from you!**

Niagara Region is in the process of consulting with various groups (i.e. residents, business owners, associations, etc.) to obtain their input on the proposed collection service options being considered for Niagara Region's next waste collection contract.

To find out more information, complete the on-line survey, or obtain a list of public open houses and community booth dates, visit [niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste).

Survey closes at midnight on November 30, 2018

**Niagara Region** **Waste Info-Line**  
905-356-4141 or 1-800-594-5542

## 3. Social Media

### a. Facebook paid ad



The Facebook ad shows the Niagara Region profile picture and name. The post text asks if the user uses curbside garbage collection and invites them to provide input on proposed options for the next waste collection contract. Below the text is a large graphic with the same "Let's Talk Waste NIAGARA" design as the print ad. At the bottom, the website [NIAGARAREGION.CA](http://NIAGARAREGION.CA) is listed, followed by the text "Let's Talk Waste Niagara" and a truncated description "Niagara Region's next waste collection contract...". A "Learn More" button is located at the bottom right.

**Niagara Region**  
October 25 at 3:25 PM · 🌐

Do you use Niagara Region's curbside garbage collection service? We want your input on the proposed options for the next waste collection contract. Take the survey or attend a public open house to have your say.

**Let's Talk Waste NIAGARA**

[NIAGARAREGION.CA](http://NIAGARAREGION.CA)  
**Let's Talk Waste Niagara**  
Niagara Region's next waste collection contract...

[Learn More](#)

b. Facebook events

## Let's Talk Waste NIAGARA

### Upcoming Events

Nov 15

**Open House - Let's Talk Waste Niagara**  
Tomorrow 6 PM  
You like Niagara Region

★ Interested

Nov 19

**Open House - Let's Talk Waste Niagara**  
Mon 6 PM  
You like Niagara Region

★ Interested

Nov 20

**Open House - Let's Talk Waste Niagara**  
Tue 6 PM  
You like Niagara Region

★ Interested

4. Poster Boards

## Let's Talk Waste NIAGARA

### RESIDENTS

Proposed Option:

#### Every-Other-Week Garbage Collection

weekly recycling and organics collection would continue

- For all residential properties receiving Regional curbside garbage collection service
- Current weekly garbage container limit would double for every-other-week collection

Residential Sector	Current Weekly Limit garbage container (bag/can)	Every-Other-Week Limit garbage container (bag/can)
Low Density Residential (1 to 4 units) <small>(i.e. single family, semi-detached, townhouses, duplex, triplex, fourplex, fiveplex, sixplex, and horizontal, row, condo housing)</small>	One (1) container per residential unit	Two (2) containers per residential unit
Multi-Residential <small>(i.e. residential buildings with 7 or more units)</small>	One (1) container per residential unit up to a maximum of 12 per building	Two (2) containers per residential unit, up to a maximum of 24 per building

**Reasoning:**

- Niagara's low density residential properties set out an average of less than one (1) garbage container per week
- Waste audits show that nearly 50% of what Niagara Region residents put in their garbage is food waste and other compostable material that should be placed in the Green Bin
- Increases waste diversion to extend lifespan of Niagara Region's landfills
- Cost avoidance
- Similar to what other municipalities in Ontario are successfully doing

[niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste)

## Let's Talk Waste NIAGARA

### RESIDENTS

Proposed Option:

#### Mandatory Use of Clear Bags for Garbage


with Option of Allowing an Opaque (i.e. grocery) Privacy Bag to be Placed Inside the Clear Bag

- For all residential properties receiving Regional curbside garbage collection service

**Reasoning:**

- Increases waste diversion to extend lifespan of Niagara Region's landfills
- Encourages higher participation in the Green Bin program as currently only 48% of Niagara's low density residential properties use the Green Bin
- Increases awareness of what is placed in the garbage due to visibility of bag contents
- Eliminates/minimizes option of concealing non-acceptable materials
- Eliminates/minimizes option of concealing hazardous materials (broken glass, nails, sharps), which could harm collection staff
- Facilitates education and enforcement of Niagara's Waste Management By-law

[niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste)



## Let's Talk Waste NIAGARA

### RESIDENTS


**Proposed Option:**


### Discontinue Curbside Collection of Large Household Appliances and Scrap Metal

- Examples of large household appliances and scrap metal include: refrigerators, stoves, freezers, washers, dryers, dehumidifiers, dishwashers, swing sets, bicycles, etc.
- For all low density residential properties (1 to 6 units) receiving Regional curbside garbage collection service who are currently eligible for this service (i.e. single family, semi-detached, townhouses, duplex, triplex, fourplex, fiveplex, sixplex, and horizontal, row, condo housing). Other property types do not receive this service.

**Reasoning:**

- Curbside-collected appliance and scrap metal tonnages have decreased by 94% since 2007
- Items can be recycled, at no cost, at the Niagara Region's Drop-off Depots, or at scrap metal dealers
- Only 6% of Niagara's low density residential properties are using the curbside collection of appliances and scrap metal service
- Potential cost avoidance
- Similar to what other municipalities in Ontario are successfully doing


[niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste)



## Let's Talk Waste NIAGARA

### RESIDENTS


**Proposed Option:**

### Establish a Four (4) Item Limit per Unit per Collection for Large Item Collection Service

- Examples of large items include: couches, chairs, tables, mattresses, toilets, vacuum cleaners, etc.
- For all low density residential properties (1 to 6 units) receiving Regional curbside garbage collection service who are currently eligible for this service (i.e. single family, semi-detached, townhouses, duplex, triplex, fourplex, fiveplex, sixplex, and horizontal, row, condo housing)

**Reasoning:**

- Proposed four (4) large item limit will meet set out needs, as low density residential properties set out an average of less than two (2) large items per collection in 2018
- 99% of Niagara's low density residential properties who use this service place four (4) or fewer items out for collection
- 92% of the total bookings in 2018 were for four (4) or less bulky items
- Potential cost avoidance
- Similar to what other municipalities in Ontario are successfully doing


[niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste)



## Let's Talk Waste NIAGARA

### BUSINESSES

**Proposed Option:**

### Every-Other-Week Collection for Garbage Only Outside Designated Business Areas weekly recycling and organics collection would continue


- For all eligible mixed-use (i.e. business with a residential component) and industrial, commercial and institutional properties located outside designated business areas only
- Current garbage container limits would double

Sector	Current Weekly Limit garbage container (bag/can)	Every-Other-Week Limit garbage container (bag/can)
Mixed-use (business with a residential component)	Six (6) Containers	Twelve (12) Containers (Eight (8) Containers, if weekly limit is decreased to four (4) Containers)
Industrial, commercial and institutional	Four (4) Containers	Eight (8) Containers

**Reasoning:**

- Increase waste diversion to extend lifespan of Niagara Region's landfills
- Only 61% of mixed-use properties participate in the Region's curbside recycling program and only 20% participate in the Green Bin program
- Only 34% of industrial, commercial and institutional properties participate in the Region's curbside recycling program and only 11% participate in the Green Bin program
- Potential cost avoidance
- Similar to what other municipalities in Ontario are successfully doing


[niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste)



## Let's Talk Waste NIAGARA

### BUSINESSES


**Proposed Option:**

### Mandatory Use of Clear Bags for Garbage with Option of Allowing an Opaque (i.e. grocery) Privacy Bag to be Placed Inside the Clear Bag

- For all eligible mixed-use (business with a residential component) and industrial, commercial and institutional properties, inside or outside designated business areas

**Reasoning:**

- Increases waste diversion to extend lifespan of Niagara Region's landfills
- Encourages higher participation in the Green Bin program as only 20% of mixed-use properties and 11% of industrial, commercial and institutional properties currently participate
- Increases awareness of what is placed in garbage due to visibility of bag contents
- Eliminates/minimizes option of concealing non-acceptable materials
- Eliminates/minimizes option of concealing hazardous materials (broken glass, nails, sharps), which could harm collection staff
- Facilitates education and enforcement of Niagara's Waste Management By-law


[niagararegion.ca/letstalkwaste](http://niagararegion.ca/letstalkwaste)

## **Details of 2018 Promotion and Education Outreach**

### **Let's Talk Waste Campaign**

An extensive stakeholder consultation was conducted by Waste Management Services with various groups (i.e. residents, business owners and associations etc.) to obtain input on the proposed garbage collection service options being considered for the next curbside waste collection contract (i.e. garbage, recycling, organics). Input from this consultation process will be used to help determine whether there is sufficient support for the proposed collection options.

The proposed options will affect all properties that use Niagara Region's curbside collection services. However, curbside collection services provided by the Niagara Region differ by sector and location and therefore not all of the proposed collection options will apply to every property. Please refer to report PW 3-2019, for more detailed information on the proposed collection service options, rationale, etc.

The slogan 'Let's Talk Waste' was developed, along with campaign branding to make the campaign more recognizable. Please refer to Appendix B for samples of the Let's Talk Waste campaign advertisements and promotional material.

#### *Web-based content*

A campaign URL and webpage was developed to educate and inform residents of the proposed service options. This page included a breakdown of the service options being considered and a link to the associated online surveys. Also included were the justifications for the proposed service options being considered, and the times and locations for all open houses and community booths. To help drive traffic to this webpage, the banner on the Waste Management home page was also changed to advertise the survey and direct the public to the campaign webpage. The campaign URL was launched at the end of October and received a total of 26,838 page views. The page is still active with the proposed service options, and will be used to provide an update once the report and analysis have been finalized. Web graphics were also developed and shared with Local Area Municipalities to further promote on their websites and link to the campaign webpage.

#### *Meetings with Stakeholders*

Waste Management staff met with each of Niagara's Business Improvement Associations (BIAs), Chambers of Commerce, the Niagara Industrial Association and Tourism Partnership of Niagara in August and September of 2018 to provide a presentation on the proposed service options. The purpose of these meetings was to discuss the proposed collection options, obtain preliminary input on the proposed options and discuss how to further engage their members. A total of 3,474 letters were mailed out in October to

businesses inside and outside the Designated Business Areas (DBAs) and to Multi-Residential properties with a link to the online survey to provide their feedback. A follow-up email was also sent after the meetings to request formal feedback.

In addition to meeting with the Industrial, Commercial and Institutional (IC&I) sector, staff provided letters to Local Area Municipalities (LAM) Clerks and Public Works Officials (PWO) advising of the proposed options and requesting comments. Presentations were also made to PWO, and Niagara Region staff attended five (5) LAM Committee or Council meetings to deliver a presentation.

#### *Telephone Survey*

A ten (10) – twelve (12) minute random telephone survey was conducted for low-density residential properties (LDR) and multi-residential (MR) properties up to six (6) units to receive their feedback on the proposed collection service options. A total of 1,253 surveys were completed, which included a representative sample of responses from all municipalities. At the regional level, the results of this residential telephone survey can be considered accurate to within  $\pm 2.8\%$ , 19 times out of 20 (95% Confidence Interval). A pre-test was conducted to ensure the survey process was working properly and residents understood the questions. The telephone survey questions were similar to those from the online survey.

#### *Online Survey*

A variety of online surveys were promoted in order to receive feedback from all stakeholder groups, addressing the collection changes that would affect that particular group. A total of three (3) surveys were developed for LDR and MR properties up to six (6) units, MR properties with 7 units or more, and businesses and mixed-use (MU) properties inside and outside the DBA. The online surveys were promoted at the open houses and community booths, where staff were equipped with tablets to assist interested residents in completing the survey. It was also promoted with a direct link on the campaign webpage and the social media ad, with reference to the link on the handout cards and newspaper ads. A total of 6,639 online surveys were completed for LDR, which is the highest number of responses to a Niagara Region survey to date. An additional 38 online surveys were completed for MR and 166 surveys for IC&I/MU properties. Due to the self-selecting nature of online surveys, these results cannot simply be combined with the more statistically representative random telephone survey, nor can a margin of error be assigned to online surveys. However, if this had been a random probability sample, the results for the online survey could be considered accurate to within  $\pm 1.5\%$ , 19 times out of 20 (95% Confidence Interval).

### *Open Houses*

Open houses were conducted in each municipality during the month of November from 6:00 – 8:00 p.m. Included as part of the open houses was a presentation at 6:30 p.m. as a way to further educate the public on the proposed service options, and to provide an opportunity for a question and answer session. Staff were available to assist residents and businesses in filling out an online survey to provide their feedback after the presentation. A total of 67 attendees came out to the open houses.

### *Community Booths Displays*

Community booths were used in each municipality as a way to engage with the public to further discuss the proposed service changes in the event that they were not able to attend an open house. A table with educational material and poster boards with information on proposed options were set up in public spaces, including malls, arenas, community centres and libraries. Residents had the opportunity to ask questions, clarify information, and fill out the online survey with the assistance of a staff member. Staff engaged with a total of 450 attendees as part of the community booth outreach.

### *Promotional handout cards*

Promotional handout cards were used to inform attendees at the community booths of the proposed collection service options, and to provide them with a link to the survey should they want to complete it in the comfort of their home. These cards were also provided to municipal offices to further promote the survey and educate residents on the proposed collection service options.

### *Poster Boards*

Poster boards were utilized as a visual aid, addressing all the proposed collection service options, separated by residential service options versus business service options. These boards were used at the open houses and community booths to summarize the proposed collection service options.

### *Social Media*

Social media (Facebook and Twitter) was successfully used to promote the online survey and the proposed collection service options. A total of 24 social media posts were used from Oct 30 – November 28 to promote the open houses and community booths, with a daily post reminder to encourage the public to attend. Facebook was also used to create scheduled events, where residents could receive all the information pertaining to that event. A Facebook paid ad ran from October 25 – November 28, asking residents to complete the survey. This post received a total of 271,397 impressions, 6,633 clicks and 1,467 comments.

### *Newspaper Advertising*

Newspaper ads were used encourage the public to participate in the online survey, with a link to the campaign webpage. A total of eleven (11) newspaper ads were placed in daily and community newspapers, coinciding with the open house dates in each municipality to encourage residents to attend. The link to the campaign webpage was included to encourage residents to take the online survey.

### *Online Advertising*

Online advertising was utilized in twenty-four (24) hour, one (1) week, and two (2) week time intervals from October 30 – November 30 on the daily and community newspaper websites to encourage residents to visit the campaign webpage to learn more and take the survey. Big box takeovers were also booked online from October 30 – November 20 as the main advertising on the newspaper websites.

## **IC&I Recognition Program**

The IC&I Recognition Program aims to encourage diversion and waste reduction practices at small IC&I businesses in Niagara that are participating in the Niagara Region's waste diversion programs. These businesses are invited to take an online pledge to one of three levels of recognition; gold, silver and bronze, with an escalating level of commitment to waste diversion at each level. Businesses will be recognized with a decal indicating their level of commitment to display on their store window, in addition to having their logo displayed on our external website. Promotional material was developed in 2018 to onboard businesses in 2019.

## **Multi-Residential Textile Recycling Program**

The Multi-Residential Textile Pilot Program was launched in late 2018 to enhance service to the multi-residential sector, divert textiles from landfill and further support local non-profit organizations. Site visits were conducted in early 2018 and twenty-two (22) properties were recruited for the Pilot. These properties were divided among the non-profit organizations (Diabetes Canada, Goodwill Niagara and Big Brothers, Big Sisters). Textiles collected as part of the Pilot will generate revenue for the local charities and divert textile materials that could not be reused or resold from the landfills. Phase two of this pilot project is expected to begin in January, which involves expanding the program to additional buildings now that program implementation has been completed at the initial twenty-two (22) properties.

## **Illegal Dumping Awareness Campaign**

The Illegal Dumping Working Group continued their efforts to mitigate illegal dumping in Niagara, with an increase in the number of illegal dumping reports received and offence notices issued. In 2018, Niagara Region increased the number of illegal dumping signs, pop-up banners and advertising, including the addition of arena boards to further raise illegal dumping awareness and provide tools for ease of reporting. In addition, Crime Stoppers of Niagara featured the Regional Chair on their Cogeco TV segment addressing the issue of illegal dumping in Niagara and what residents can do should they witness someone illegally dumping material. Refer to WMPSC-C 4-2019 for further program details

## **Litter Bin Blitz**

The litter bin blitz was initially implemented in 2012 as a way to communicate that illegal dumping into public litter bins is not permitted, to increase awareness on which items should be diverted from our landfill and to decrease costs associated with investigating and removing illegally dumped materials. Waste Management on-road staff conducted a blitz in 2018 to further combat illegal dumping. A total of 704 litter bins were inspected for household garbage and other non-compliant material. As a result, enough evidence was found to issue 43 warning letters to suspected generators. Promotion and education material was provided in the form of a Sorting Guide and Illegal Dumping brochure to communicate that illegal dumping into a public litter bin is not permitted, and to increase awareness on which items should be diverted through existing programs and services.

## **Gold Star Recycler Awareness Campaign**

Visual curbside audits of Blue and Grey Boxes are currently being conducted at 1,000 randomly selected homes throughout Niagara Region over a one-month period. These properties are being audited to determine if recyclables that have been set out at the curb were being properly sorted and prepared for curbside collection.

Niagara Region staff look for the following proper recycling practices while conducting the visual curbside audits:

- Use of Blue Box, Grey Box and Green Bin;
- Only one bag/can of garbage (no additional bags with garbage tags permitted);
- No obvious stream mixing of Blue and Grey materials;
- No garbage was found in either the Blue or Grey Box;
- No major sorting errors (i.e. disposable hot beverage cups found in recycling boxes, loose plastic bags/film in either the Blue or Grey Box, juice/milk cartons found in the Grey Box, etc.)

Perfect or near perfect (less than three minor errors) results on material preparation and separation will receive a Gold Star decal Blue Box embellished with the phrase 'I'm a Gold Star Recycler' to recognize their efforts. A Gold Star promotional door hanger will also be distributed with Gold Star boxes to congratulate residents on the proper preparation of their recyclables as a visible, tangible reward and recognition for their waste diversion efforts.

### **Broken Spoke Bicycle Recycling**

The program was developed through a partnership between the Niagara Region and Port Colborne High School's Broken Spoke program. As part of the Broken Spoke program, students refurbish and repair bicycles for reuse as part of the Special Skills Credit Program. Niagara Region uses their operational opportunity to collect bicycles at its Drop-off Depots for the Broken Spoke program to promote reuse. The objective of the program includes educating the general public about reuse options for unwanted bicycles or bicycles in need of repair and diverting material from landfill/lower-tier recycling operations. In 2018, a total of 1,709 bikes were collected at the Regional Drop-off Depots and donated to the Broken Spoke program, increasing the overall total to 4,542 bicycles donated since the inception of the program in 2016. This program continues to be promoted at our information booths with 'Recycle your Bicycle' print material, and through social media, letting residents know about the program and where they can donate bikes.

### **Collection of Large, Rigid Plastics at Drop-off Depots**

Large, rigid plastic materials that are not acceptable in the curbside Blue Box recycling program are collected through the Waste and Recycling Drop-off Depots in a designated bin for these materials to be recycled. These large, rigid plastic materials were accepted from residential and IC&I customers, free of charge. As a result of removing these hard plastics from the waste stream, landfill space is protected and the hard plastics are recycled into pellets to make new consumer products. This program continues to be promoted in the collection guide, and at Waste Management information booths.

### **Special Events Recycling and Organics Program**

The Special Events Recycling and Organics program provides the attendees of public special events, such as community festivals and fairs, free access to recycling and organics collection services. The aim of this program is to divert more materials from landfills and increase public awareness of the Niagara Region's waste diversion programs to create consistent diversion options between home and in the community. The Special Events Recycling and Organics program continues to be promoted through the Niagara Region's website and promotional handouts for event contacts and vendors, receiving additional promotion through the online event service request form that includes all potential Niagara Region services available for their event. In 2018, the Special Events Recycling and Organics program diverted more than 45 metric tonnes of material through

program promotion in the spring Green Scene. Refer to WMPSC-C 6-2019 for further program details.

### **Keen on Green Desk-Side Waste Diversion Program**

The Desk-Side Waste Diversion program provides easy and accessible tools for staff to more carefully separate their waste. It is also a constant visual reminder of the obligation that we each have to manage our office waste materials. As part of the corporate-wide rollout, the same educational tools were supplied in this rollout as for the rollout at Niagara Region Headquarters, the Environmental Centre and Niagara Region Police Headquarters. These Desk-Side Waste Diversion Kits, which include a small Grey Box for paper recycling, a small Green Organic Caddy for food/other compostable waste, and a mini garbage container, will support staff education on how to source separate their waste materials. The kits also include print material to further support staff on participating in this program, including a sorting guide and FAQ document.

As part of the corporate-wide rollout, a total of 77 buildings received their Desk-Side Waste Diversion Kits and have implemented the program. There are an additional four (4) buildings that are under construction, and the rollout of the program will take place once construction is complete. Rollouts were customized based on the needs of the building and to adhere to the Waste Management By-law, and were provided with promotion and educational material to meet their waste sorting needs.

### **Household Hazardous Waste Depots**

The Orange Box program was designed to raise awareness of proper collection and disposal of household hazardous waste material, and to promote the permanent Household Hazardous Waste Depots. Orange Boxes are 16 gallon recycling containers designed for residents to store their household hazardous waste and transport it to the depot. The boxes include instructional stickers and brochures on acceptable materials and depot locations. These Orange Boxes were distributed at information booths as a way to engage with residents and promote Niagara Region's depots. In addition, the permanent depots were also advertised and promoted in the Collection Guide, through social media, newspaper advertising, and promotion and education materials distributed at events.

### **Information Booths and Presentations**

This year, 247 presentations were done to promote the Niagara Region's Waste Management programs and the importance of waste diversion to a variety of schools, community groups, and organizations. Presentations allow staff to directly engage with and further educate residents on the waste diversion programs and their associated benefits. These presentations can be requested through the Niagara Region website. It

is estimated that staff reached over 13,475 people through our presentation outreach efforts. Additional outreach extended to 56 information booths that were staffed by interns throughout the year at home and garden shows, festivals, fairs and open houses.

### **Summer Camps**

During the summer, Waste Management interns attended 23 summer camps during the months of July and August. A total of 53 presentations were completed, reaching approximately 1,255 campers. There were two (2) presentations that were offered to summer camps, based on age groups:

- Explorers of Recycle Reef (ages 3-7); and
- Waste Diversion Heroes (ages 8-12)

### **Parades**

Niagara Region Waste Management interns attended three parades this year:

- Niagara Falls Canada Day parade;
- Niagara-on-the-lake Santa Claus parade and;
- Niagara Falls Santa Claus parade

Participation in community parades is an excellent opportunity to promote the Niagara Region's Waste Management services by involving our mascots as well as Niagara Region vehicles with applicable promotional graphics.

### **Curbside Battery Collection**

The fifth annual region-wide curbside collection of batteries took place in April of 2018. Leading up to April, curbside battery collection was promoted using Niagara Region's in-kind newspaper advertising, digital billboards, mobile traffic signs and social media. This year, Niagara Region partnered with the local Fire Prevention Officers to combine messaging for daylight savings, encouraging residents to change smoke and carbon monoxide alarm batteries and save them for curbside battery collection, utilizing their in-kind radio advertising. As a revenue-generating material, the on-going education and awareness for residents of this one-week program continues to be a key campaign promoted through both print and social media advertising. The program saw a 21% increase from 2017, collecting over 7,403 kg.

## **Compost Awareness Week**

Niagara Region held its annual spring compost giveaway to promote Compost Awareness Week. Beginning May 7 and running until May 12, Niagara residents could collect up to three (3) bags of compost per household in exchange for a cash or non-perishable food donation to support Fort Erie COPE (Community Outreach Program – Erie), Grimsby Benevolent Fund, Goodwill Niagara, and Project Share. Promotion and communication of the giveaway included information posted on the Waste Management webpage, web communications through social media and public service announcements.

## **Earth Week**

In recognition of Earth Week, Niagara Region offered two (2) guided tours of the Recycling Centre that had a total of 40 participants, in addition to exposure from Cogeco TV as a feature for Earth Week. Niagara Region also held a 'Household Hazardous Waste Depot' contest to promote the year-round depots, and encourage residents to bring an item of household hazardous waste to any of the depots. Household hazardous waste items dropped off at any of the depots received a ballot to enter a draw for a VISA gift card. A total of 351 ballots were received. Three (3) information booths were offered at the following locations; Niagara Region Headquarters, Niagara Regional Police Headquarters, and the Pen Centre. Also part of Earth Week promotions were container sale/swap, reusable container contest, and a free cookie promotion in the Niagara Region cafeteria with the use of a reusable mug. This year also included the first Shred Day event, where residents were able to receive free shredding services. A total of 310 kg of paper waste was shredded and a total of \$73.40 and 40 pounds of food donated to local charities.

## **Waste Reduction Week**

Residents were invited to attend a guided tour of the Recycling Centre and Walker Environmental Organics processing facility to discover what happens to their Green Bin material once it leaves their curb. There were a total of 15 participants for both tours offered to the public.

Residents were offered the chance to win one of two (2) VISA gift cards when bringing a reusable item to one of the Niagara Region's reusable good depots. A total of 54 ballots were collected as part of the contest.

There were information booths set up at Niagara Region Headquarters and the Pen Centre, and other activities included container sale/swap, book swap, and a reusable container contest for staff using any type of usable container, at five (5) different office locations. A total of 597 ballots were received. This year also included a textile reuse/recycling campaign with Diabetes Canada. Both 8 cubic feet (2ft x 2ft) boxes were filled.

## **Annual Collection Guide Distribution**

The Collection Guide detailing the Niagara Region's Waste Management programs and services is mailed annually to all single family homes, farms, and apartment buildings up to six (6) units in Niagara. Approximately 175,000 copies are included in the mail out.

## **Multi-Residential Collection Guide**

Volume five (5) of the multi-residential waste and recycling Collection Guide was distributed to specifically educate residents in buildings with seven (7) or more units on the Niagara Region's recycling and organics programs. In 2018, the Collection Guide was mailed directly to 23,279 residents.

## **Green Scene Newsletter**

This newsletter is distributed bi-annually to all homes, farms, and apartments with six (6) units or less throughout Niagara and continues to include content from Public Works, but maintains a Waste Management component comprising of seventy-five per cent of the overall content. Over 171, 000 copies of the newsletter were distributed.

## **Social Media**

With 16,623 people following Niagara Region's Facebook page, Waste Management Services continues to use this platform to inform residents on programs and services, and as an avenue to further educate. Social media posts for this year have included disposal of portable propane cylinders, holiday collection changes, branch collection, promoting Earth Week and Waste Reduction Week, etc.

## **Niagara Region Website**

The Niagara Region website is a crucial tool used to educate and inform Niagara residents about the Region's Waste Management programs. The Waste Management webpage remains one of the most viewed pages on the Region's website with 867,607 page views, 17% of all traffic to the site in the last year. As of December 2018, Waste Management Services also has the third and fourth highest traffic pages on the Niagara Region website, which includes the waste collection schedule page and the large item request form page.

## **Details of Social Marketing and Education Planned for 2019**

### **Green Bin Campaign**

In an effort to increase Green Bin usage, another phase of the campaign will take place in 2019. The strategic communications plan for the campaign is being finalized and incorporates the barriers identified in the Green Bin survey completed by Brock University's Environmental Research Centre, and will be comprised of a broad spectrum advertising plan.

### **IC&I Recognition Campaign**

This recognition-based program aims to encourage and promote waste diversion practices amongst the Industrial, Commercial, and Institutional (IC&I) sector, titled 'Rethink Your Waste at Your Workplace'. Each business that has been successfully certified by the Niagara Region as either a Bronze, Silver or Gold level participant in the 'Rethink Your Waste at Your Workplace' program will receive a window decal indicating their achievement in waste diversion. Names of certified businesses will also be featured on the Niagara Region's external facing website, on a new page dedicated to the 'Rethink Your Waste at Your Workplace' program.

In addition to being certified as a Gold, Silver, or Bronze member of the program, businesses will also have the opportunity to be nominated as one of the program's Business Champions. Individuals or businesses may nominate another business or self-nominate their own business, to be named a 'Rethink Your Waste at Your Workplace Business Champion'. This award is intended to recognize businesses that have made significant strides in waste reduction and environmental sustainability.

Waste Management staff will pilot this program inside the Designated Business Areas, where IC&I properties are eligible to place unlimited quantities of recyclable and organic material curbside for collection through the Niagara Region's recycling program. Postcard mail outs will be sent to businesses to notify them about the program. Participating businesses will receive support from Waste Management staff in the form of coaching to identify areas for improvement, provision of a variety of promotional materials, and personalized site visits.

### **Multi-Residential Textile Diversion Pilot**

The early stages of the textile pilot involved reaching out to interested buildings and conducting site visits prior to delivery of the containers to finalize a location and collection frequency. The next phase that will be carried out in 2019 will involve

onboarding more buildings to participate in the program, which will involve providing them with the necessary promotion and education to launch the program at their building, and will include a door hanger and poster.

### **Illegal Dumping Awareness Campaign**

The Illegal Dumping campaign will continue in 2019. The campaign will continue marketing strategies used to date, such as print and newspaper advertisements, arena board advertisements, and social media communication. Additional strategies for 2019 will be discussed and developed with the Illegal Dumping Working Group.

### **Anti-litter Awareness Campaign**

Development of an Anti-litter campaign is currently in progress and is expected to roll out in 2019. As part of the campaign, key messages will include residents taking control of their litter, keeping our public spaces clean, and promoting putting litter in waste and recycling containers. To support the key messages, there may also be some supporting messaging around helpful proactive measures, such as proper preparation of recyclables for the curb to avoid wind-blown litter.

### **Gold Star Recycler Awareness Campaign**

The Gold Star Awareness campaign is expected to continue for 2019. The campaign will continue to improve upon waste reduction by recognizing residents for their material separation and preparation.

### **Promotional Plan for New Collection**

In preparation for the new waste collection contract, Waste Management staff will initiate development of a communication strategy to modify the 'Rethink your Waste' brand to align with the new collection changes. Throughout this process, key messages and creative concepts will be developed, including themes, slogans and visual elements. This rebrand will include an extensive update of all existing promotion and education materials, a review of current promotional material and identifying print material required.

### **Waste Management Cell Phone Application**

To increase our customer service and provide timely communication, Waste Management staff will be looking to develop a cell phone application, specific to Waste Management, that will provide residents the ability to sign up for collection reminders and receive notifications in regards to collection delays or holiday collection changes. In addition to the web application, residents will be able to access all of this information from their cell phone to increase our ability to educate residents, cut down on call volumes and provide great customer service.

### **Links for Greener Learning Partnership\***

Waste Management Services will be expanding on their existing partnership with Links for Greener Learning through a formal agreement to provide waste management education to elementary school age children to further promote our waste diversion message, have the ability to offer workshops and increase the overall reach and educational opportunities for Waste Management. This partnership will include the use of in-kind design support and printing services for Links for Greener Learning to be able to provide promotion and education materials to their audiences. This initiative is dependent on budget availability.\*

### **Promotion of new and continuing programs**

New and continuing programs will be promoted to inform residents regarding on-going and new initiatives. Promotional tactics will be considered and implemented for curbside battery collection, multi-residential battery collection, Household Hazardous Waste Depots, large/rigid plastics recycling, the newly established online booking form for large/bulky items, and other initiatives as they arise.

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## MEMORANDUM

**WMPSC-C 3-2019**

**Subject: Councillor Information Request**

**Date: Monday, January 21, 2019**

**To: Waste Management Planning Steering Committee**

**From: Lydia Torbicki, Acting Director, Waste Management Services**

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This memorandum is intended to provide Committee members with an update on the outstanding Councillor Requests from previous meetings.

### **Waste Management Planning Steering Committee**

**Meeting Date: March 19, 2018**

**Minute Item #3.1: MOTION**

That staff **REVIEW AND CONSIDER** potential opportunities to work with Niagara Furniture Bank with respect to large item pick-ups.

**Follow-up Action:** Establishment of a four (4) large item limit per eligible residential unit, per collection, has been recommended for the next collection contract (as per PW 3-2019). A limit per residential unit is a municipal best practice/trend, and would encourage households to direct large items to organizations such as Niagara Furniture Bank.

Currently, there are Niagara Region waste management-related webpages and links that encourage donations of used items, including the following:

- <http://www.niagararegion.ca/waste> contains the “Where does it go?” search tool which returns the flag ‘if this item is in good condition, [consider donating it](#)’ (for example, <https://www.niagararegion.ca/waste/disposal/donate/donate-list.aspx?d=1&q=Furniture>) for applicable items.
- <http://www.niagararegion.ca/waste/disposal/donate> contains links to:
  - A [list of items that can be donated](#) and an ‘item to donate’ search tool (<https://www.niagararegion.ca/waste/disposal/donate/donate-categories.aspx>)
  - [Etiquette for donating](#) (<https://www.niagararegion.ca/waste/disposal/donate/Etiquette-for-dropping-off.aspx>)
  - [Donation drop-off locations](#) (<https://www.niagararegion.ca/waste/disposal/donate/donate-list.aspx>)

- [Form](https://www.niagararegion.ca/waste/disposal/donate/org-form.aspx) for organizations requesting to be added to the directory of donation drop-off locations  
(<https://www.niagararegion.ca/waste/disposal/donate/org-form.aspx>)

**Status:** In progress

**Meeting Date: May 30, 2016**

**Minute Item #6.6:** Provide information outlining options for the Material Recovery Facility pending legislative changes. (WMPSC-C 25-2016) (Councillor Petrowski).

**Follow-up Action:** An evaluation of opportunities with regard to the Material Recovery Facility (MRF) is in progress. An RFP has been drafted for the engagement of the project consultant for Phase 4 of the MRF Opportunity Review. Clauses in the contract agreement with Niagara Recycling allow for early termination.

**Status:** In progress

**Public Works Committee**

**Meeting Date: January 8, 2019**

**Meeting Item #6.1:**

That staff consider closed-top containers as an option for recycling collection. Councillor Ugulini.

**Follow-up Action:** Staff have completed research and are monitoring availability and municipal use of closed-top containers. The results are included in WMPSC-C 11-2019 Closed-top Recycling Containers which is part of the WMPSC February 25, 2019 meeting package.

**Status:** Complete

Provide information respecting what constitutes the 36% of non-recyclable and non-compostable materials in the garbage bags collected between 2015 and 2016, as described in Report PW 3-2019. Councillor Disero.

**Follow-up Action:** The detailed breakdown of material streams in residential garbage containers is included in WMPSC-C 7-2019 2015/2016 Waste Composition Study Results which is part of the WMPSC February 25, 2019 meeting package.

**Status:** Complete

**Meeting Date: February 16, 2016**

**Meeting Item #3.1:** Include in future reports regarding this project the corporate structure, background on the technology and how this fits into our current waste management systems and long term planning for waste management (Councillor Grenier).

**Follow-up Action:** The Allanburg Energy from Waste (EFW) project has been renamed as the Grove Energy & Education Centre (GEEC) project. The proponent's information regarding the background on the technology has been included in a memorandum CL-C

16-2016, from the Commissioner of Public Works to Council, dated February 19, 2016. The proponent's corporate structure was included a subsequent memorandum to Council, dated February 23, 2016.

In September 2016, the City of Thorold rescinded its support of the GEEC project, as proposed by 1931146 Ontario Inc. and further adopted a resolution that Thorold Council does not support EFW, a form of incineration, as a viable method for municipal waste management. Thorold Council also asked that Niagara Region rescind its project support (as it related to the Independent Electrical System Operators (IESO) application). Further, on September 27, 2016, the Province announced that it will immediately suspend the second round of its Large Renewable Procurement (LRP II) process and the Energy-from-Waste Standard Offer Program (EFWSOP).  
Memorandum WMPSC-C 38-2017 September 11, 2017 Page 3.

At its meeting of January 19, 2017, Regional Council passed the following motion:  
*"That the motion adopted by Regional Council at its meeting of February 25, 2016 as noted above, **BE RECONSIDERED**.*

*That the motion respecting Energy from Waste **BE REFERRED** to the Waste Management Planning Steering Committee for consideration and recommendation to the Public Works Committee."*

Subsequently, the motion was addressed in WMPSC-C 9-2017 at the January 23, 2017 WMPSC meeting and PWC-C 9-2017 at the January 31, 2017 PWC meeting. The following resolution was approved at PWC:

*"That Niagara Region **RESCIND** their February 2016 support for the construction and operation of the Grove Energy & Education Centre Project for the sole purpose to enable the Applicant (1931146 Ontario Inc.) to meet the eligibility requirements of the EFWSOP"*

Staff have contacted the proponents for an update on the GEEC project (i.e. current and next steps) and have yet to receive a reply.

**Status:** In progress

### **Budget Review Committee of the Whole**

**Meeting Date:** October 29, 2015

**Meeting Item #5.1:** Provide advance notice of (waste management / recycling) future legislated requirements / changes to Public Works Committee meeting prior to any budget considerations (Councillor Grenier).

**Follow-up Action:** Bill 151, Waste Free Ontario Act became law November 30, 2016. The Act is high-level enabling legislation and future regulations and policy statements will provide further details on roles and responsibilities and how services will be funded. Staff will continue to provide updates related to the legislation and the potential impact

on Niagara, with the most recent update provided as part of the Regional Council 2018-2022 Orientation presentation on November 21, 2018 and in the staff presentation to WMPSC on February 25, 2019.

**Status:** In progress

### **Committee of the Whole**

No outstanding waste management related items at this time.

### **Council**

**Meeting Date:** January 18, 2018

**Meeting Item # 11.3:** That staff provide regular updates at Public Works Committee respecting Emterra Environmental and waste collection. (Councillor Grenier).

**Follow-up Action:** An update was last provided at the January 8, 2019 Public Works Committee meeting as part of the memorandum PWC-C 4-2019.

**Status:** In progress

### **COMPLETED ITEMS**

#### **Waste Management Planning Steering Committee**

**Meeting Date:** April 30, 2018

**Minute Item #6:** Investigate whether Niagara Region is the only municipality that accepts black plastics in its Blue Box program. (Councillor Burroughs)

Confirm the location that receives the tires collected by the Niagara Region drop-off depots. (Councillor Augustyn).

**Meeting Date:** January 22, 2018

**Meeting Item # 7.3:** Provide information on the legality and use of drones for monitoring illegal dumping. (Councillor Baty)

#### **Public Works Committee**

**Meeting Date:** January 9, 2018

**Meeting Item #7.1:** Provide a chronology of how and why the decision for the Emterra Environmental contract extension was made and highlight the risks we were trying to avoid by extending the contract. Councillor Grenier.

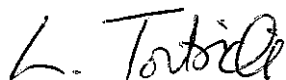
**Meeting Date: May 15, 2018**

**Meeting Item #7.2:** Councillor Bentley requested information regarding waste collection vehicles reversing on laneways in the Grimsby beach area. Catherine Habermehl, Director, Waste Management Services, advised that the Region has a policy that restricts waste collection vehicles from reversing on laneways, but that some private laneways were grandfathered in.

**Meeting Date: May 15, 2018**

**Meeting Item #7.4:** Councillor Rigby requested information respecting the City of St. Catharines hiring of a waste manager to help reduce waste. Catherine Habermehl, Director, Waste Management Services, advised that this position was for City of St. Catharines facilities; however, she has reached out to St. Catharines staff to offer assistance.

Respectfully submitted and signed by



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Lydia Torbicki  
Acting Director, Waste Management Services

---

## MEMORANDUM

WMPSC-C 4-2019

**Subject: Illegal Dumping**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Katelyn Avella, Contract Supervisor**

---

This memorandum is intended to update Committee members on the Illegal Dumping Working Group's (Working Group) progress in 2018 and direction for 2019.

Throughout 2018, continued efforts of the Working Group to mitigate illegal dumping in Niagara resulted in:

- A total of 755 illegal dumping reports received in 2018 – an increase of 11% compared to 2017. *Appendix A* provides a comparative breakdown of illegal dumping statistics.
- A total of two (2) reports of illegal dumping were received through Crime Stoppers Niagara (CSN) in 2018.
- Two (2) offence notices were issued in 2018 where one (1) fine was paid by the offender and the second fine has yet to be paid.
- In 2018, an additional three (3) illegal dumping signs were added in Niagara-on-the-Lake and there are a total of 111 signs installed throughout the region.
- The following list outlines the Niagara Region's continued advertising of the Illegal Dumping Campaign in 2018. *Appendix B* provides more details.
  1. Advertising on waste collection vehicles,
  2. Illegal dumping brochures,
  3. Illegal dumping rack card,
  4. Newspaper advertisements,
  5. Banner displayed at Outreach Booth at community events,
  6. Arena board advertisements,
  7. Transit advertisements,
  8. Public litter bin stickers branded for each municipality,
  9. Spring Green Scene article,
  10. Fall Green Scene article, and
  11. Social media posts.

Since the reestablishment of the Working Group in 2012, illegal dumping reports received from the public continue to increase every year. In 2018, warning letters issued to suspects of illegal dumping increased significantly from 47 letters issued in 2017 to 142 letters issued in 2018. Of these 142 letters, 69 letters were issued as a result of

residents reporting events of illegal dumping and Regional staff randomly discovering illegally dumped material. The remaining 71 letters were issued as a result of proactively monitoring public litter bins, mainly in St. Catharines, but also periodically throughout the rest of the region. This follow up is a direct result of increased reports of illegal dumping from the public and Regional staff monitoring public litter bins. It is also estimated, based on previous years, that increased warnings, offence notices and posting illegal dumping signage at known 'hot spots' will continue to slow the acts of illegal dumping, while increasing the number of dumping instances that are reported.

2019 initiatives for the Working Group will include:

- 'See it. Report it' campaign refresh to revitalize the brand;
- Continue installation of illegal dumping signage at 'hot spots', as determined;
- Advertisement via CSN website, municipal websites and social media;
- Continue print ad and social media communication (i.e. Green Scene);
- Continue transit advertising;
- Continue arena board advertisement;
- Encourage municipalities to utilize the public litter bin stickers;
- Continue semi-annual Working Group meetings (next meeting is tentatively scheduled for May 28, 2019); and
- Work with CSN to film a segment on Cogeco TV to bring awareness to illegal dumping.

Respectfully submitted and signed by



---

Katelyn Avella  
Contract Supervisor  
Waste Management Services

## Appendices

Appendix A – Illegal Dumping Statistics  
Appendix B – 2018 Illegal Dumping Promotion

Page 3  
Pages 4-12

### Illegal Dumping Statistics

	2013	2014	2015	2016	2017	2018
<b>ILLEGAL DUMPING REPORTS</b>	394	506	530	589	681	755
<b>ONLINE REPORTING TOOL SUBMISSIONS</b>	42	83	112	129	115	102
<b>CRIME STOPPERS REPORTS</b>	N/A	N/A	N/A	N/A	11	2
<b>WARNING LETTERS ISSUED</b>	35	42	39	37	47	140
<b>COMPLIANCES ACHIEVED</b>	1	2	5	4	4	2
<b>OFFENCE NOTICES/SUMMONS ISSUED</b>	1	2	7	7	3	1
<b>REWARDS AWARDED</b>	N/A	1	1	5	4	2

## 2018 Illegal Dumping Promotion

### 1. Advertising on select waste collection vehicles



## 2. Illegal Dumping Brochure



### Electronics

Waste electronics can be dropped off for recycling free of charge at any of the Region's Waste and Recycling Drop-off locations. Many retailers and charities also collect old electronics for recycling free of charge. Visit [recyclemyelectronics.ca](http://recyclemyelectronics.ca) to search for a waste electronics collector near you.



### Household Hazardous Waste (HHW)

Niagara Region residents may drop off HHW material at drop-off depots free of charge. These depots are located throughout Niagara in:

- Thorold Yard HHW Drop-off Depot at 3577 Thorold Townline Road., Thorold (off Taylor Rd.)
- Humberstone HHW Drop-off Depot at 700 Humberstone Road, Welland
- Niagara Road 12 HHW Drop-off Depot on Concession 7, West Lincoln
- Bridge Street Waste & Recycling Drop-off Depot at 300 Bridge Street, Fort Erie

**PLEASE NOTE THAT THE BRIDGE STREET DEPOT IS LIMITED TO ONLY ACCEPTING BATTERIES, COOKING OIL, OIL, PAINT AND PROPANE TANKS**

There are also retail take-back locations for various HHW. Visit the following websites for more information and drop-off locations: [makethedrop.ca](http://makethedrop.ca), [healthsteward.ca](http://healthsteward.ca), [regeneration.ca](http://regeneration.ca)



### Construction and Demolition Material

Construction and Demolition material such as drywall, wood and shingles must be taken directly to the Region's Waste and Recycling Drop-off locations. Disposal Fees apply.

You can donate reusable construction and renovation materials to Habitat for Humanity's ReStore at 150 Bunting Road in St. Catharines. Call 905-685-7365 to check if your materials are acceptable.



### Leaf and Yard Waste

Leaf and yard waste is collected weekly from single family homes and in apartment buildings up to six units.

Branches are collected curbside for four consecutive weeks during the spring and fall from single family homes and in apartment buildings up to six units.

In order for branches to be collected, they must be set out according to specified size and weight limits.

Leaf and yard waste can be dropped off free of charge year-round at the Region's Waste and Recycling Drop-off locations.



### Grass

Grass clippings are not collected from the curb.

The Niagara Region encourages leaving grass clippings on your lawn to naturally decompose.

Grass clippings that require disposal must be dropped off at the Region's Waste and Recycling Drop-off locations. Grass is accepted free of charge.



The graphic features a large black silhouette of a person dumping a bag of trash. Inside the silhouette, the text "ILLEGAL DUMPING IS A CRIME" is written in bold, white, sans-serif capital letters. Below the main silhouette, there are smaller silhouettes of three people. At the bottom left, it says "CRIME STOPPERS" with a small logo. At the bottom right, it says "Niagara Region" with a logo.

[niagararegion.ca/waste](http://niagararegion.ca/waste)

3. Illegal Dumping Rack Card



The rack card is divided into two main sections. The left section has a green background and features a large black silhouette of a person dumping a bag. Inside the silhouette, the text "ILLEGAL DUMPING IS A CRIME" is written in bold, with "ILLEGAL DUMPING" in green and "IS A CRIME" in white. Below this, the text "See it. Report it." is written in large, bold, black letters. At the bottom left is the "CRIME STOPPERS OF NIAGARA" logo, and at the bottom right is the "Niagara Region" logo.

**Report Illegal Dumping**

Niagara Region and local area municipalities are working together to tackle the issue of illegal dumping. You can help be part of the solution by reporting a location where materials have been dumped or if you have witnessed someone illegally dumping.

**To make a report of illegal dumping:**

- Call Crime Stoppers of Niagara  
1-800-222-TIPS
- Call the Region's Waste Management  
Info-Line 1-800-594-5542
- Report online at [niagararegion.ca/waste](http://niagararegion.ca/waste)

**Provide as many details as possible when reporting, including:**

- location
- car make/colour
- time
- licence plate
- materials dumped
- description of people

Once alerted, the issue will be investigated and the materials removed.

For incidents of illegal dumping reported on Regional or Municipal roads or properties, a reward of \$200 will be awarded if the report leads to a conviction. A reward of \$50 will also be awarded if the illegal dumping results in an act of compliance (i.e. the person who was reported illegal dumping returns to the site and removes the dumped materials.)

4. Newspaper Advertisements



**ILLEGAL DUMPING IS A CRIME**

**See it.  
Report it.**

Niagara Region and your local municipality are tackling the issue of illegal dumping. You can help be part of the solution by reporting a location where materials have been dumped or if you have witnessed someone illegally dumping.

A **reward of \$200** will be awarded for reports of illegal dumping on public regional or municipal roads or properties which lead to a conviction, or a **reward of \$50** for reports that lead to a compliance.

Report online at [niagararegion.ca/waste](http://niagararegion.ca/waste) or call the Region's Waste Info-Line at 905-356-4141 or 1 800-594-5542. Provide as many details as possible including location, time, materials dumped, car make/colour, licence plate and description of people.

Information on illegal dumping can also be submitted anonymously using Crime Stoppers of Niagara. To leave an anonymous tip, please contact Crime Stoppers at 1-800-222-TIPS.

**CRIME STOPPERS** OF NIAGARA

Niagara Region

[niagararegion.ca/waste](http://niagararegion.ca/waste)

5. Banner displayed at Outreach Booth at community events



6. Arena Board Advertisement



7. Transit Advertisement



8. Public litter bin stickers, branded for each municipality help educate residents that illegally dumping household garbage into public litter bins is not permitted, it helps deter illegal dumping through enforcement, give residents the opportunity to report illegal dumping and helps the Region address more cases of illegal dumping each year.



## 9. Spring Green Scene article



**ILLEGAL DUMPING IS A CRIME**

Niagara Region, local area municipalities and community partners have been working together to tackle the issue of illegal dumping since 2012. As a result, illegal dumping reports from the public have continued to increase by an average of 12 per cent every year.

Regional Staff responded to 675 reports of illegal dumping in 2017. Three offence notices were issued, all resulting in successful convictions, with warning letters increasing by 27 per cent.

Niagara Region staff are forecasting that the number of illegal dumping reports will increase in 2018, due to exposure of the program through the partnership with Crime Stoppers Niagara. It is also estimated, based on previous years, that increased warnings, offence notices and posting illegal dumping signage at known 'hot spots' will continue to slow the acts of illegal dumping, while increasing the number of dumping instances that are reported.

Illegal Dumping into public litter bins continues to be a problem. In 2017, staff conducted a "Litter Bin Blitz" to educate and prevent dumping into litter bins. As a result, 33 warning letters were issued to suspected generators.

The Region continues to provide a \$50 cash reward to any person whose report of illegal dumping results in an act of compliance. That means the person who was reported to be dumping returned to the site and removed the dumped materials. A \$200 reward is given to any person whose report of illegal dumping leads to a conviction.

**To report acts of illegal dumping:**

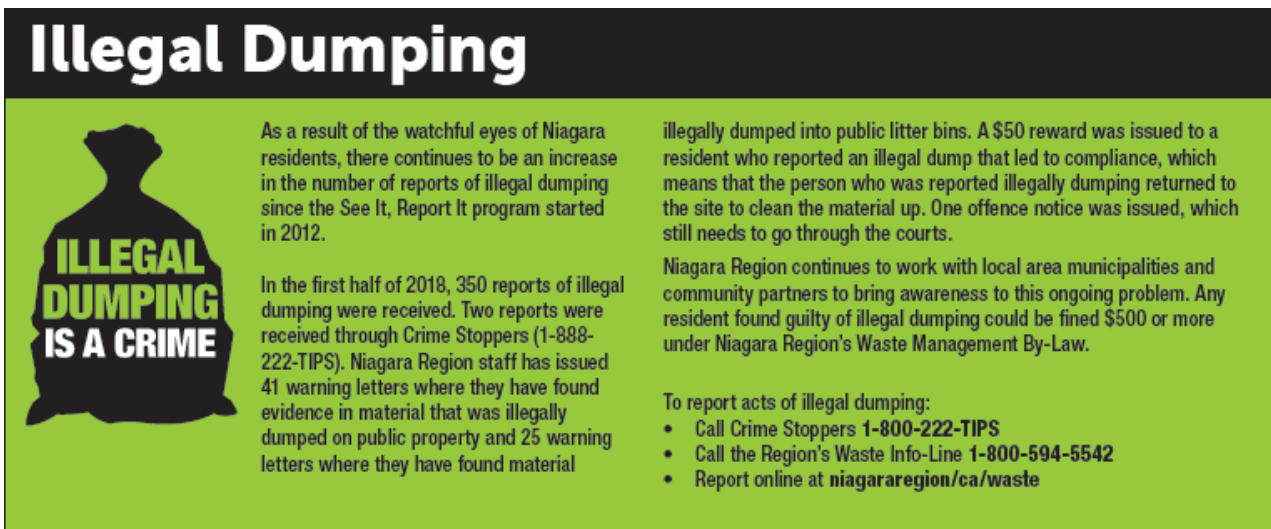
- Call Crime Stoppers of Niagara 1-800-222-TIPS
- Call the Region's Waste Info-Line 1-800-594-5542
- Report online at [niagararegion.ca/waste](http://niagararegion.ca/waste)

Reports submitted through Crime Stoppers of Niagara will be accepted anonymously. Any resident found guilty of illegal dumping can be fined up to \$500 under the Region's waste management bylaw.

**CRIME STOPPERS OF NIAGARA**

**See it. Report it.**

## 10. Fall Green Scene article



# Illegal Dumping

**ILLEGAL DUMPING IS A CRIME**

As a result of the watchful eyes of Niagara residents, there continues to be an increase in the number of reports of illegal dumping since the See It, Report It program started in 2012.

In the first half of 2018, 350 reports of illegal dumping were received. Two reports were received through Crime Stoppers (1-888-222-TIPS). Niagara Region staff has issued 41 warning letters where they have found evidence in material that was illegally dumped on public property and 25 warning letters where they have found material

illegally dumped into public litter bins. A \$50 reward was issued to a resident who reported an illegal dump that led to compliance, which means that the person who was reported illegally dumping returned to the site to clean the material up. One offence notice was issued, which still needs to go through the courts.

Niagara Region continues to work with local area municipalities and community partners to bring awareness to this ongoing problem. Any resident found guilty of illegal dumping could be fined \$500 or more under Niagara Region's Waste Management By-Law.

**To report acts of illegal dumping:**

- Call Crime Stoppers 1-800-222-TIPS
- Call the Region's Waste Info-Line 1-800-594-5542
- Report online at [niagararegion.ca/waste](http://niagararegion.ca/waste)

## 11. Social media posts



The image shows a Facebook post from the official page of the Niagara Region. The post is titled "Illegal dumping is the disposing of material in non-designated areas..." and includes a list of ways to report illegal dumping. The post also features a large green and black graphic with the text "See it. Report it. 1-800-222-TIPS niagararegion.ca/waste". The graphic includes a silhouette of a person and the text "ILLEGAL DUMPING IS A CRIME". At the bottom of the graphic are the logos for "CRIME STOPPERS OF NIAGARA" and "Niagara Region".

**Niagara Region** 21 hrs · 🌐

Illegal dumping is the disposing of material in non-designated areas, such as public roads, ditches, public property and public litter bins. Residents should report someone if they witness them illegally dumping material so that it will be investigated and cleaned up quickly.

To make a report residents can:

- Call Crime Stoppers of Niagara anonymously at 1-800-222-TIPS
- Call the Region's Waste Info-Line at 1-800-594-5542
- Report online at <https://www.niagararegion.ca/.../.../report-illegal-dumping.aspx>

Residents should provide as many details as possible when reporting.

**See it. Report it.**  
**1-800-222-TIPS**  
**niagararegion.ca/waste**

**ILLEGAL DUMPING IS A CRIME**

**CRIME STOPPERS** OF NIAGARA | **Niagara Region**

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## **MEMORANDUM**

**WMPSC-C 5-2019**

**Subject: Public Stakeholder Engagement Results on Proposed Collection Service Options**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Brad Whitelaw, Program Manager, Policy and Planning**

---

The purpose of this memorandum is to provide Waste Management Planning Steering Committee (WMPSC) members with the survey results of the public stakeholder engagement on the proposed collection options for Niagara Region's next collection contract.

As part of the stakeholder engagement on the proposed collection service options, Metroline Research Group (Metroline) conducted a total of 1,253 telephone surveys with randomly-selected low-density residential (LDR) households receiving curbside garbage collection, between November 7 and December 7, 2018. This included residential landlines and mobile exchanges. At the overall level, the results of this telephone survey can be considered accurate to within +/-2.8%, 19 times out of 20 (95% Confidence Interval).

Metroline also developed on-line surveys for various stakeholder groups (i.e. LDR, multi-residential (MR), industrial, commercial and institutional (IC&I), and mixed-use (MU) properties). These on-line surveys were available on the Region's "Let's Talk Waste Niagara" website between October 23 and November 30, 2018. A total of 6,639 LDR, 38 MR, and 166 businesses (IC&I or MU) completed the online surveys. Due to the self-selecting nature of on-line surveys, these results cannot simply be combined with the more statistically representative random telephone survey, nor can a margin of error be assigned to on-line surveys. However, if this had been a random probability sample, the results for the on-line survey could be considered accurate to within +/- 1.5%, 19 times out of 20 (95% Confidence Interval).

In addition, targeted stakeholder and broad-based community consultation was conducted by Niagara Region staff with the following stakeholder groups:

- Local Area Municipalities (LAMs) (i.e. municipal staff and Councillors)
- Organizations Representing Businesses (i.e. Business Improvement Associations, Chambers of Commerce, Tourism Agencies, Niagara Industrial Association)
- Residents and Business Owners
- Multi-residential Owners/Tenants and Associations
- Waste Management Advisory Committee

- Regional Departments and Agencies, Boards and Commissions (i.e. Niagara Regional Housing, Planning and Development Services, Economic Development)

### Survey Results:

Based on the telephone and on-line surveys that were completed, Metroline reported the following results for the proposed collection service options:

Proposed Options	Survey Results
1) Every-Other-Week (EOW) garbage collection (weekly recycling and organics, garbage container limits would double)	<ul style="list-style-type: none"> <li>• Residents were split between those stating it would have:               <ul style="list-style-type: none"> <li>• a big or some impact (48% telephone; 58% on-line)</li> <li>• little to no impact (45% telephone; 33% on-line)</li> </ul> </li> <li>• Businesses outside Designated Business Areas (DBAs) expressed perceived need to continue weekly collection, although not fully utilizing diversion programs</li> </ul>
2) Mandatory use of clear garbage bags (optional opaque privacy bag)	<ul style="list-style-type: none"> <li>• Telephone survey support was split: 48% would support; 52% would not support</li> <li>• On-line response was more divided: 27% would support; 73% would not support</li> </ul>
3) Four large item limit, per collection	<ul style="list-style-type: none"> <li>• Largely supported by survey respondents. The majority of residents responded that it would have little to no impact on their household (89% telephone; 72% on-line)</li> </ul>
4) Eliminate appliances and scrap metal curbside collection	<ul style="list-style-type: none"> <li>• Program is not widely used and respondents indicated there would be little to no impact on their households (84% telephone; 78% on-line)</li> </ul>
5) Reduce weekly base garbage container limits for businesses inside DBAs from seven (7) to four (4)	<ul style="list-style-type: none"> <li>• Slight majority (58%) of businesses inside DBAs reported they could manage a reduction to four (4) garbage containers (bags/cans) per week</li> <li>• Less than half (44%) feel there would be a significant impact on their business/property</li> </ul>
6) Reduce weekly garbage container limits for mixed-use properties outside DBAs from six (6) to four (4)	<ul style="list-style-type: none"> <li>• Only one-third (34%) of MU properties outside DBAs reported they could manage reducing from six (6) to four (4) garbage containers (bags/cans) per week</li> <li>• 60% feel there would be an impact on their business</li> </ul>

A copy of the complete survey results is included Metroline's report in Appendix 1.

The survey results and stakeholder consultations were used by Metroline to develop recommendations of which proposed collection service options should be included in Niagara Region's next collection contract RFP.

At the January 8, 2019 Regional Council meeting, the following amended proposed collection service options were approved for circulation to the LAMs, for their review and comment by February 20, 2019:

- 1) Pricing for weekly and EOW garbage collection for the residential sector and those IC&I and MU properties located outside the DBAs, as a base service. Under the EOW garbage collection scenario, weekly recycling and organics collection would continue and garbage container (bag/can) limits would double
- 2) Mandatory use of clear bags for garbage for all properties (inside and outside DBAs), with the option of allowing a small, opaque privacy bag to be placed inside the clear garbage bag for sensitive items
- 3) Establishing a four (4) item limit, per collection, per household, for large items
- 4) Discontinuing appliance and scrap metal curbside collection and alternatively obtaining pricing to continue this option
- 5) Changing the weekly, base garbage container limits for IC&I and MU properties located inside the DBAs from seven (7) to four (4)
- 6) Changing the weekly garbage container limit for MU properties located outside the DBAs from six (6) to four (4)

A follow-up report on the position of the LAMs regarding the proposed collection service options and which enhanced services to be included in the next garbage, recycling and organics collection contract RFP will be submitted to Regional Council in March 2019, for their approval.

Respectfully submitted and signed by



---

Brad Whitelaw, BA, CIM, P.Mgr, CAPM  
Program Manager, Policy and Planning

## Appendices

Appendix 1 – Metroline Waste Management Stakeholder Consultation Report



## ***Waste Management Stakeholder Consultation***

A quantitative survey with residents of Niagara Region



**Metroline Research Group Inc.**

301-7 Duke Street West, Kitchener, Ontario  
1000-10 Four Seasons Place, Toronto, Ontario

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## Glossary

Here are some acronyms/terms (with their definition) that a reader may come across in this report:

<b>Term</b>	<b>Definition</b>
BIA	Business Improvement Area
DBA	Designated Business Area
EOW	Every-Other-Week
IC&I	Industrial, Commercial & Institutional
LAM	Local Area Municipality
LDR	Low-density residential household (i.e. One to six residential units)
MR	Multi-Residential (i.e. Seven residential units or more)
MU	Mixed Use (i.e. commercial with a residential component)
Organizations Representing Businesses	Includes: Chambers of Commerce, Business Improvement Associations, Niagara Industrial Association, Niagara Tourism Agencies, Niagara Economic Development Corporation

## A. Executive Summary

### Introduction

The Niagara Region's Waste Management Services Division conducted a comprehensive consultation process with various stakeholder groups (i.e. residential, businesses, organizations representing businesses, multi-residential owners/associations, local area municipalities, etc.) regarding the proposed options being considered for the next waste collection contract. Metroline Research Group was contracted to conduct a telephone and online survey in 2018.

Metroline worked with Niagara Region to create the surveys used in this research. This included a review of previous surveys conducted by Metroline for Waterloo Region and Hamilton, and previous surveys that have been conducted by Niagara Region.

Metroline conducted 1,253 telephone surveys with randomly selected low-density residential households (i.e. 1 to 6 residential units) receiving curbside garbage collection in Niagara region. This included residential landlines and mobile exchanges. At the overall level, the results of this residential telephone survey can be considered accurate to within +/-2.8%, 19 times out of 20 (95% Confidence Interval).

Additionally, 6,639 low-density residential surveys were completed online. A total of 38 residents living in multi-residential buildings (i.e. 7 or more residential units) receiving curbside garbage collection completed an online survey, and 166 businesses (IC&I or MU) receiving garbage collection from Niagara Region completed an online survey.

The primary objective of this research was to assess each stakeholder group's attitude and determine their preference toward the applicable proposed options or set of options for the next collection contract.

### Key Findings

#### *Current Attitudes and Behaviour*

Diverting waste is important to the vast majority of those living in low-density residential households in Niagara region. In total, 94% of those in the telephone survey said it is 'important' to them, with 72% saying "very" important. Those in the online survey scored the importance slightly lower, but even still, 87% find waste diversion important.

There was about an even split about how much garbage they put out at the curb in an average week:

- On one side is the group (53% combined) who put out the maximum one bag (42%) and those who need more than one bag (11%).
- On the other side is the group (47% combined) who doesn't have a full bag (34%) or sometimes can afford to skip a week (13%).

About two-thirds of those living in low-density residential households said they do not buy/use any garbage tags in the course of an average year. About one-third will use a garbage tag at least once a year on average. Household size was the biggest determinant in using garbage tags. About half of those (48%) have three or more people that require at least one tag a year. 20% of those with three or more people use seven or more tags a year.

In the telephone survey, 35% of low-density residential households use at least one garbage bag tag per year on average. In the online survey, that number was higher, at 53%. Program Participation

#### *Recycling/Blue Box/Grey Box*

Virtually all low-density residential households in Niagara region (99%) are participating in the recycling (Blue/Grey Box) program, in both the telephone and online surveys:

- 97% of low-density residential households in the telephone survey are putting out at least one Blue Box per week, and 99% in the online survey. 20% in the telephone survey, and 29% in the online survey put out two or more Blue Boxes per week.
- 92% of low-density residential households in the telephone survey put out at least one Grey Box per week on average, and 97% in the online survey.

#### *Organics/Green Bin*

About 7 in 10 low-density residential households say they participate in the Green Bin organics collection program. The participation level is virtually the same between the random telephone survey and the online survey (71%/72%).

- The biggest reason for not participating, in both the telephone survey (31%) and the online survey (23%), is that the household is doing their own composting/vermicomposting.
- The next biggest barrier to participating in the Green Bin program is a concern about smells/odours (13% telephone, 22% online).
- Lack of motivation was third, separating the waste was inconvenient or extra work for them (11% telephone, 4% online).
- Another major barrier is a concern about bugs/maggots/animals in and around the Green Bin (10% telephone, 22% online).
- The 'ick' factor was expressed as well, with in both the low-density telephone and online surveys talking about the process being messy (6% telephone, 12% online) and not being interested in sorting out the waste for the Green Bin (11% telephone, 4% online).

### *Other Programs*

- Participation in leaf/yard waste collection (63% telephone, 81% online).
- Participation in the brush collection in spring and fall (50% telephone, 63% online).
- Participation in appliances/scrap metal collection (26% telephone, 27% online).
- Participation in bulky/large item collection (35% telephone, 46% online).

### *Options for next waste collection contract*

For Niagara Region's new waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposed collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

#### **Eliminate Appliances/Scrap Metal Collection Option – Low-Density Residential**

- In the telephone survey, 4 in 5 (80%) do not participate in the appliances/scrap metal collection program. Among those who have participated, most only participate about once a year. In the online survey, it was similar, with 75% not participating.
- Eliminating the curbside appliances/scrap metal collection program would have some impact on about 1 in 5 in Niagara region. 16% of those in the telephone survey, and 22% in the online survey feel there would be at least some impact.

#### **Four Large Item Limit Per Collection Option – Low-Density Residential**

- Making a change to the bulky/large item collection so that a maximum of four items per collection can be put out will not unduly impact Niagara region low-density residential households.
- In the telephone survey, 29% participate in large item collection at least once a year, on average. In the online survey, 44% are participating.
- Only 6% in the telephone survey, and 14% in the online survey, feel a change to limit the number of items to four per collection would have an impact on their household.
- The vast majority stated there would be little to no impact to them (94% of low-density residential households in telephone survey, 86% of those in the online survey).

### **Clear Garbage Bag Option (Low-Density Residential)**

- Support for the mandatory use of clear bags in the telephone survey was a fairly even split. 48% would support (definitely or probably), and 52% do not support.
- It's a different picture when looking at the sentiment expressed in the online survey. 27% would support, and 73% would oppose.
  - \* *"I use grocery bags for household garbage and put directly into garbage can. Seems like a waste and I don't want to purchase bags..."*
  - \* *"I do not need anyone to see what I put in garbage. Sewer pipes are not clear plastic because nobody needs to see that either..."*
- Supporters feel this would help keep unwanted items from the landfill (51%) and encourage people to recycle and use Green Bins (48%)
- Those opposed don't like the invasion of privacy (40%), and don't want neighbours seeing their garbage (24%). They don't feel Niagara region needs 'garbage police' (8%).

### **Clear Garbage Bag Option (Businesses)**

- In total, 166 businesses completed the online survey in Niagara region.
- 40% would support the idea of clear bags, 60% would oppose.
  - \* *"Black and Green bags make it too easy for people to be lazy and not separate a lot of items that likely never need to end up in a landfill. It's encouraging mindfulness when putting your garbage out at the curb..."*
  - \* *"I cannot train my tenants to do this properly. The landlord tenant act does not give me any tools to make them comply..."*
  - \* *"We don't need more government control like the GARBAGE POLICE. Leave some decisions to the citizens and not make this into a Communist Society..."*
- Supporters here also feel it would keep unwanted items from the landfill (30%). They see that it would be safer for the collectors (10%), but only 8% feel it would encourage businesses to recycle/use Green Bins/Carts.
- Those opposed are concerned about their privacy (36%) and don't see a need for 'garbage police' (11%).

### **EOW Garbage Collection Option (Low-Density Residential)**

There was a split on feelings about EOW garbage collection, with slightly more leaning towards continuing their weekly garbage collection.

46% of those in the telephone survey, and 41% of those in the online survey could manage EOW garbage collection.

- Those in single person households (62% telephone, 57% online) are more likely to be able to manage EOW garbage collection than those in two person households (50% telephone, 54% online), and those in households of three or more (37% telephone, 30% online).
- Those with no one using diapers are more likely to be able to manage EOW garbage collection (47% telephone, 46% online) than those with someone in diapers (31% telephone, 22% online).

- Those who do not use garbage bag tags in an average year are more likely to be able to manage EOW garbage collection (52% telephone, 57% online) than those who use 1-6 garbage tags (41% telephone, 38% online) and those who use 7+ garbage tags (24% telephone, 15% online).
- Those who participate in the Green Bin program are more likely to be able to manage EOW garbage collection (50% telephone, 50% online) compared to those who are not currently participating in the Green Bin program (37% telephone, 25% online).

48% of those in the telephone survey, and 57% in the online survey, say there would be at least some impact to them in a change to EOW garbage collection. Typically these are households of at least three people:

- The biggest barrier is the smell, especially in the summer time (63% telephone, 35% online).
- Keeping animals out of the garbage was the second barrier (39% telephone, 32% online).
- Finding space to store the garbage for the extra week was third (35% telephone, 29% online).

### **EOW Garbage Collection Option (Business)**

A total of 86 businesses located outside of the DBA completed the online survey. There would be significantly more perceived impact to their operation in a switch to EOW garbage collection.

	Total Online Surveys (n=86)	IC&I Online Survey (n=35)	MU Online Survey (n=51)
A big impact	52%	43%	66%
Some impact	22%	26%	17%
Might or might not be an impact	9%	9%	5%
Not much of an impact	8%	10%	6%
No impact	9%	12%	6%
<b>Impact Ratio (Big/Some vs. Not much/no impact)</b>	<b>+57%</b>	<b>+47%</b>	<b>+71%</b>

### **Changing Collection Limits for Businesses**

#### *Inside DBA without enhanced collection*

Those inside the DBA currently receiving a seven garbage bag/container limit were asked about a reduction in the garbage bag/container limit to four.

Overall, more than half (58%) would be able to manage a reduction to four garbage bags/containers per week.

The sample is small, however it appears that the IC&I sector would be less challenged to meet this target:

- IC&I (71% could manage)
- MU (46% could manage)

*Inside DBA with enhanced collection*

Those inside the DBA receiving enhanced garbage collection (pickup more than once a week or a limit higher than seven garbage bags/containers) were asked what kind of reduction they could manage:

- 71% feel they need to continue with their current limits
- 29% feel they could live with a limit reduced by at least one bag

*Outside the DBA*

MU properties outside the DBA would be challenged if their garbage bag/container limits were reduced from six to four.

Only about one-third (34%) would be able to manage a lower limit, and two thirds (66%) would need to continue receiving a limit of six garbage bags/containers per week.

There would be significant impact to MU properties outside the DBA if the garbage bag/container limit was reduced to four per week. 60% of respondents say there would be at least some impact to their operation.

*Preferred Option**Low-Density Residential*

In the telephone survey, participants could not see the option for “neither”, and our interviewers worked to force a choice from the other three. In the online survey, this was visible after the first day of fieldwork, and as a result was selected more often.

	Telephone (n=1,253)	Online (n=6,639)
Clear garbage bags	33%	17%
EOW garbage collection	27%	33%
Both clear garbage bags and EOW garbage collection	21%	12%
Neither <sup>1</sup>	19%	38%

In the telephone survey, there was a slight preference for clear garbage bags over EOW garbage collection, but not dramatically so. In the online survey, participants who made a choice decided on EOW garbage collection over clear bags by a margin of about 2:1.

*Businesses*

Asking those businesses outside the DBA to make a choice between the options, it is telling how strong the impact of EOW garbage collection would be.

	Total (n=86)	IC&I (n=35)	MU (n=51)
Clear garbage bags	36%	47%	20%
EOW garbage collection	15%	17%	11%
Both	7%	8%	6%
Neither	42%	28%	63%

42% chose neither, and 36% chose clear garbage bags over EOW garbage collection, even though they didn’t like the clear garbage bag option either.

<sup>1</sup> Neither as an option was added to the online survey(s), but was not provided as a response on the telephone survey.

## B. Stakeholder Consultation Background

### Consultation Included All Local Area Municipalities

Municipality	Population Proportion	Telephone Survey Low-Density Residential	Online Survey Low-Density Residential	Online Survey Multi-Residential	Online Survey Businesses
Fort Erie	7.9%	84	452	1	24
Grimsby	5.4%	75	347	4	12
Lincoln	4.6%	75	298	4	5
Niagara Falls	18.8%	183	1,312	4	33
Niagara-on-the-Lake	4.2%	67	274	--	4
Pelham	3.5%	73	329	2	5
Port Colborne	5.2%	75	318	1	14
St. Catharines	30.3%	279	2,053	18	47
Thorold	4.2%	74	293	1	5
Wainfleet	1.6%	75	81	--	3
Welland	11.7%	119	727	3	11
West Lincoln	2.7%	74	155	--	3
<b>Total</b>	<b>100%</b>	<b>1,253</b>	<b>6,639</b>	<b>38</b>	<b>166</b>

### Targeted and Broad Outreach to Businesses

(Social media/newspapers, media coverage and a letter with an invitation to participate in the survey was mailed to businesses known to be using Niagara Region's curbside garbage collection)

- **Where located?**
  - \* Inside DBA 48%
  - \* Outside DBA 52%
- **Type of business?**
  - \* IC&I 53%
  - \* MU property 47%

- **Inside DBA - receive any enhanced collection?**
  - \* Can put out more than seven bags/containers 13%
  - \* Have collection more than once a week 26%

## Waste Collection

*Does your household/business put out the following items for curbside collection?*

- Almost all homes and most businesses participate in recycling.
- About 7 in 10 low-density residential households claim to participate in organics collection, but only about 30% of businesses are participating.

	LDR Telephone Survey	LDR Online Survey	MR Online Survey	IC&I/MU Online Survey	
				Inside DBA	Outside DBA
Sample size	1,253	6,639 (Weighted)	38	80	86
Recycling – Blue and/or Grey Box/Cart	99%	99%	95%	86%	97%
Organics – Green Bin/Cart	71%	72%	63%	30%	29%
Appliances/Scrap Metal	26%	27%	--	--	--
Bulky/Large items	35%	46%	--	--	--
Leaf/Yard waste	63%	81%	--	--	--
Brush in spring/fall	50%	63%	--	--	--

## C. Conclusions & Recommendations

### **Eliminate Appliances/Scrap Metal Collection Option – Low-Density Residential**

- In the telephone survey, 4 in 5 low-density residential households in Niagara region (80%) do not participate in the appliances/scrap metal collection program. Among those who have participated, most only participate about once a year. In the online survey, it was similar, with 75% not participating.
- Eliminating the curbside appliances/scrap metal collection program would have some impact on about 1 in 5 low-density residential households in Niagara region. 16% of low-density residential households in the telephone survey, and 22% in the online survey feel there would be at least some impact.
- *Conclusion – Given the relatively low participation and impact, it seems this program could be eliminated, providing residents continue to have alternatives of scrap haulers or taking an item to a Regional drop-off depot.*

### **Four Large Item Limit per Collection Option – Low-Density Residential**

- In the telephone survey, 29% of low-density residential households participate in large item collection at least once a year, on average. In the online survey, 44% of low-density residential households are participating.
- Only 6% in the telephone survey, and 14% in the online survey, feel a change to limit the number of items to four per collection would have an impact on their household.
- The vast majority stated there would be little to no impact to them (94% of those in telephone survey, 87% in the online survey).
- *Conclusion - Making a change to the large item collection so that a maximum of four items per collection can be put out will not unduly impact Niagara region residents.*

### **Clear Garbage Bag Option (Low-Density Residential)**

- Household support for the mandatory use of clear bags in the telephone survey was a fairly even split. 48% would support (definitely or probably), and 52% do not support.
- It's a different picture when looking at the sentiment expressed in the online survey. 27% would support, and 73% would oppose.
  - \* *"I use grocery bags for household garbage and put directly into garbage can. Seems like a waste and I don't want to purchase bags..."*
  - \* *"I do not need anyone to see what I put in garbage. Sewer pipes are not clear plastic because nobody needs to see that either..."*

### **Clear Garbage Bag Option (Businesses)**

- In total, 166 businesses in Niagara region completed an online survey.
- 40% would support the idea of clear bags, 60% would oppose.
  - \* *“Black and Green bags make it too easy for people to be lazy and not separate a lot of items that likely never need to end up in a landfill. It's encouraging mindfulness when putting your garbage out at the curb...”*
  - \* *“I cannot train my tenants to do this properly. The landlord tenant act does not give me any tools to make them comply...”*
  - \* *“We don't need more government control like the GARBAGE POLICE. Leave some decisions to the citizens and not make this into a Communist Society...”*

### **Why Support/Oppose Clear Garbage Bags?**

- **Residential**
  - \* Supporters feel this would help keep unwanted items from the landfill (51%) and encourage people to recycle and use Green Bins (48%)
  - \* Those opposed don't like the invasion of privacy (40%), and tied to that, they don't want neighbours seeing their garbage (24%). They don't feel Niagara region needs 'garbage police' (8%).
- **Businesses**
  - \* Supporters here also feel it would keep unwanted items from the landfill (30%). They see that it would be safer for the collectors (10%), but only 8% feel it would encourage businesses to recycle/use Green Bins/Carts
  - \* Those opposed are concerned about their privacy (36%) and don't see a need for 'garbage police' (11%)
- *Conclusion: While there is some support for the mandatory use of clear bags, those opposed are quite vocal about their concerns and it could become an issue. Metroline does not recommend making clear garbage bags mandatory.*

**EOW Garbage Collection Option (Low-Density Residential)**

	Niagara Region		Hamilton <sup>2</sup>		Waterloo Region <sup>3</sup>	
	Telephone Survey (n=1,253)	Online Survey (n=6,639)	Telephone Survey (n=800)	Online Survey (n=1,468)	Telephone Survey (n=511)	Online Survey (n=7,087)
A big impact	27%	37%	34%	44%	25%	18%
Some impact	21%	21%	20%	19%	29%	24%
Might or might not be an impact	7%	9%	6%	8%	7%	10%
Not much of an impact	19%	17%	18%	13%	22%	24%
No impact	26%	16%	22%	16%	17%	24%
<b>Impact Ratio (Big/Some vs. Not much/no impact)</b>	<b>+3%</b>	<b>+25%</b>	<b>+14%</b>	<b>+34%</b>	<b>+15%</b>	<b>-6%</b>

- 48% in the telephone survey say there would be at least some impact to them in a change to EOW garbage collection. Typically these are households of at least three people.
- *Conclusion: Residents are fairly evenly split on how EOW garbage collection would impact their household. In Waterloo Region, the impact ratio was higher for the telephone survey and they elected to begin EOW garbage collection, and with a similar score in Hamilton, council elected not to proceed.*

<sup>2</sup> City of Hamilton Waste Management Services Public Engagement Survey – Metroline Research Group, 2016

<sup>3</sup> Region of Waterloo Waste Survey, Metroline Research Group Inc., 2014

**EOW Garbage Collection Option (Businesses)**

	Total Online Surveys (n=86)	IC&I Online Survey (n=35)	MU Online Survey (n=51)
A big impact	52%	43%	66%
Some impact	22%	26%	17%
Might or might not be an impact	9%	9%	5%
Not much of an impact	8%	10%	6%
No impact	9%	12%	6%
<b>Impact Ratio (Big/Some vs. Not much/no impact)</b>	<b>+57%</b>	<b>+47%</b>	<b>+71%</b>

- A total of 86 businesses (IC&I and MU) located outside the DBA responded to the online survey. There would be significantly more perceived impact to their operation in a switch to EOW garbage collection.
- *Conclusion: Businesses outside the DBA have a perceived need to continue having weekly pickup, but they are not fully utilizing the diversion programs.*

## **Reviewing the Options - Businesses**

IC&I and MU Inside DBA Container Limits	<ul style="list-style-type: none"><li>• Slight majority could manage a reduction to four garbage bags/containers (58%)</li><li>• Less than half feel there would be a significant impact on their business/property</li></ul>
IC&I and MU Inside DBA Enhanced Collection Frequency	<ul style="list-style-type: none"><li>• We had a small sample, but they were on the same page.</li><li>• Reducing frequency of collection by one day per week would be a challenge for their business/property</li></ul>
MU Outside DBA Container Limits	<ul style="list-style-type: none"><li>• Only one-third could manage reducing from six (6) to four (4)</li><li>• 60% feel there would be an impact on their business/property</li></ul>
IC&I and MU Outside DBA every-other-week garbage collection	<ul style="list-style-type: none"><li>• Less than 40% could manage every-other-week collection</li><li>• About three-quarters (74%) say their business/property will be impacted by this change</li></ul>
Mandatory clear garbage bag option	<ul style="list-style-type: none"><li>• Only 40% supported this option and those opposed are definitely negative and vocal</li></ul>

**Reviewing the Options - Residential**

Eliminate scrap  
metal/appliances option

- Not widely used, will not cause a big impact on households, and alternative options exist

Four bulky/large item  
limit collection option

- Not widely used, and is being reduced not removed, will not cause a big impact on household

Mandatory clear garbage  
bag option

- There is some support, but those opposed are quite concerned about privacy and a 'big brother' or 'garbage police' mentality

Every-other-week  
garbage collection

- Support from residential is mixed, and impacts mostly larger families. Waterloo Region proceeded with less support, Hamilton did not. Niagara businesses do not support this.

## D. Project Background

Niagara Region's Waste Management Division wanted to consult with various stakeholder groups (i.e. residential, businesses, organizations representing businesses, multi-residential owners/associations, local area municipalities, etc.) regarding the proposed options being considered for the next waste collection contract. Metroline Research Group was contracted to conduct the survey in 2018.

Metroline worked with Niagara Region to create the surveys used in this research. This included a review of previous surveys conducted by Metroline for Waterloo Region and Hamilton, and previous surveys that have been conducted by Niagara Region.

Metroline conducted 1,253 telephone surveys with randomly selected low-density residential households receiving curbside garbage collection in Niagara region. This included residential landlines and mobile exchanges. Additionally, 6,639 residential surveys were completed online. A total of 38 residents living in multi-residential buildings receiving curbside garbage collection completed an online survey, and 166 businesses (IC&I or MU) located inside or outside the DBAs receiving garbage collection from Niagara Region completed an online survey.

The primary objective of this research was to assess each stakeholder group's attitude and determine their preference toward the applicable proposed options or set of options for the next collection contract.

This report outlines the results for the Waste Management Stakeholder Consultation. Resident and business opinions may take into consideration not only their own experiences, but also their perceptions or what they may have seen, heard, or read about in terms of the services being proposed.

## E. Research Methodology

### Project Initiation and Questionnaire Design

The Metroline Project Manager discussed the surveys with the Niagara Region Project Manager. The objectives and work plan were used to design the survey used in this research.

When the final surveys were approved, Metroline conducted a pre-test with 21 residents via telephone to ensure understanding and test the survey length.

For the telephone survey, Metroline purchased a random sample of directory listed telephone numbers for Niagara region from a professional sample provider. Metroline then supplemented the sample with randomly generated numbers from within cellular exchanges. In the end, 21% of surveys in the telephone sample were completed via mobile devices.

Metroline programmed and hosted the online surveys for residents, multi-residential buildings, and businesses. Niagara Region created a web page for the study (i.e. Let's Talk Waste Niagara), and posted the links on this webpage.

### Survey Population and Data Collection

The online surveys were open between October 23<sup>rd</sup> and November 30<sup>th</sup>, 2018. Telephone surveys were open between November 7<sup>th</sup> and December 7<sup>th</sup>, 2018.

At the overall level, the results of this low-density residential telephone survey can be considered accurate to within +/-2.8%, 19 times out of 20 (95% Confidence Interval). It is important to note that within sub-groups, the sample is smaller, and the margin of error will increase accordingly. Metroline's sampling software randomly generated households to call from within the sample frame (listed numbers and mobile numbers). Calling took place seven (7) days a week, between the hours of 1pm and 9pm on weekdays, and between 10am and 3pm on weekends.

After an initial non-contact, Metroline staff returned to the number at least three (3) more times (at various times of day and day of week) before substitution.

Due to the self-selecting nature of online surveys, these results cannot simply be combined with the more statistically representative random telephone survey, nor can a margin of error be assigned to online surveys. However, if this had been a random probability sample, the results for the online survey could be considered accurate to within +/- 1.5%, 19 times out of 20 (95% Confidence Interval).

To qualify for this study, respondents were:

- Male or female head of household
- 18 years and older
- Living in low-density residential/single family homes, multi-residential homes, or be an owner/manager of a business
- Receive curbside garbage collection services from Niagara Region

Before working on this project, interviewers received a thorough briefing including conducting practice interviews with supervisory staff. All calling took place in Metroline's supervised, monitored call centre, and at minimum 10% of interviews conducted by an interviewer were validated.

Summary of Call Attempts – Random Telephone Survey

This table details the record of call attempts for the study.

A review of the study shows that over 34,000 call attempts were required, partially this is as a result of the introduction of a mobile sample. There is less control over location, respondents can be more likely to refuse if they do not have unlimited minutes or are not in a suitable location, and they can be less likely to answer the call.

21% of the surveys were completed using the mobile sample (approx. 1 in 5 surveys completed).

Final Call Attempts	Calls
Completed Interviews	1,253
Busy/No Answer	9,536
Respondent Unavailable/callback	1,794
Refusals	6,105
Not In Service	13,388
Language Barrier (not English/French)	239
Not Niagara region resident	167
Disqualified/Quota Full	1,951
Total Calls	34,433

This table reflects contact attempts for unique households. The actual number of dials (due to repeated no contact) for this study was just under 53,000.

#### Data Analysis and Project Documentation

After all surveys were completed and verified, and the online survey was closed, the Metroline Project Manager reviewed the results of open-ended questions to develop a code list.

The internal data processing team worked on preparing data tables and coding the open-ended responses.

Data tables were prepared to a standard set of cross-tabulation banners, and included statistical testing (primarily z-test and u-tests) to understand statistically significant differences between sub-groups.

A review of the online residential survey indicated a need to weight the results by age group to better reflect the total population.

Before analysis began, a series of steps were undertaken to identify and remove from the online sample any possible duplicate surveys and incomplete surveys:

- Step 1 - Searching for duplicate IP addresses – keeping the first survey submitted and remove any subsequent ones (by date and time)
- Step 2 - Response pattern analysis - looking for similar or exact response patterns, particularly in the open ended questions.

- Step 3 - Date and time submitted. Surveys with similar responses that are submitted near back-to-back. In the past, when someone takes the time and effort to submit multiple surveys, typically it happens all together.

As with any survey of the general population, not all populations can be reached. The homeless, residents of hospitals, long-term care facilities, and prisons are not represented in the survey sample.

A copy of the various surveys used in this research can be found in Appendix 3.

## F. Notes On Reading This Report

This document reports the findings of all of the stakeholder consultation surveys.

Where statistically significant and relevant, differences between specific sub-groups are mentioned in the analysis (for example, gender, age group, etc.).

While sophisticated procedures and professional staff have been used to collect and analyze the information presented in this report, it must be remembered that surveys are *not* predictions. They are designed to measure opinion within identifiable statistical limits of accuracy at specific points in time. This survey is in no way a prediction of opinion or behaviour at any future point in time.

The random telephone survey for low-density residential households had the most restrictions placed on the sample to be representative by gender, age, and municipality. While both methods are important to get feedback from residents, Metroline recommends that you consider the results from the telephone survey more carefully than the online survey results to inform decision making.

The online survey results are not necessarily projectable to the region's population. In particular, as interviewers cannot probe or ensure responses to open-ended questions in an online methodology, many residents could choose not to provide an answer, or provide an answer that is incomplete or doesn't answer the initial question.

## LOW DENSITY RESIDENTIAL

## Survey breakdown by municipality

Municipality	Telephone (n=1,253)		Online (n=6,639)	
	Surveys	%	Surveys	%
Fort Erie	84	7%	452	7%
Grimsby	75	6%	347	5%
Lincoln	75	6%	298	5%
Niagara Falls	183	15%	1,312	20%
Niagara-on-the-Lake	67	5%	274	4%
Pelham	73	5%	329	5%
Port Colborne	75	6%	318	5%
St. Catharines	279	22%	2,053	31%
Thorold	74	6%	293	4%
Wainfleet	75	6%	81	1%
Welland	119	10%	727	11%
West Lincoln	74	6%	155	2%

## 1.0 Current Attitudes/Behaviour

### 1.1 Importance of Waste Diversion

Q11 - How important would you say it is that Niagara region works to reduce the amount of garbage that is sent for disposal? (Full sample)

Figure 1.1a– Importance of waste diversion by survey type

Diverting waste is important to the vast majority of Niagara region. In total, 94% of those in the telephone survey said it is ‘important’ to them, with 72% saying “very” important, and 22% saying “somewhat” important. Only 4% told us it was “not important”, or they “don’t know”.

	Telephone (n=1,253)	Online (n=6,639)
Very important	72%	52%
Somewhat important	22%	35%
Not very important	3%	8%
Not important at all	2%	3%
Don’t know	1%	2%

Those in the online survey scored the importance slightly lower, but even still 87% find waste diversion important.

Figure 1.1b <sup>4</sup>– Importance of waste diversion by survey type (Hamilton)

This question was asked in Hamilton in 2016, and the results were similar to what Niagara region residents have said in this survey. Residents in both surveys feel that waste diversion is important, but in the random telephone survey are more likely to say it is “very” important.

Hamilton Waste Survey	Telephone (n=800)	Online (n=1,468)
Very important	75%	60%
Somewhat important	21%	30%
Not very important	2%	6%
Not important at all	1%	3%
Don’t know	1%	1%

Where relevant, this report will indicate statistically significant differences by sub-groups for the random telephone survey.

#### Respondent Sub-Segment Findings (Telephone)

- Women (76%) are more likely to say reducing the amount of garbage sent for disposal is “very” important than men (68%).
- Those 65+ years (76%) and those 45-64 years (73%) are more likely to find it “very” important than those 18-44 years (63%).
- Those participating in the organics collection program (74%) are more likely to find it “very” important than those who are not (67%).
- Those who support clear bags (80%) more likely to find it “very” important than those who do not (65%).

<sup>4</sup> City of Hamilton Waste Management Services Public Engagement Survey – Metroline Research Group, 2016

- Those who could manage EOW garbage collection (80%) are more likely to find it “very” important than those who would continue to need/want weekly collection (64%).

#### Respondent Sub-Segment Findings (Online)

- Women (56%) are more likely to say reducing the amount of garbage sent for disposal is “very” important than men (45%) or those who identify as something else (42%).
- Those 65+ years (65%) are more likely to find it “very” important than those 45-64 years (53%) and those 18-44 years (44%).
- Those participating in the organics collection program (59%) are more likely to find it “very” important than those who are not (36%).
- Those who support clear bags (80%) more likely to find it “very” important than those who do not (42%).
- Those who could manage EOW garbage collection (74%) are more likely to find it “very” important than those who would continue to need/want weekly collection (36%).

Figure 1.1c – Random Telephone Survey - Importance of waste diversion by municipality

(Telephone survey – n=1,253)	Very/somewhat important	Not very/not important/don't know
Total	94%	6%
Fort Erie	95%	5%
Grimsby	90%	10%
Lincoln	96%	4%
Niagara Falls	96%	4%
Niagara-on-the-Lake	96%	4%
Pelham	95%	5%
Port Colborne	92%	8%
St. Catharines	92%	8%
Thorold	92%	8%
Wainfleet	92%	8%
Welland	93%	7%
West Lincoln	95%	5%

Figure 1.1d – Online Survey - Importance of waste diversion by municipality

(Online Survey – n=6,639)	Very/somewhat important	Not very/not important/don't know
Total	88%	12%
Fort Erie	89%	11%
Grimsby	90%	10%
Lincoln	88%	12%
Niagara Falls	87%	13%
Niagara-on-the-Lake	90%	10%
Pelham	89%	11%
Port Colborne	88%	12%
St. Catharines	88%	12%
Thorold	86%	14%
Wainfleet	89%	11%
Welland	88%	12%
West Lincoln	90%	10%

Overall, the sentiment of important (very/somewhat) vs. not important (not very/not important/don't know) is similar across municipalities in both the telephone and online survey. A vast majority in all municipalities feel waste diversion is 'important'.

## 1.2 Garbage Limits

Q12 - Niagara Region allows for one bag/container of garbage to be put out per week. Dimensions of the container cannot exceed three feet high by two feet wide (91cm by 61cm) and must not weight more than 50 pounds. Which of the following best describes your situation in an average week? (Full Sample)

Figure 1.2a – Typical garbage set out by survey type

There was an almost even split about how much garbage is put out at the curb in an average week.

On one side is the group (53% combined) who put out the maximum one bag (42%) and those who need more than one bag (11%).

	Telephone (n=1,253)	Online (n=6,639)
We put out more than one garbage bag/container	11%	9%
We put out one full garbage bag/container	42%	49%
On a weekly basis, our garbage bag/container is not completely full	34%	29%
Some weeks, we do not have enough to put out the garbage bag/container	13%	13%

On the other side (47% combined) is the group who doesn't have a full bag (34%) or sometimes can afford to skip a week (13%).

#### Respondent Sub-Segment Findings (Telephone)

- Those 18-44 years are more likely to put out a full bag or more (72%) than those 45-64 years (50%) and those 65+ years (45%).
- Those living in households of three or more people are more likely (73%) to put out a full bag or more than those in households of two people (41%) and those in single person households (30%).
- Those with someone using diapers are more likely to put out a full bag or more (87%) than those without (51%).
- Those who use seven or more bag tags a year are more likely to put out a full bag or more (91%) than those who use 1-6 tags (61%) and those use don't use any tags in an average year (42%).
- Those who do not participate in the organics program are more likely to put out a full bag or more (63%) than those who participate (49%).
- Those who would need to continue weekly garbage collection are more likely to put out a full bag or more (70%) than those who could manage EOW garbage collection (33%).

#### Respondent Sub-Segment Findings (Online)

- Those 18-44 years are more likely to put out a full bag or more (72%) than those 45-64 years (57%) and those 65+ years (39%).
- Those living in households of three or more people are more likely (75%) to put out a full bag or more than those in households of two people (42%) and those in single person households (27%).
- Those with someone using diapers are more likely to put out a full bag or more (83%) than those without (53%).
- Those who use seven or more bag tags a year are more likely to put out a full bag or more (94%) than those who use 1-6 tags (68%) and those use don't use any tags in an average year (37%).
- Those who do not participate in the organics program are more likely to put out a full bag or more (76%) than those who participate (51%).
- Those who do not support clear garbage bags (65%) are more likely to put out a full bag or more than those who support clear garbage bags (38%).
- Those who would need to continue weekly garbage collection are more likely to put out a full bag or more (81%) than those who could manage EOW garbage collection (27%).

Figure 1.2b – Random Telephone Survey - Typical garbage set out by municipality

(Random telephone survey)	We put out more than one garbage bag/container	We put out one full garbage bag/container per week	On a weekly basis, our garbage bag/container is not completely full	Some weeks, we do not have enough to put out the garbage bag/container
Total (n=1,253)	11%	42%	34%	13%
Fort Erie	7%	45%	30%	18%
Grimsby	11%	35%	37%	17%
Lincoln	8%	35%	45%	12%
Niagara Falls	13%	44%	34%	9%
Niagara-on-the-Lake	9%	43%	34%	14%
Pelham	10%	34%	44%	12%
Port Colborne	4%	45%	39%	12%
St. Catharines	11%	41%	35%	13%
Thorold	11%	50%	24%	15%
Wainfleet	16%	39%	32%	13%
Welland	14%	46%	25%	15%
West Lincoln	8%	49%	34%	9%

All percentage differences fall within the margin of error. There are a few trends in the data, however these could potentially be a result of the size of the households interviewed for the study rather than something unique to the municipalities:

- Residents of Thorold (60%), Welland (60%) and Niagara Falls (57%) are slightly higher in putting out one bag or more per collection.
- Residents of Lincoln (43%) and Pelham (44%) and Grimsby (46%) are slightly lower in putting out one bag or more per collection.

Figure 1.2c – Online Survey - Typical garbage set out by municipality

(Online Survey – n=6,639)	We put out more than one garbage bag/container	We put out one full garbage bag/container per week	On a weekly basis, our garbage bag/container is not completely full	Some weeks, we do not have enough to put out the garbage bag/container
Total	9%	49%	30%	13%
Fort Erie	6%	49%	29%	16%
Grimsby	8%	42%	36%	14%
Lincoln	7%	43%	33%	16%
Niagara Falls	6%	53%	29%	12%
Niagara-on-the-Lake	6%	41%	40%	13%
Pelham	5%	43%	35%	18%
Port Colborne	11%	47%	28%	14%
St. Catharines	10%	48%	30%	13%
Thorold	10%	50%	24%	16%
Wainfleet	11%	53%	28%	8%
Welland	12%	51%	27%	10%
West Lincoln	8%	67%	18%	6%

### 1.3 Garbage Tags

*Q13 - How many tags for additional garbage bags does your household buy and use in an average year, if any? (Full Sample)*

Figure 1.3a – Garbage tags used by survey type

About two-thirds of households (65%) do not buy/use any garbage tags in the course of an average year.

(Random telephone survey)	Telephone (n=1,253)	Online (6,639)
None	65%	49%
1-6	24%	32%
7+	11%	19%

About one-third (35%) of households will use a garbage tag at least once a year on average, between those buying and using one to six tags (24%), and those using seven or more tags (11%).

#### Respondent Sub-Segment Findings (Telephone)

Household size was the biggest determinant in using garbage tags. About half of those (48%) were households with three or more people that require at least one tag a year. 20% of households with three or more people use seven or more tags a year.

Figure 1.3b – Random Telephone Survey - Garbage tags used by household size

(Random telephone survey)	Total (n=1,253)	Household Size		
		1	2	3+
None	65%	86%	72%	52%
1-6	23%	10%	23%	28%
7+	12%	4%	5%	20%

Age is also a determining factor. The younger the resident in the survey, the more likely they were to have used garbage tags.

Figure 1.3c – Random Telephone Survey - Garbage tags used by age group

(Random telephone survey)	Total (n=1,253)	Age group		
		18-44	45-64	65+
None	65%	54%	62%	78%
1-6	23%	25%	27%	17%
7+	12%	21%	11%	5%

#### Other significant findings:

- Those who deal with infant/adult diapers (53% use at least one a year) are more likely to need garbage tags than those without diapers (33% use at least one per year).
- Those who need to put out more than one bag of garbage per week are more likely to use at least one garbage tag per year (67%) than those who put out one bag per week (41%), those who put out a bag per week that isn't full (26%), and those who can afford to occasionally skip a week (12%).
- Those who need to continue having garbage picked up weekly are more likely to use at least one garbage tag per year (41%) than those who could manage EOW garbage collection (27%).

#### Respondent Sub-Segment Findings (Online)

- Those in households of three or more people (63%) are more likely to have used at least one garbage tag in the past year, compared to those in households of two people (41%), and single person households (32%).
- Those 18-44 years (62%) are more likely to have used at least one garbage tag in the past year, compared to those 45-64 years (51%), and those 65+ years (35%).
- Those who deal with infant/adult diapers (67% use at least one tag a year) are more likely to need bag tags than those without diapers (48%).
- Those who need to put out more than one bag of garbage per week are more likely to use at least one bag tag per year (85%) than those who put out one bag per week (66%), those who put out a bag per week that isn't full (33%), and those who can afford to occasionally skip a week (15%).

- Those who need to continue having garbage picked up weekly are more likely to use at least one bag tag per year (63%) than those who could manage EOW garbage collection (35%).

Figure 1.3d – Random Telephone Survey - Garbage tags used by municipality

(Random telephone survey)	None	1-6	7+
Total (n=1,253)	65%	23%	12%
Fort Erie	69%	21%	10%
Grimsby	69%	19%	12%
Lincoln	74%	21%	5%
Niagara Falls	61%	25%	14%
Niagara-on-the-Lake	69%	24%	7%
Pelham	77%	19%	4%
Port Colborne	60%	32%	8%
St. Catharines	62%	24%	14%
Thorold	60%	24%	16%
Wainfleet	75%	16%	9%
Welland	58%	29%	13%
West Lincoln	73%	20%	7%

The municipalities least likely to have used one or more garbage tags in the past year:

- Pelham (23% used one or more), Wainfleet (25%), Lincoln (26%) and West Lincoln (27%)

Municipalities more likely to have used a garbage tag in the past year:

- Welland (42% used one or more), Thorold (40%), Niagara Falls (39%) and St. Catharines (38%)

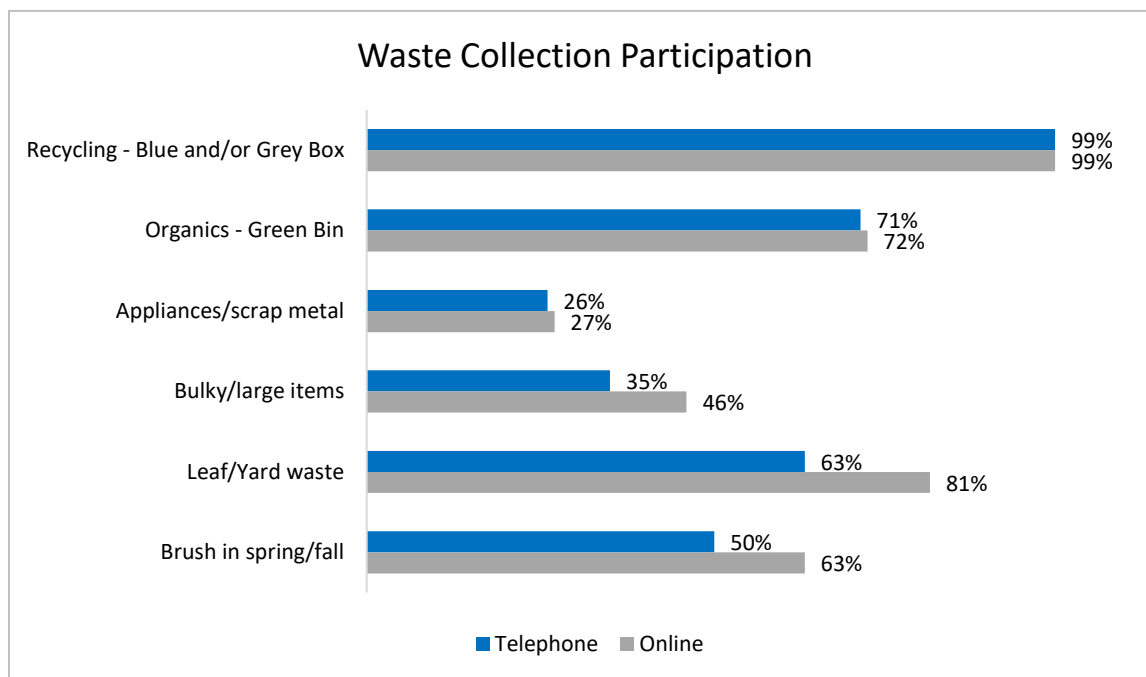
Figure 1.3e – Online Survey - Garbage tags used by municipality

(Online survey)	None	1-6	7+
Total (n=6,639)	49%	32%	19%
Fort Erie	56%	28%	16%
Grimsby	58%	29%	13%
Lincoln	60%	24%	16%
Niagara Falls	42%	36%	22%
Niagara-on-the-Lake	61%	26%	13%
Pelham	54%	33%	13%
Port Colborne	50%	30%	20%
St. Catharines	42%	34%	22%
Thorold	46%	32%	22%
Wainfleet	58%	22%	19%
Welland	51%	28%	21%
West Lincoln	61%	28%	11%

## 1.4 Waste Collection Participation

Q21 – Does your household put out the following items for curbside collection?  
(Full sample)

Figure 1.4a – Waste collection program participation by survey type



Virtually all low-density residential households in Niagara region are participating in the recycling program (99% telephone/99% online).

About 7 in 10 say they participate in the organics collection program. The participation level is virtually the same between the random telephone survey and the online survey (71% telephone/72% online).

Participation in leaf/yard waste collection is next (63% telephone/81% online), and the brush collection in spring and fall (50% telephone/63% online).

Participation in both the appliances/scrap metal collection (26% telephone/27% online), and the bulky/large item collection (35% telephone/46% online) is lower.

Figure 1.4b <sup>5</sup>– Waste collection program participation by survey type (Hamilton)

The percentages were different, but we found a similar sentiment/pattern in Hamilton in 2016.

Virtually all participate in the recycling program, followed by the organics collection and yard waste collection programs (which included brush in this survey). The bulky/large item collection (which includes scrap metal/appliances) had the lowest participation.

<i>Hamilton Waste Survey</i>	Telephone (n=800)	Online (n=1,468)
Blue Box recycling	99%	99%
Organics/Green Bin	83%	84%
Yard waste	80%	88%
Bulky/large item collection	45%	55%

### Respondent Sub-Segment Findings (Telephone)

#### *Participate in Organics/Green Bin collection*

- Those 65+ years (77%) and 45-64 years (73%) are more likely to participate than those 18-44 years (55%).
- Those in a single person household (72%) and dual person household (74%) are more likely to participate than those in a household of three or more people (66%).
- Those with nobody using diapers (72%) are more likely to participate than those with someone in diapers (50%).
- Those who can afford to skip a weekly collection (81%), and those who put out a garbage bag every week that isn't full (76%) are more likely to participate than those who put out a full bag every week (68%) or those who put out more than one bag (52%).
- Those who can manage EOW garbage collection (77%) are more likely to participate than those who need to continue having their garbage collected every week (66%).

#### *Participate in bulky/large item collection*

- Those in households of three or more (37%) and two people (35%) are more likely to participate than those in single person households (28%).
- Those who use seven or more garbage tags per year (45%) or 1-6 bag tags (44%) are more likely to participate than those who do not use bag tags in an average year (30%).

#### *Participate in leaf/yard waste collection*

- Those who could manage EOW garbage collection are more likely to participate (67%) than those who need to continue having garbage picked up weekly (61%).
- Those who participate in organics collection are more likely to participate in leaf/yard waste collection (71%) than those who do not participate in organic collection (45%).

<sup>5</sup> City of Hamilton Waste Management Services Public Engagement Survey – Metroline Research Group, 2016

*Participate in brush pickup*

- Those who could manage EOW garbage collection are more likely to participate (54%) than those who need to continue having garbage picked up weekly (47%).
- Those who participate in organics collection are more likely to participate in brush collection (56%) than those who do not participate in organic collection (36%).

Respondent Sub-Segment Findings (Online)

*Participate in Organics/Green Bin collection*

- Those 65+ years (80%) and 45-64 years (74%) are more likely to participate than those 18-44 years (66%).
- Those who can afford to skip a weekly collection (88%), and those who put out a garbage bag every week that isn't full (83%) are more likely to participate than those who put out a full bag every week (66%) or those who put out more than one bag (54%).
- Those who can manage EOW garbage collection (84%) are more likely to participate than those who need to continue having their garbage collected every week (64%).

*Participate in bulky/large item collection*

- Those 45-64 years (49%) and 18-44 years (46%) are more likely to participate than those 65+ years (41%).
- Those who use seven or more bag tags per year (56%) or 1-6 bag tags 52%) are more likely to participate than those who do not use bag tags in an average year (38%).

*Participate in leaf/yard waste collection*

- Those who participate in organics collection are more likely to participate in leaf/yard waste collection (86%) than those who do not participate in organic collection (70%).

*Participate in brush pickup*

- Those who participate in organics collection are more likely to participate in brush collection (67%) than those who do not participate in organic collection (54%).

Figure 1.4c – Random Telephone Survey - Waste collection program participation by municipality

(Random telephone survey)	Recycling – Blue and/or Grey Box	Organics – Green Bin	Appliances, Scrap Metal	Bulky/ Large Items	Leaf/Yard Waste	Brush in spring/fall
Total (n=1,253)	99%	71%	26%	35%	63%	50%
Fort Erie	99%	63%	16%	36%	45%	32%
Grimsby	100%	84%	36%	36%	77%	53%
Lincoln	99%	73%	19%	27%	55%	45%
Niagara Falls	100%	72%	35%	42%	73%	60%
Niagara-on-the-Lake	97%	73%	24%	28%	58%	52%
Pelham	99%	70%	19%	29%	59%	43%
Port Colborne	99%	75%	19%	31%	55%	35%
St. Catharines	100%	74%	34%	44%	82%	69%
Thorold	97%	74%	30%	41%	70%	55%
Wainfleet	96%	59%	23%	25%	19%	12%
Welland	98%	64%	24%	36%	68%	50%
West Lincoln	99%	60%	7%	14%	35%	28%

Figure 1.4d – Online Survey - Waste collection program participation by municipality

(Online survey)	Recycling – Blue and/or Grey Box	Organics – Green Bin	Appliances, Scrap Metal	Bulky/ Large Items	Leaf/Yard Waste	Brush in spring/fall
Total (n=6,639)	99%	72%	27%	46%	81%	63%
Fort Erie	98%	70%	18%	38%	69%	49%
Grimsby	100%	80%	24%	40%	83%	67%
Lincoln	100%	78%	24%	41%	79%	61%
Niagara Falls	100%	72%	27%	47%	86%	67%
Niagara-on-the-Lake	100%	79%	21%	39%	80%	56%
Pelham	100%	74%	32%	41%	76%	64%
Port Colborne	99%	68%	19%	36%	77%	58%
St. Catharines	100%	74%	34%	56%	89%	72%
Thorold	98%	68%	25%	46%	76%	53%
Wainfleet	97%	52%	16%	30%	33%	79%
Welland	99%	69%	21%	39%	79%	60%
West Lincoln	99%	69%	13%	28%	57%	37%

Participation rates in the different programs vary by municipality. Some of this may be a result of their geographical location. Municipalities in areas that are less urban may have residents with larger properties to manage their own composting and leaf/yard waste or brush disposal, for example.

## 1.5 Recycling Participation

### 1.5.1 Blue Boxes

*Q22 - Blue Box recycling includes containers that are made of plastic, metals, glass or styrofoam. How many Blue Boxes does your household put out at the curb in an average week? (Base – Converted to full sample)*

Figure 1.5.1a – Number of Blue Boxes by survey type

Virtually all (99%) of Niagara region are participating in the recycling program.

97% of those in the telephone survey are putting out at least one Blue Box per week. About 1 in 5 households put out two or more Blue Boxes per week.

	Telephone (n=1,253)	Online (n=6,639)
None/Not participating in program	1%	1%
Less than once a week	2%	--
One per week	78%	70%
Two or more per week	19%	29%

#### Respondent Sub-Segment Findings (Telephone)

- Household size was a primary factor in the number of Blue Boxes. Households of three or more people are most likely to be putting out two or more Boxes (34%), compared to two person households (9%) and single person households (3%).
- Those 18-44 years (29%) are most likely to be putting out two or more Boxes, compared to those 45-64 years (23%) and those 65+ years (7%).
- Those buying the most (7+) garbage tags per year are also most likely to put out 2+ Blue Boxes (42%), compared to those who buy 1-6 tags (20%), and those who do not use garbage tags (15%).
- Those who would need to continue having waste collected weekly are most likely to be putting out two or more Blue Boxes (22%), compared to those who could manage EOW garbage collection (16%).

#### Respondent Sub-Segment Findings (Online)

- Household size was a primary factor in the number of Blue Boxes. Households of three or more people are most likely to be putting out two or more Boxes (43%), compared to two person households (14%) and single person households (10%).
- Those 18-44 years (36%) are most likely to be putting out two or more Boxes, compared to those 45-64 years (32%) and those 65+ years (13%).
- Those buying the most (7+) garbage tags per year are also most likely to put out 2+ Blue Boxes (51%), compared to those who buy 1-6 tags (29%), and those who do not use garbage tags (19%).
- Those who would need to continue having waste collected weekly are most likely to be putting out two or more Blue Boxes (35%), compared to those who could manage EOW garbage collection (20%).

Figure 1.5.1b – Random Telephone Survey - Number of Blue Boxes by municipality

(Random telephone survey)	Not participating	Less than once a week	One per week	Two or more per week
Total (n=1,253)	1%	2%	78%	19%
Fort Erie	2%	--	85%	13%
Grimsby	1%	2%	81%	16%
Lincoln	1%	3%	84%	12%
Niagara Falls	1%	1%	79%	19%
Niagara-on-the-Lake	4%	3%	75%	18%
Pelham	3%	--	77%	20%
Port Colborne	1%	1%	82%	16%
St. Catharines	--	1%	80%	19%
Thorold	4%	--	74%	22%
Wainfleet	4%	--	71%	25%
Welland	2%	4%	71%	23%
West Lincoln	1%	--	75%	24%

Across all municipalities, there is not much difference when looking at the percentage of households who put out at least one Blue Box per week on average. Niagara-on-the-Lake was lowest, where 93% of households put out one or more Blue Boxes per week.

Figure 1.5.1c – Online Survey - Number of Blue Boxes by municipality

(Online survey)	Not participating	Less than once a week	One per week	Two or more per week
Total (n=6,639)	1%	--	70%	28%
Fort Erie	2%	--	74%	24%
Grimsby	1%	--	75%	25%
Lincoln	1%	--	67%	32%
Niagara Falls	1%	--	69%	30%
Niagara-on-the-Lake	--	--	83%	17%
Pelham	--	--	74%	26%
Port Colborne	1%	1%	68%	31%
St. Catharines	1%	1%	70%	29%
Thorold	2%	--	71%	26%
Wainfleet	3%	--	62%	35%
Welland	2%	--	69%	29%
West Lincoln	2%	--	60%	38%

### 1.5.2 Grey Boxes

Q24 – Grey Box recycling includes items such as paper, cardboard, cereal boxes, tissue boxes, etc., and bundled plastic bags. How many Grey Boxes does your household put out at the curb in an average week? (Base – Converted to full sample)

Figure 1.5.2a – Number of Grey Boxes by survey type

Almost all of Niagara region households are participating in the Grey Box recycling program as well. Slightly fewer (92%) than the Blue Box (99%) program participation.

	Telephone (n=1,253)	Online (6,639)
None/Not participating in program	6%	2%
Less than once a week	2%	1%
One per week	84%	81%
Two or more per week	8%	16%

92% of Niagara region households put out at least one Grey Box per week on average.

#### Respondent Sub-Segment Findings (Telephone)

- Household size is a factor once again. Those in households of three or more people are most likely (14%) to put out two or more Grey Boxes, compared to two person households (4%) and single person households (2%).
- Those 18-44 years are most likely to put out two or more Grey Boxes (14%), compared to those 45-64 years (9%) and those 65+ years (2%).
- Those buying the most (7+) garbage tags per year are also most likely to put out 2+ Grey Boxes (20%), compared to those who buy 1-6 tags (8%), and those who do not use garbage tags (6%).

#### Respondent Sub-Segment Findings (Online)

- Those in households of three or more people are most likely (26%) to put out two or more Grey Boxes, compared to two person households (7%) and single person household (6%).
- Those 18-44 years are most likely to put out two or more Grey Boxes (23%), compared to those 45-64 years (17%) and those 65+ years (6%).
- Those buying the most (7+) garbage tags per year are also most likely to put out 2+ Grey Boxes (32%), compared to those who buy 1-6 tags (17%), and those who do not use garbage tags (10%).

Figure 1.5.2b – Random Telephone Survey - Number of Grey Boxes by municipality

(Random telephone survey)	None / Not participating	< 1 per week	One per week	Two or more per week
Total (n=1,253)	6%	2%	84%	8%
Fort Erie	8%	--	91%	1%
Grimsby	4%	1%	88%	7%
Lincoln	5%	3%	87%	5%
Niagara Falls	4%	3%	85%	8%
Niagara-on-the-Lake	8%	3%	81%	8%
Pelham	4%	4%	84%	8%
Port Colborne	4%	4%	84%	8%
St. Catharines	3%	1%	85%	11%
Thorold	8%	--	84%	8%
Wainfleet	12%	1%	79%	7%
Welland	4%	3%	84%	9%
West Lincoln	12%	--	80%	8%

As with the Blue Box recycling, there is no difference statistically by municipality. Only two municipalities are below 90% of households putting out at least one Grey Box in an average week – Wainfleet (86%) and West Lincoln (88%).

Figure 1.5.2c – Online Survey - Number of Grey Boxes by municipality

(Online survey)	None / Not participating	< 1 per week	One per week	Two or more per week
Total (n=6,639)	2%	1%	81%	16%
Fort Erie	3%	--	84%	12%
Grimsby	1%	--	81%	18%
Lincoln	2%	1%	81%	16%
Niagara Falls	2%	1%	80%	18%
Niagara-on-the-Lake	1%	--	87%	12%
Pelham	--	--	84%	16%
Port Colborne	2%	--	79%	19%
St. Catharines	1%	1%	81%	17%
Thorold	2%	1%	80%	18%
Wainfleet	10%	1%	82%	8%
Welland	2%	1%	80%	17%
West Lincoln	3%	--	79%	19%

## 1.6 Green Bin/Organics Participation

Q26 – Green Bin organics program includes food waste, paper napkins/towels/bags, paper take-out trays/egg cartons, coffee grounds/filters & tea bags. How many Green Bins or containers marked as organics does your household put out at the curb in an average week? (Base – Converted to full sample)

Figure 1.6a – Number of Green Bins by survey type

About 7 in 10 (71%) of low-density residential households in Niagara region are participating in the Green Bin program. That number dropped slightly when looking at Green Bins in an average month, to 69%.

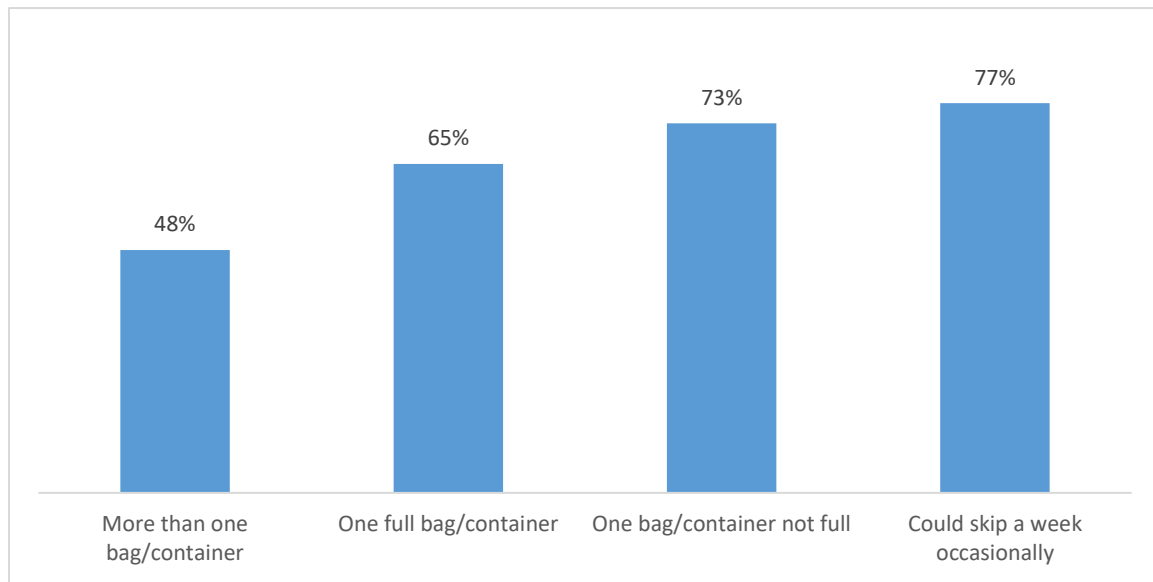
	Telephone (n=1,253)	Online (n=6,639)
None / Not participating	31%	29%
Less than one per week	1%	1%
One per week	63%	63%
Two or more per week	5%	7%

68% of those households in the telephone survey put out at least one Green Bin per week. In this particular question, the finding of the online survey was similar, where 70% of households are putting out one Green Bin per week on average.

### Respondent Sub-Segment Findings (Telephone)

- Those 65+ years (73%) and 45-64 years (70%) are more likely to put out at least one Green Bin per week than those 18-44 years (53%).
- Those using diapers for someone (49%) are less likely to put out at least one Green Bin per week than those with no diapers (69%).
- Those who do not use any garbage tags in an average year (68%) and those who use 1-6 garbage tags per year (70%) are more likely to put out at least one Green Bin per week than those who use 7+ garbage tags per year (57%).
- Those who would need to continue having waste collected weekly (62%) are less likely to put out one or more Green Bins per week compared to those who could manage EOW garbage collection (73%).
- Those who feel there would be little to no impact to their low-density residential household with EOW garbage collection (72%) are more likely to be putting out at least one Green Bin per week than those who feel EOW garbage collection would have at least some impact (62%).

Figure 1.6b –Random Telephone Survey - Put out one or more Green Bins by typical garbage set out



- Those households who can afford to skip a week on garbage collection occasionally (77%), and those households who put out less than one full bag/container per week (73%) are more likely to be putting out at least one Green Bin per week, compared to those who put out one full bag/container per week (65%) and those households who put out more than one full bag/container per week (48%).

#### Respondent Sub-Segment Findings (Online)

- Those 65+ years (77%) and 45-64 years (72%) are more likely to put out at least one Green Bin per week than those 18-44 years (65%).
- Those who do not use any garbage tags in an average year (76%) and those who use 1-6 garbage tags per year (71%) are more likely to put out at least one Green Bin per week than those who use 7+ garbage tags per year (59%).
- Those who would need to continue having waste collected weekly (63%) are less likely to put out one or more Green Bins per week compared to those who could manage EOW garbage collection (82%).
- Those who feel there would be little to no impact with EOW garbage collection (82%) are more likely to be putting out at least one Green Bin per week than those who feel EOW garbage collection would have at least some impact (62%).
- Those who can afford to skip a week on garbage collection occasionally (86%), and those who put out less than one full bag/container per week (81%) are more likely to be putting out at least one Green Bin per week, compared to those who put out one full bag/container per week (64%) and those who put out more than one full bag/container per week (53%).

Figure 1.6c – Random Telephone Survey - Number of Green Bins by municipality

(Random telephone survey)	None / Not participating	< 1 per week	One per week	Two or more per week
Total (n=1,253)	31%	1%	63%	5%
Fort Erie	39%	1%	57%	3%
Grimsby	17%	2%	75%	5%
Lincoln	28%	--	72%	--
Niagara Falls	28%	1%	65%	6%
Niagara-on-the-Lake	27%	3%	61%	9%
Pelham	32%	--	62%	6%
Port Colborne	29%	1%	56%	14%
St. Catharines	28%	1%	65%	6%
Thorold	27%	3%	66%	4%
Wainfleet	45%	--	51%	4%
Welland	36%	3%	58%	3%
West Lincoln	46%	--	54%	--

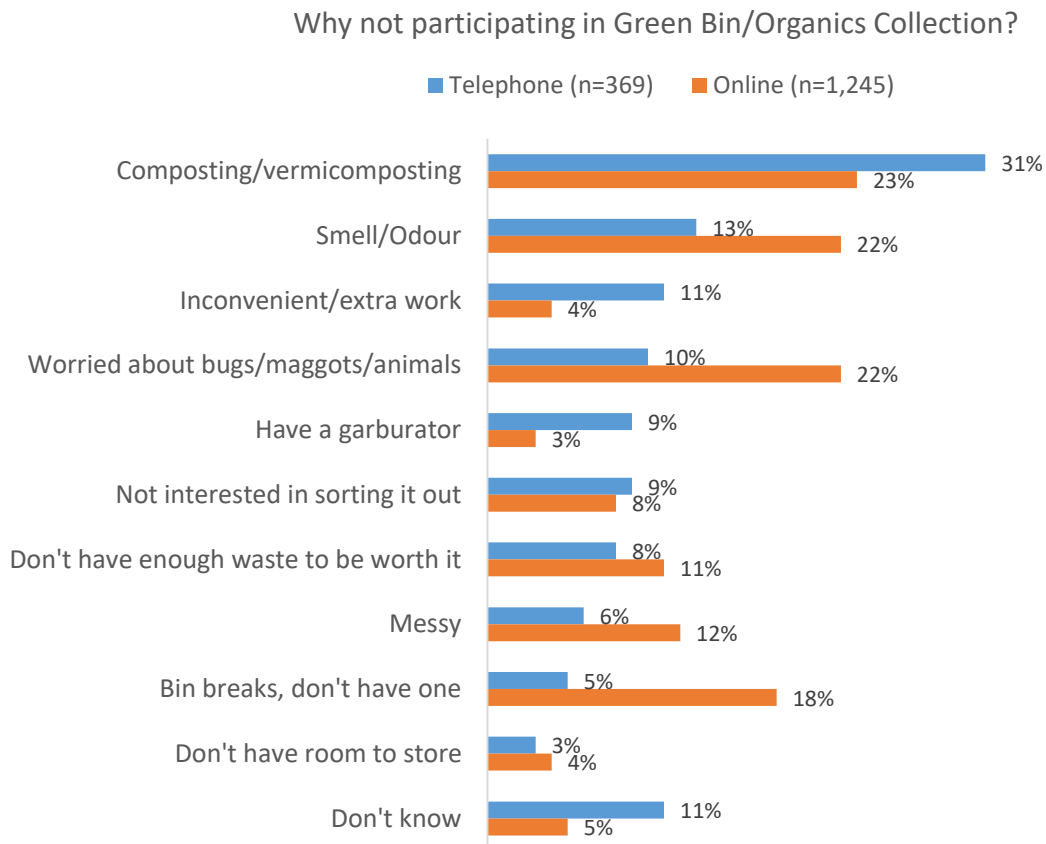
Figure 1.6d – Online Survey - Number of Green Bins by municipality

(Online survey)	None / Not participating	< 1 per week	One per week	Two or more per week
Total (n=6,639)	28%	1%	64%	7%
Fort Erie	33%	--	61%	5%
Grimsby	20%	1%	74%	5%
Lincoln	22%	--	72%	6%
Niagara Falls	29%	1%	62%	9%
Niagara-on-the-Lake	23%	--	72%	6%
Pelham	28%	--	65%	7%
Port Colborne	35%	1%	56%	8%
St. Catharines	26%	1%	64%	9%
Thorold	33%	--	63%	4%
Wainfleet	48%	--	48%	4%
Welland	32%	1%	62%	5%
West Lincoln	31%	1%	67%	1%

### 1.6.1 Not participating in Green Bin/Organics collection

Q28 – Why do you not participate in the Green Bin/Organics program?  
(Base – Not participating)

Figure 1.6.1a – Why not participating in Green Bin/Organics program?



Just under a third (31%) of those households not participating in the Green Bin/Organics program because are doing their own composting/vermicomposting.

*“We have a farm and dispose of it in our manure pile...”*

The next biggest barrier to participating in the Green Bin/Organics program is a concern about smells/odours. 13% of those not participating in this program indicated they do not participate because of a worry about the smell.

*“It smells awful. We freeze organic waste throughout the week and dispose with the trash on garbage day. You can always tell when someone uses the Green organics Bin as soon as you walk into their house. It isn't practical...”*

Lack of motivation was third, with people that separating the waste was inconvenient or extra work for them (11%).

*“Waste of time separating items and keeping another Bin full of stinking food around for rodents and insects to find...”*

The other major barrier is a concern about bugs/maggots/animals in and around the Green Bin (10%).

*“Many animals in my neighbourhood makes it difficult to keep the organics from being eaten. I have the same problem with my regular garbage container...”*

The ‘ick’ factor was expressed as well, with 6% talking about the process being messy and 9% not being interested in sorting out the waste for the Green Bin.

*“I find it gross and disgusting...”*

*“Because I do not have very much for the Green Bin and find it disgusting to deal with in the summer...”*

## 1.7 Appliances/Scrap Metal Participation

### 1.7.1 Put out at the curb

Q29 - How many times per year would you say your household puts out appliances or scrap metal at the curb for collection? (Base –Converted to full sample)

Figure 1.7a – Appliance/Scrap Metal participation by survey type

A total of 4 in 5 low-density residential households in Niagara region (80%) do not participate in the appliances/scrap metal collection program. Among those who have participated, at most is was about once a year.

	Telephone (n=1,253)	Online (n=6,639)
None / Not participating	80%	75%
Once per year	15%	15%
Twice or more per year	5%	10%

The results of the online survey are similar in this case, with 75% not participating in the program.

#### Respondent Sub-Segment Findings (Telephone)

- Those 18-44 years (21%) and those 45-64 years (22%) are more likely than those 65+ years (15%) to participate in the program at least once a year on average.
- Those in households of three or more people (23%) and two people (20%) are more likely than those in single person households (13%) to participate in the program at least once a year on average.
- Those who use 7+ garbage tags per year (27%) and those who use 1-6 garbage tags per year (25%) are more likely than those who do not use garbage tags (17%) to participate in the program at least once a year on average.

#### Respondent Sub-Segment Findings (Online)

- Those who use 7+ garbage tags per year (32%) and those who use 1-6 garbage tags per year (28%) are more likely than those who do not use garbage tags (20%) to participate in the program at least once a year on average.

Figure 1.7b – Random Telephone Survey - Appliance/Scrap Metal participation by survey type

<i>(Random telephone survey)</i>	None / Not participating	Once per year	Twice or more per year
Total (n=1,253)	80%	15%	5%
Fort Erie	86%	11%	3%
Grimsby	73%	23%	4%
Lincoln	85%	15%	--
Niagara Falls	75%	16%	9%
Niagara-on-the-Lake	81%	18%	1%
Pelham	85%	8%	7%
Port Colborne	84%	8%	8%
St. Catharines	75%	19%	6%
Thorold	77%	19%	4%
Wainfleet	81%	16%	3%
Welland	84%	11%	5%
West Lincoln	95%	4%	1%

Figure 1.7c – Online Survey - Appliance/Scrap Metal participation by survey type

(Online survey)	None / Not participating	Once per year	Twice or more per year
Total (n=6,639)	75%	15%	10%
Fort Erie	83%	11%	7%
Grimsby	78%	15%	7%
Lincoln	77%	14%	9%
Niagara Falls	74%	16%	10%
Niagara-on-the-Lake	81%	11%	8%
Pelham	71%	19%	11%
Port Colborne	82%	10%	9%
St. Catharines	68%	18%	14%
Thorold	76%	14%	11%
Wainfleet	86%	6%	8%
Welland	80%	13%	8%
West Lincoln	87%	9%	4%

### 1.7.2 Scheduling a pick up

Q210 - Do you schedule a pick up with Niagara Region for scrap metal or appliances, or put them out at the curb for anyone to pick up without scheduling a pick up?

(Base – Participate at least once a year on average)

Figure 1.7.2a – Appliance/Scrap Metal pick up type by survey type

Note: Sample size varies according to participation rates and survey type	Telephone (n=249)	Online (n= 1,696)
Schedule a pick up	74%	77%
Leave out	26%	23%

Those who participate in the appliances/scrap metal program at least once a year on average were asked how they arrange for pick up.

Three-quarters (74%) of program participants schedule a pick up with Niagara Region, and one-quarter (26%) will simply put the item at the curb.

The online survey respondents felt similarly (77% scheduled, 23% leave at curb).

Respondent Sub-Segment Findings (Telephone)

- Women (81%) were more likely than men (65%) to say they scheduled a pick up.
- Those 65+ years (88%) were more likely to have scheduled a pick up than those 45-64 years (72%) or those 18-44 years (64%).

Respondent Sub-Segment Findings (Online)

- Those 65+ years (81%) were more likely to have scheduled a pick up than those 45-64 years (77%) or those 18-44 years (74%).

Figure 1.7.2b – Random Telephone Survey - Appliance/Scrap Metal pick up type by municipality

<i>(Random telephone survey) Note: Sample size varies according to participation rates and survey type</i>	Schedule a pick up	Leave out
<b>Total (n=249)</b>	<b>74%</b>	<b>26%</b>
Fort Erie	92%	8%
Grimsby	90%	10%
Lincoln	82%	18%
Niagara Falls	69%	31%
Niagara-on-the-Lake	85%	15%
Pelham	73%	27%
Port Colborne	83%	17%
St. Catharines	69%	31%
Thorold	65%	35%
Wainfleet	79%	21%
Welland	74%	26%
West Lincoln	75%	25%

Figure 1.7.2c – Online Survey - Appliance/Scrap Metal pick up type by municipality

<i>(Online survey) Note: Sample size varies according to participation rates and survey type</i>	Schedule a pick up	Leave out
<b>Total (n=1,696)</b>	<b>77%</b>	<b>23%</b>
Fort Erie	78%	22%
Grimsby	90%	10%
Lincoln	77%	23%
Niagara Falls	70%	31%
Niagara-on-the-Lake	71%	29%
Pelham	92%	8%
Port Colborne	80%	21%
St. Catharines	77%	23%
Thorold	79%	21%
Wainfleet	77%	23%
Welland	74%	26%
West Lincoln	73%	27%

## 1.8 Bulky/Large Item Collection

### 1.8.1 Put out at the curb

Q211 - Bulky/large item collection includes items like carpet and furniture. How many times per year would you say your household puts out items like this out at the curb for collection? (Base – Converted to full sample)

Figure 1.8a – Bulky/Large Item collection by survey type

	Telephone (n=1,253)	Online (n=6,639)
None/not participating	71%	56%
Once per year	19%	20%
Twice or more per year	10%	24%

More (29%) participate in bulky/large item collection compared to the scrap metal/appliances collection (20%).

In total, 29% of households participate at least once a year, with the majority (19%) participating once a year, and 10% participating two or more times a year on average.

Those households in the online survey indicated they are participating more often.

#### Respondent Sub-Segment Findings (Telephone)

- Those with three or more people are more likely to participate at least once a year (33%), compared to those with two people (28%), or living alone (19%).
- Those who use 7+ garbage tags per year are more likely to participate at least once a year (43%), compared to those who use 1-6 garbage tags per year (38%) and those who do not use garbage tags (23%).

#### Respondent Sub-Segment Findings (Online)

- Those who use 7+ garbage tags per year are more likely to participate at least once a year (54%), compared to those who use 1-6 garbage tags per year (50%) and those who do not use garbage tags (36%).
- Those who need to continue having their garbage collected weekly (46%) are more likely to participate in bulky/large item collection at least once a year, compared to those who could manage EOW garbage collection (41%).

Figure 1.8b – Random Telephone Survey - Bulky/Large Item collection by municipality

(Random telephone survey)	None	Once per year	Twice or more per year
Total (n=1,253)	71%	19%	10%
Fort Erie	71%	19%	10%
Grimsby	72%	24%	4%
Lincoln	83%	13%	4%
Niagara Falls	67%	20%	13%
Niagara-on-the-Lake	78%	14%	8%
Pelham	74%	14%	12%
Port Colborne	72%	15%	13%
St. Catharines	61%	25%	14%
Thorold	66%	27%	7%
Wainfleet	80%	16%	4%
Welland	70%	18%	13%
West Lincoln	89%	8%	3%

Figure 1.8c – Online Survey - Bulky/Large Item collection by municipality

(Online survey)	None	Once per year	Twice or more per year
Total (n=6,639)	56%	20%	24%
Fort Erie	64%	17%	19%
Grimsby	61%	18%	21%
Lincoln	62%	17%	21%
Niagara Falls	55%	21%	24%
Niagara-on-the-Lake	63%	15%	22%
Pelham	61%	20%	19%
Port Colborne	65%	17%	18%
St. Catharines	47%	23%	30%
Thorold	56%	19%	25%
Wainfleet	71%	18%	11%
Welland	63%	16%	21%
West Lincoln	73%	11%	16%

### 1.8.2 Scheduling a pick up

Q212 - Do you schedule a pick up with Niagara Region for these bulky/large items, or put them out at the curb for anyone to pick up without scheduling a pick up? (Base – Participate at least once a year on average)

Figure 1.8.2a – Bulky/Large Item collection type by survey type

<i>Note: Sample size varies according to participation rates and survey type</i>	Telephone (n=365)	Online (n=2,943)
Schedule a pick up	94%	92%
Leave out	6%	8%

Those participating in the bulky/large item pick up are most likely going to be scheduling a pick up with Niagara Region. 94% said they would schedule a pickup for bulky/large items, compared to 74% of those participating in scrap metal/appliances.

Figure 1.8.2b – Random Telephone Survey - Bulky/Large item collection type by municipality

<i>(Random telephone survey) Note: Sample size varies according to participation rates and survey type</i>	Schedule a pick up	Leave out
Total (n=365)	94%	6%
Fort Erie	96%	4%
Grimsby	95%	5%
Lincoln	100%	--
Niagara Falls	97%	3%
Niagara-on-the-Lake	93%	7%
Pelham	100%	--
Port Colborne	81%	19%
St. Catharines	92%	8%
Thorold	92%	8%
Wainfleet	100%	--
Welland	94%	6%
West Lincoln	87%	13%

Figure 1.8.2c – Online Survey - Bulky/Large item collection type by municipality

(Online survey) Note: Sample size varies according to participation rates and survey type	Schedule a pick up	Leave out
Total (n=2,943)	92%	8%
Fort Erie	96%	4%
Grimsby	89%	11%
Lincoln	90%	10%
Niagara Falls	90%	10%
Niagara-on-the-Lake	88%	12%
Pelham	91%	9%
Port Colborne	92%	8%
St. Catharines	95%	5%
Thorold	96%	4%
Wainfleet	83%	17%
Welland	93%	7%
West Lincoln	71%	29%

## 2.0 Waste Collection Options For Next Contract

For Niagara Region's next waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposed collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

The purpose of this survey is to receive feedback from residents on the possible collection options and to help Regional staff understand residents' feelings about each option.

## 2.1 Bulky/Large Item Collection

Q31 - The first option is related to large or bulky item pick up, such as carpet or furniture. The change would be to limit the number of large/bulky items collected to a maximum of four per week. In 2018, 92% of the bookings for large or bulky item pick up were for four items or less. If Niagara Region was to make this change, what would be the impact on your household? (Base – Full sample)

Figure 2.1a – Change to Bulky/Large Item collection, impact by survey type

Making a change to the bulky/large item collection so that a maximum of four items per collection can be put out will not unduly impact Niagara region's low-density residential households.

The vast majority stated there would be little to no impact to them (89% in the telephone survey, 72% in the online survey).

	Telephone (n=1,253)	Online (n=6,639)
A big impact	2%	5%
Some impact	4%	8%
Might or might not be an impact	5%	15%
Not much of an impact	25%	27%
No impact	64%	45%
<b>Impact Ratio (big/some vs. not much/no impact)</b>	<b>-83%</b>	<b>-59%</b>

6% of those in the telephone survey, and 13% in the online survey feel this change would have an impact on their household.

### Respondent Sub-Segment Findings (Telephone)

- Those in households of three or more (8%) are slightly more likely to feel impacted, compared to households of two people (5%) and single person households (4%).
- Those who use 7+ garbage tags per year (16%) are most likely to feel there would be an impact on their household, compared to those who use 1-6 garbage tags per year (5%) and those who do not use garbage tags (4%).

### Respondent Sub-Segment Findings (Online)

- Those in households of three or more (16%) are slightly more likely to feel impacted, compared to households of two people (11%) and single person households (9%).
- Those who put out more than one garbage bag/container per week (26%) are most likely to say they will impacted, compared to those who put out one garbage bag/container per week (17%), and those who put out less than one full garbage bag/container per week (7%) or who don't always put a garbage bag/container on a weekly basis (3%).
- Those who use 7+ garbage tags per year (22%) are most likely to feel there would be an impact on their household, compared to those who use 1-6 garbage tags per year (13%) and those who do not use garbage tags (9%).

Figure 2.1b – Random Telephone Survey - Change to Bulky/Large Item collection, impact by municipality

(Random telephone survey) Note: Sample size varies according to participation rates and survey type	A big impact	Some Impact	Might or might not be an impact	Not much of an impact	No impact	Impact Ratio
Total (n=1,253)	2%	4%	5%	25%	64%	-83%
Fort Erie	--	1%	5%	23%	71%	-93%
Grimsby	7%	8%	4%	21%	60%	-66%
Lincoln	--	3%	5%	30%	62%	-89%
Niagara Falls	2%	7%	7%	33%	51%	-75%
Niagara-on-the-Lake	--	2%	8%	21%	69%	-88%
Pelham	1%	3%	6%	19%	71%	-86%
Port Colborne	--	7%	7%	25%	61%	-79%
St. Catharines	1%	5%	4%	27%	63%	-84%
Thorold	4%	3%	3%	30%	60%	-83%
Wainfleet	--	1%	--	11%	88%	-98%
Welland	2%	3%	11%	23%	61%	-79%
West Lincoln	1%	4%	4%	19%	72%	-86%

Figure 2.1c – Online Survey - Change to Bulky/Large Item collection, impact by municipality

(Online survey) Note: Sample size varies according to participation rates and survey type	A big impact	Some Impact	Might or might not be an impact	Not much of an impact	No impact	Impact Ratio
Total (n=6,639)	5%	8%	15%	27%	45%	-59%
Fort Erie	6%	6%	13%	31%	44%	-63%
Grimsby	2%	7%	10%	25%	56%	-72%
Lincoln	2%	8%	8%	30%	53%	-73%
Niagara Falls	6%	9%	19%	28%	38%	-51%
Niagara-on-the-Lake	1%	6%	11%	30%	52%	-75%
Pelham	3%	6%	13%	28%	50%	-69%
Port Colborne	5%	7%	14%	28%	45%	-61%
St. Catharines	4%	9%	17%	25%	45%	-57%
Thorold	4%	10%	14%	30%	42%	-58%
Wainfleet	2%	9%	8%	22%	58%	-69%
Welland	5%	9%	15%	29%	42%	-57%
West Lincoln	3%	7%	11%	27%	52%	-69%

## 2.2 Appliances/Scrap Metal Collection

*Q32 – The second option under consideration would eliminate curbside pick up by Niagara Region of appliances and scrap metal. Currently, residents can go online and schedule a pick up of items at their home. Only 6% of Niagara are using the curbside collection of appliances and scrap metal service. Also, as much as 60% of these items that are being put out have already been removed by the time collection staff arrive to pick them up. There would continue to be an opportunity for residents to take the items to a Regional Drop-off Depot, at no charge, or have it picked up by private scrap metal haulers. If Niagara Region was to make this change, what would be the impact on your household? (Base – Full sample)*

Figure 2.2a – Change to appliance/scrap metal collection, by survey type

Dropping/stopping the appliance/scrap metal collection program would have some impact on about 1 in 5 low-density residential households in Niagara region. 17% of households in the telephone survey, and 22% in the online survey feel there would be at least some impact.

	Telephone (n=1,253)	Online (n=6,639)
A big impact	7%	8%
Some impact	9%	14%
Might or might not be an impact	9%	17%
Not much of an impact	25%	27%
No impact	50%	34%
<b>Impact Ratio (big/some vs. not much/no impact)</b>	<b>-59%</b>	<b>-39%</b>

84% in the telephone survey, and 78% in the online survey, feel there would be little to no impact on their household.

### Respondent Sub-Segment Findings (Telephone)

- Those who use 7+ garbage tags per year (23%) are most likely to feel there would be an impact on their household, compared to those who use 1-6 garbage tags per year (18%) and those who do not use garbage tags (14%).
- Those who would need to continue to have their garbage picked up weekly are more likely to find at least some impact (19%) than those who could manage EOW garbage collection (12%).

### Respondent Sub-Segment Findings (Online)

- Those who use 7+ garbage tags per year (29%) are most likely to feel there would be an impact on their household, compared to those who use 1-6 garbage tags per year (24%) and those who do not use garbage tags (18%).
- Those who would need to continue to have their garbage picked up weekly are more likely to find at least some impact (27%) than those who could manage EOW garbage collection (14%).

Figure 2.2b – Random Telephone Survey - Impact of change to appliance/scrap metal collection, by municipality

<i>(Random telephone survey) Note: Sample size varies according to participation rates and survey type</i>	A big impact	Some impact	Might or might not be an impact	Not much of an impact	No impact	Impact Ratio
Total (n=1,253)	7%	9%	9%	25%	50%	-59%
Fort Erie	--	8%	14%	28%	50%	-70%
Grimsby	11%	11%	11%	25%	43%	-56%
Lincoln	7%	4%	12%	25%	52%	-66%
Niagara Falls	8%	11%	11%	27%	43%	-51%
Niagara-on-the-Lake	10%	13%	12%	23%	42%	-52%
Pelham	7%	7%	8%	27%	51%	-64%
Port Colborne	9%	11%	4%	20%	56%	-56%
St. Catharines	7%	10%	9%	28%	46%	-57%
Thorold	8%	5%	10%	34%	43%	-64%
Wainfleet	3%	9%	1%	11%	76%	-75%
Welland	8%	8%	8%	23%	53%	-60%
West Lincoln	4%	7%	10%	16%	63%	-68%

Figure 2.2c – Online Survey - Impact of change to appliance/scrap metal collection, by municipality

<i>(Online survey) Note: Sample size varies according to participation rates and survey type</i>	A big impact	Some impact	Might or might not be an impact	Not much of an impact	No impact	Impact Ratio
Total (n=6,639)	8%	14%	17%	27%	34%	-39%
Fort Erie	8%	12%	15%	28%	36%	-44%
Grimsby	7%	11%	18%	26%	38%	-46%
Lincoln	6%	11%	16%	29%	38%	-50%
Niagara Falls	9%	14%	18%	28%	31%	-36%
Niagara-on-the-Lake	7%	14%	17%	34%	28%	-41%
Pelham	9%	14%	15%	33%	29%	-39%
Port Colborne	9%	9%	18%	24%	40%	-46%
St. Catharines	9%	16%	18%	24%	33%	-32%
Thorold	8%	13%	20%	25%	34%	-38%
Wainfleet	4%	13%	6%	20%	58%	-61%
Welland	7%	13%	18%	25%	37%	-42%
West Lincoln	5%	9%	10%	26%	51%	-63%

## 2.3 Clear Bags

### 2.3.1 Support for clear bags

*Q33 – A third option under consideration is the mandatory use of clear garbage bags. Some municipalities in Canada have already made this change. The cost for the clear bags would be about the same as Green/Black garbage bags. Clear garbage bags will make it easier to see recyclable or organic material that should be placed in the Blue/Grey Box or Green Bin or Hazardous Waste items that should be disposed of safely. A smaller opaque bag, such as a grocery bag, can be placed inside the clear garbage bag for disposing of sensitive or personal items. Would you support a switch to clear –garbage bags? (Full Sample)*

Figure 2.3.1a – Support for mandatory clear garbage bags by survey type

Support for the mandatory use of clear bags in the telephone survey was a fairly even split. 48% would support (definitely or probably), and 52% do not support.

	Telephone (n=1,253)	Online (n=6,639)
Definitely would support	26%	13%
Probably would support	22%	14%
Might or might not support	14%	11%
Probably would not support	14%	16%
Definitely would not support	24%	46%
<b>Support Ratio</b>	<b>+10</b>	<b>-35</b>

It's a different picture when looking at the sentiment expressed in the online survey. 27% would support, and 73% would oppose.

#### Respondent Sub-Segment Findings (Telephone)

- Those who would need to continue to have their garbage picked up weekly are more likely to support the use of clear bags (57%) than those who could manage EOW garbage collection (40%).

#### Respondent Sub-Segment Findings (Online)

- Women (29%) are more likely to support mandatory clear garbage bags than men (22%).
- Those 65+ years (35%) are more likely to support than those 45-64 years (25%) or those 18-44 years (25%).
- Those who do not use any garbage tags in an average year (34%) are more likely to support mandatory clear garbage bags, than those use 1-6 garbage tags (25%) and those who use 7+ garbage tags (12%).
- Those who would need to continue to have their garbage picked up weekly are less likely to support the use of clear garbage bags (15%) than those who could manage EOW garbage collection (43%).

Figure 2.3.1b – Random Telephone Survey - Support for mandatory clear garbage bags by municipality

(Random telephone survey) Note: Sample size varies according to participation rates and survey type	Definitely would support	Probably would support	Might or might not support	Probably would not support	Definitely would not support	Support Ratio
Total (n=1,253)	26%	22%	14%	14%	24%	+10%
Fort Erie	19%	26%	17%	17%	21%	+7%
Grimsby	24%	28%	14%	17%	17%	+18%
Lincoln	28%	23%	12%	17%	20%	+14%
Niagara Falls	26%	19%	13%	16%	26%	+3%
Niagara-on-the-Lake	30%	16%	19%	12%	23%	+11%
Pelham	33%	15%	16%	12%	24%	+12%
Port Colborne	24%	24%	19%	7%	26%	+15%
St. Catharines	23%	26%	15%	14%	22%	+13%
Thorold	20%	30%	16%	8%	26%	+16%
Wainfleet	26%	16%	8%	13%	37%	-8%
Welland	33%	20%	13%	15%	19%	+19%
West Lincoln	27%	19%	11%	12%	31%	+3%

Figure 2.3.1c – Online Survey - Support for mandatory clear garbage bags by municipality

(Online survey) Note: Sample size varies according to participation rates and survey type	Definitely would support	Probably would support	Might or might not support	Probably would not support	Definitely would not support	Support Ratio
Total (n=6,639)	13%	14%	11%	16%	46%	-35%
Fort Erie	14%	17%	10%	15%	45%	-29%
Grimsby	15%	16%	10%	17%	43%	-29%
Lincoln	13%	17%	13%	17%	41%	-28%
Niagara Falls	13%	12%	10%	16%	49%	-40%
Niagara-on-the-Lake	17%	16%	18%	13%	36%	-16%
Pelham	11%	17%	12%	12%	47%	-31%
Port Colborne	15%	12%	13%	20%	41%	-34%
St. Catharines	13%	14%	12%	15%	47%	-35%
Thorold	12%	13%	12%	17%	46%	-38%
Wainfleet	8%	17%	9%	20%	46%	-41%
Welland	14%	14%	12%	18%	43%	-33%
West Lincoln	9%	12%	7%	25%	48%	-52%

### 2.3.2 Why support/not support?

#### Q34 – Why do you say that (support/not support clear bags)? (Full Sample)

Figure 2.3.2a – Random Telephone Survey – Why support/oppose mandatory clear garbage bags by municipality

(Random telephone survey, n=1,253)	Total	Support clear bags	Oppose clear bags
Keeps unwanted items from landfill	28%	51%	6%
Encourages use of Blue/Grey Boxes and Green Bins	25%	48%	5%
Concerned about invasion of privacy	25%	8%	40%
Don't want my neighbours seeing my garbage	14%	3%	24%
Concerned about strength of clear bags	5%	2%	8%
We do not need "garbage police"	5%	1%	8%
Added cost/more effort	4%	1%	8%
Neutral/indifferent (General)	4%	6%	3%
We only use small grocery bags	3%	1%	5%
Stupid/no need (General)	2%	--	3%
Safer/better for waste management people	1%	3%	--

NOTE: All other responses are less than one percent total

Figure 2.3.2b – Online Survey – Why support/oppose mandatory clear garbage bags by municipality

(Online survey, n=6,639) Response order based on telephone survey answers above	Total	Support clear bags	Oppose clear bags
Keeps unwanted items from landfill	4%	14%	--
Encourages use of Blue/Grey Boxes and Green Bins	7%	27%	--
Concerned about invasion of privacy	34%	6%	43%
Don't want my neighbours seeing my garbage	7%	1%	9%
Concerned about strength of clear bags	3%	2%	4%
We do not need "garbage police"	13%	5%	16%
Added cost/more effort	17%	8%	21%
Neutral/indifferent (General)	3%	7%	1%
We only use small grocery bags	8%	5%	9%
Stupid/no need (General)	3%	--	4%
Safer/better for waste management people	2%	6%	--

*"Clear bags tend to cost more money and are not as readily available. I also think having them curbside looks gross vs a black garbage bag. That being said I can understand why this idea could potentially reduce the amount of unacceptable items..."*

*"I just don't buy garbage bags so that would be an extra expense for us. Otherwise I am on board, we have nothing to hide..."*

*“Taking the trouble to separately sort embarrassing or secure sensitive material is annoying...”*

*“Clear bags are more expensive for one. The world doesn't need to see my garbage. Are you going to refuse pick up if I have recyclables in my trash? What about recycling that can't be cleaned like pizza boxes? Teaching what can be recycled and what can't would be far better...”*

*“If it becomes mandatory I will of course comply but personal items aside, I am not a fan of having my neighbours being able to see what I purchase, eat or throw out. Items come into my house concealed in shopping bags and that privacy with them going out is just as important to me...”*

## 2.4 Every Other Week Garbage Collection

### 2.4.1 Managing EOW garbage collection

*Q35 – In Niagara region an average of 50% of every garbage bag is food waste. A fourth option under consideration, that is already in practice in many other municipalities which encourages residents to use their Green Bin, is to pick up garbage EOW, but continue to collect unlimited Blue/Grey Boxes and Green Bins every week. There would be no change or reduction in the garbage container limit, but there would be less frequent pickup. With collection EOW, you would be allowed two garbage bags/containers. Based on your household's waste practices, would you be able to manage? (Full Sample)*

Figure 2.4.1a – Ability to manage Every Other Week garbage collection by survey type

Residents were split on their feelings about EOW garbage collection, with slightly more leaning towards continuing their weekly collection.

	Telephone (n= 1,253)	Online (n=6,369)
Be able to manage EOW garbage collection	46%	43%
Need to continue weekly garbage collection	54%	57%

46% of the telephone survey, and 41% of those in the online survey could manage EOW garbage collection.

Figure 2.4.1b – Ability to manage Every Other Week garbage collection by survey type

	Niagara Region		Waterloo Region <sup>6</sup>	
	Telephone (n=1,253)	LDR Online (n=6,639)	Telephone (n=511)	Online (n=7,087)
Be able to manage EOW garbage collection	46%	43%	50%	36%
Need to continue having your garbage picked up weekly	54%	57%	50%	64%

Respondent Sub-Segment Findings (Telephone)

- Residents 65+ years are more likely to be able to manage EOW garbage collection (51%), compared to those 45-64 years (45%) and those 18-44 years (41%).
- Those in single person households (62%) are more likely to be able to manage EOW garbage collection than those in two person households (50%), and those in households of three or more (37%).
- Those with no one using diapers are more likely to be able to manage EOW garbage collection (47%) than those with someone in diapers (31%).
- Those who do not use garbage bag tags in an average year are more likely to be able to manage EOW garbage collection (52%) than those who use 1-6 garbage tags (41%) and those who use 7+ garbage tags (24%).
- Those who participate in the Green Bin/organics collection program are more likely to be able to manage EOW garbage collection (50%) compared to those who are not currently participating in the Green Bin/organics collection program (37%).
- Those who support mandatory use of clear bags (55%) are more likely to be able to manage EOW garbage collection (55%) than those who oppose mandatory clear bags (38%).
- Those who currently put out more garbage are less likely to say they could manage EOW garbage collection

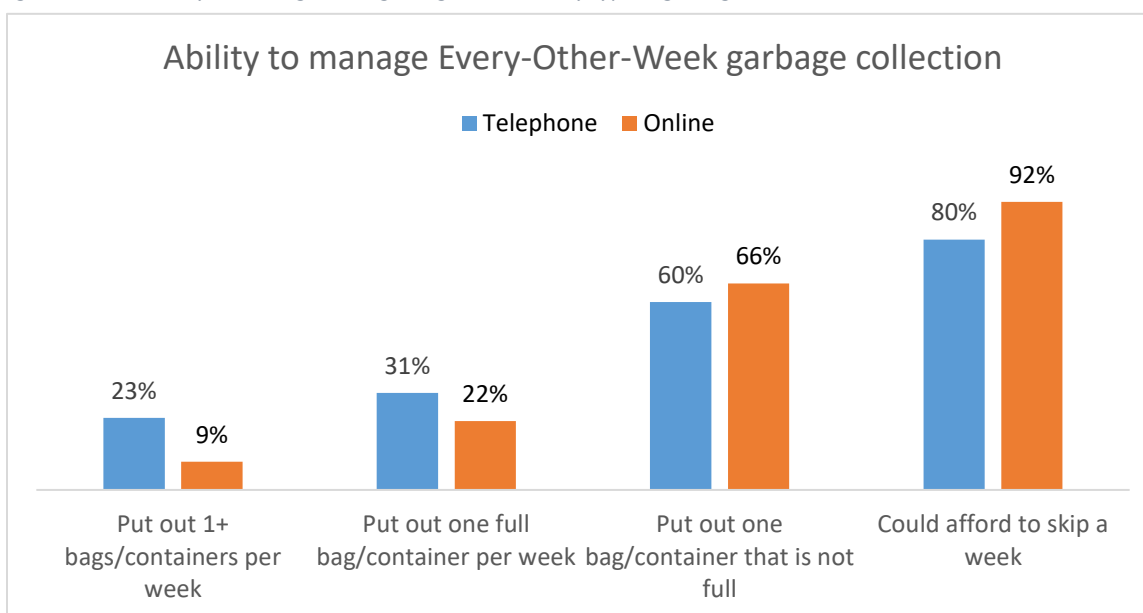
Respondent Sub-Segment Findings (Online)

- Females (45%) are more likely to be able to manage EOW garbage collection than males (39%).
- Residents 65+ years are more likely to be able to manage EOW garbage collection (57%), compared to those 45-64 years (42%) and those 18-44 years (33%).
- Those in single person households (64%) are more likely to be able to manage EOW garbage collection than those in two person households (54%), and those in households of three or more (30%).
- Those with no diapers are more likely to be able to manage EOW garbage collection (46%) than those with someone in diapers (22%).

<sup>6</sup> Region of Waterloo Waste Survey, Metroline Research Group Inc., 2014

- Those who do not use garbage bag tags in an average year are more likely to be able to manage EOW garbage collection (57) than those who use 1-6 garbage tags (38%) and those who use 7+ garbage tags (15%).
- Those who participate in the Green Bin/organics collection program are more likely to be able to manage EOW garbage collection (50%) compared to those who are not currently participating in the Green Bin/organics collection program (25%).
- Those who support mandatory use of clear bags (69%) are more likely to be able to manage EOW garbage collection than those who oppose mandatory clear bags (33%).

Figure 2.4.1c – Ability to manage EOW garbage collection by typical garbage set out



Those who put more than one garbage bag/container per week on average now would have the most difficulty with EOW garbage collection. Only 23% of those in the telephone survey who put out more than one garbage bag/container, and 9% of those in the online survey, could manage EOW garbage collection.

Figure 2.4.1d – Random Telephone Survey - Ability to manage EOW garbage collection by municipality

(Random telephone survey)	Be able to manage EOW garbage collection	Need to continue weekly garbage collection
Total (n=1,253)	46%	54%
Fort Erie	52%	48%
Grimsby	48%	52%
Lincoln	52%	48%
Niagara Falls	36%	64%
Niagara-on-the-Lake	50%	50%
Pelham	52%	48%
Port Colborne	40%	60%
St. Catharines	50%	50%
Thorold	47%	53%
Wainfleet	40%	60%
Welland	49%	51%
West Lincoln	38%	62%

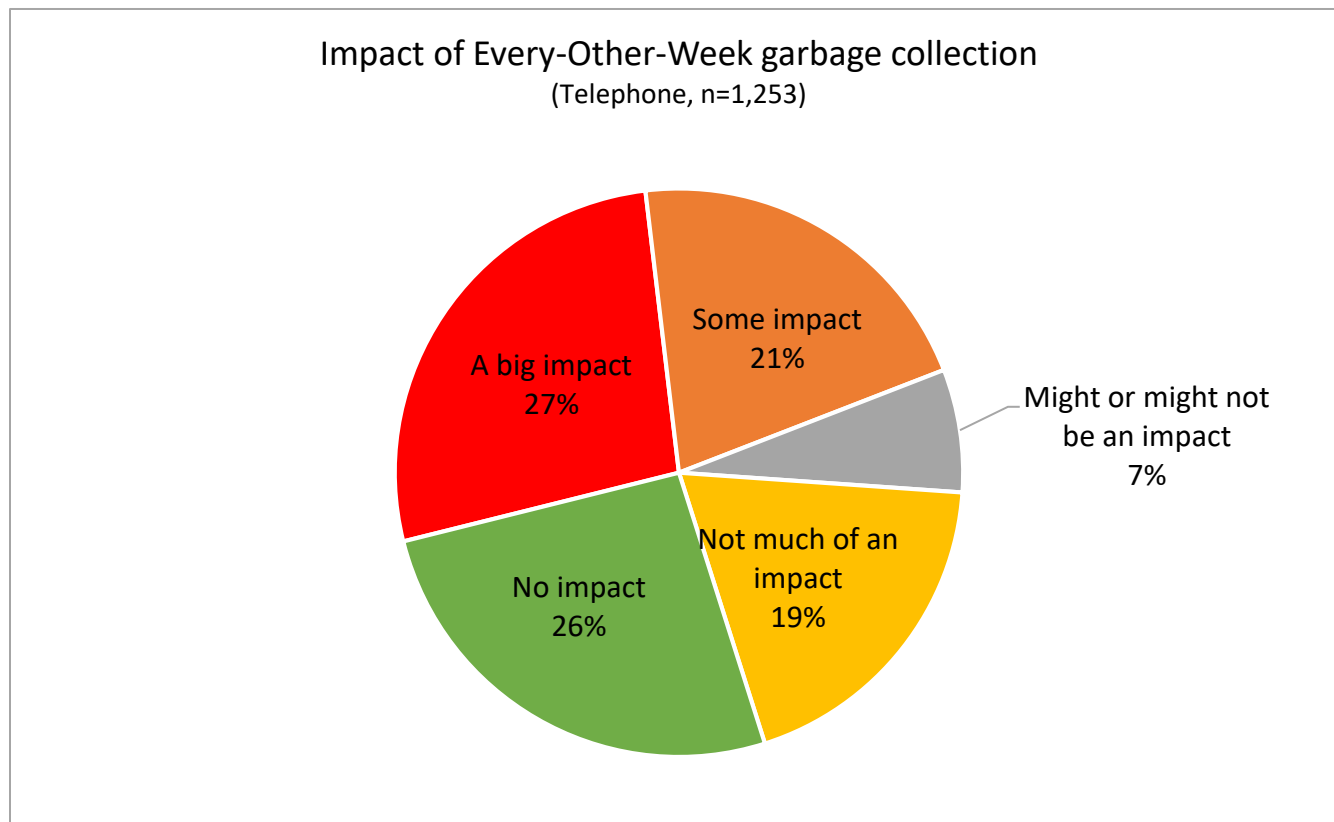
Figure 2.4.1e – Online Survey - Ability to manage EOW garbage collection by municipality

(Online survey)	Be able to manage EOW garbage collection	Need to continue weekly garbage collection
Total (n=6,639)	43%	57%
Fort Erie	46%	54%
Grimsby	48%	52%
Lincoln	50%	50%
Niagara Falls	37%	63%
Niagara-on-the-Lake	50%	50%
Pelham	50%	50%
Port Colborne	42%	58%
St. Catharines	43%	57%
Thorold	39%	61%
Wainfleet	41%	59%
Welland	41%	59%
West Lincoln	34%	66%

## 2.4.2 Impact of EOW garbage collection

Q36 – If Niagara Region collected garbage bags EOW, but collected your Blue/Grey Boxes and Green Bins every week, what would be the impact on your household? (Full Sample)

Figure 2.4.1a – Random Telephone - Impact of EOW garbage collection



In the telephone survey, just under half (48%) feel there would be at least “some” impact on their household if Niagara Region switched to EOW garbage collection (while continuing to collect Blue/Grey Boxes and Green Bins weekly).

A slight majority (52%) feel there would be little to no impact to their household.

### Respondent Sub-Segment Findings (Telephone)

- Those in households of three or more (62%) are more likely to say there would be a big/some impact, compared to households of two people (40%) and single person households (33%).
- Those 18-44 years (59%) are more likely to say there would be a big/some impact, compared to those 45-64 years (48%) and those 18-44 years (41%).
- Those using diapers (70%) are more likely to say there will be an impact, compared to with no diapers (47%).
- Those using 7+ garbage bag tags per year (76%) are more likely to say there will be an impact, compared to those using 1-6 garbage tags (55%) and those not using garbage tags (41%).
- Those not participating in the Green Bin/organics collection program are more likely to say there will be an impact (57%) than those who are participating (45%).

Respondent Sub-Segment Findings (Online)

- Those in households of three or more (70%) are more likely to say there would be a big/some impact, compared to households of two people (47%) and single person households (35%).
- Those 18-44 years (69%) are more likely to say there would be a big/some impact, compared to those 45-64 years (57%) and those 18-44 years (41%).
- Those using diapers (80%) are more likely to say there will be an impact, compared to households with no diapers (55%).
- Those using 7+ garbage bag tags per year (84%) are more likely to say there will be an impact, compared to those using 1-6 garbage tags (64%) and those not using garbage tags (44%).
- Those not participating in the Green Bin/organics collection program are more likely to say there will be an impact (74%) than those who are participating (52%).

Figure 2.4.1b – Impact of Every Other Week garbage collection

	Niagara Region		Hamilton <sup>7</sup>		Waterloo Region <sup>8</sup>	
	Telephone (n=1,253)	Online (n=6,639)	Telephone (n=800)	Online (n=1,468)	Telephone (n=511)	Online (n=7,087)
A big impact	27%	37%	34%	44%	25%	18%
Some impact	21%	21%	20%	19%	29%	24%
Might or might not be an impact	7%	9%	6%	8%	7%	10%
Not much of an impact	19%	17%	18%	13%	22%	24%
No impact	26%	16%	22%	16%	17%	24%
<b>Impact Ratio (Big/Some vs. Not much/no impact)</b>	+3%	+25%	+14%	+34%	+15%	-6%

While 48% of Niagara region households indicate EOW garbage collection would have some impact on their household, these numbers are lower than the 54% in Hamilton and Waterloo Region who indicated there would be an impact on their household.

<sup>7</sup> City of Hamilton Waste Management Services Public Engagement Survey – Metroline Research Group, 2016

<sup>8</sup> Region of Waterloo Waste Survey, Metroline Research Group Inc., 2014

Figure 2.4.1c – Random Telephone Survey - Impact of EOW garbage collection by municipality

(Random telephone survey)	A big impact	Some impact	Might or might not be an impact	Not much of an impact	No impact	Impact Ratio
Total (n=1,253)	27%	21%	7%	19%	26%	<b>+3%</b>
Fort Erie	19%	23%	13%	14%	31%	<b>-3%</b>
Grimsby	32%	19%	--	21%	28%	<b>+2%</b>
Lincoln	16%	23%	5%	21%	35%	<b>-17%</b>
Niagara Falls	38%	19%	7%	22%	14%	<b>+21%</b>
Niagara-on-the-Lake	15%	31%	9%	15%	30%	<b>+1%</b>
Pelham	18%	23%	4%	16%	39%	<b>-14%</b>
Port Colborne	27%	24%	5%	23%	21%	<b>+5%</b>
St. Catharines	25%	20%	8%	19%	28%	<b>-2%</b>
Thorold	26%	26%	7%	23%	18%	<b>+11%</b>
Wainfleet	31%	23%	3%	13%	30%	<b>+11%</b>
Welland	28%	20%	8%	18%	26%	<b>+4%</b>
West Lincoln	35%	16%	10%	18%	21%	<b>+12%</b>

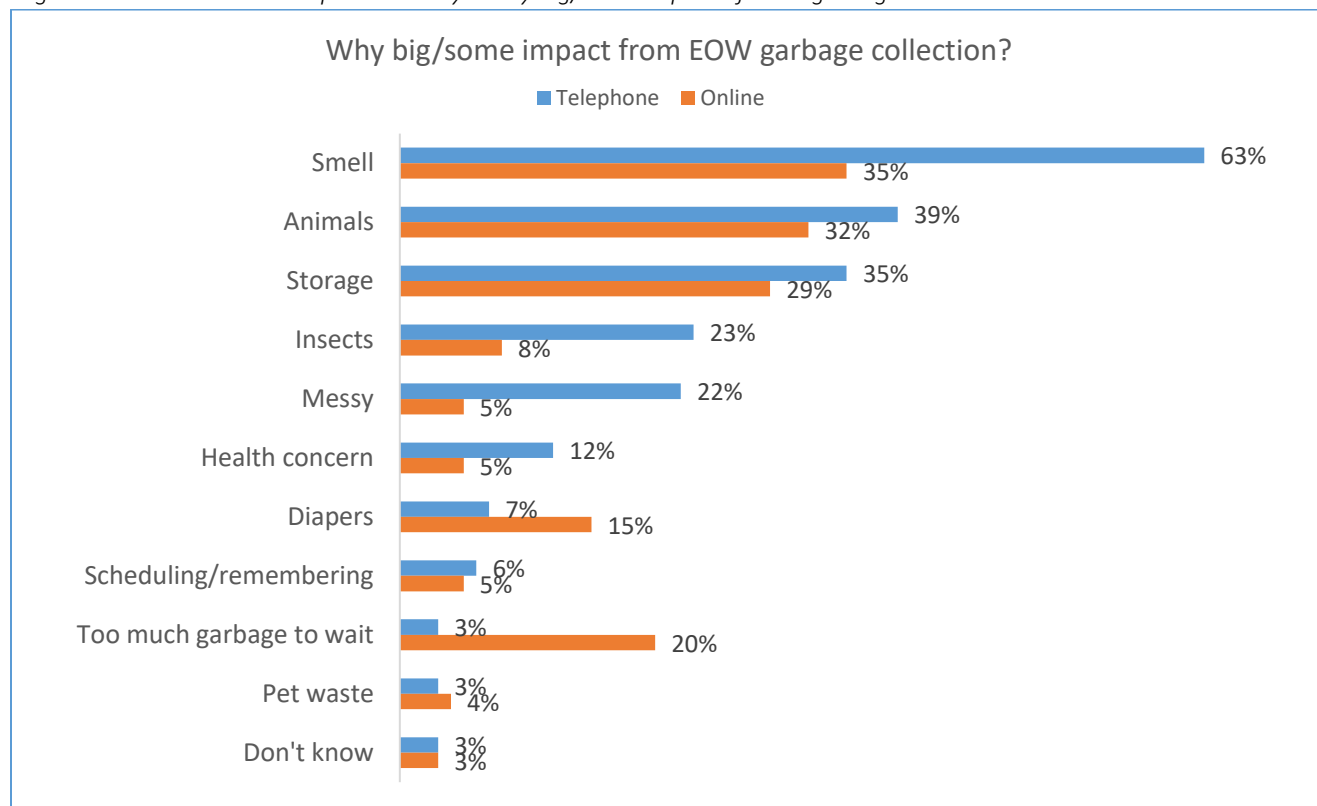
Figure 2.4.1d – Online Survey - Impact of Every- Other-Week garbage collection by municipality

(Online survey)	A big impact	Some impact	Might or might not be an impact	Not much of an impact	No impact	Impact Ratio
Total (n=6,639)	37%	21%	9%	17%	16%	<b>+25%</b>
Fort Erie	34%	20%	9%	17%	20%	<b>+17%</b>
Grimsby	30%	22%	10%	19%	20%	<b>+12%</b>
Lincoln	33%	21%	10%	18%	19%	<b>+16%</b>
Niagara Falls	42%	21%	10%	16%	12%	<b>+34%</b>
Niagara-on-the-Lake	29%	23%	5%	24%	19%	<b>+9%</b>
Pelham	34%	17%	9%	22%	19%	<b>+11%</b>
Port Colborne	36%	21%	9%	18%	17%	<b>+21%</b>
St. Catharines	37%	20%	10%	16%	18%	<b>+22%</b>
Thorold	40%	21%	11%	14%	14%	<b>+33%</b>
Wainfleet	35%	27%	9%	17%	13%	<b>+31%</b>
Welland	37%	21%	10%	18%	15%	<b>+24%</b>
West Lincoln	45%	26%	6%	15%	9%	<b>+46%</b>

### 2.4.3 Why is there an impact

Q37 – Why do you say that? (Base - Asked of those who say there would be a big/some impact)

Figure 2.4.3a – Random Telephone Survey - Why big/some impact of EOW garbage collection?



Those who feel there would be a “big impact” or “some impact” were asked for the primary reasons why (unaided, this list was not provided).

The biggest barrier is the smell, especially in the summer time (63%), significantly higher than all other mentions.

Keeping animals out of the garbage was the second barrier, at 39%.

Finding space to store the garbage for the extra week was third, at 35%.

*“The stench would be absolutely sickening in the summer, and it would also be a big draw for flies and rats and we are overrun with them already - both of which could be a health issue. Instead of punishing those of us that recycle and try to keep garbage at a minimum try increasing the cost of the bag tags substantially - if the price is high enough they'll learn to recycle...”*

*“We produce a full Green Bin and full garbage every week for a family of 4. Bi-weekly garbage would result in us having 2 bags of garbage bi-weekly. We do not have storage space for this extra bag. We already have a mice problem in our neighbourhood and we are concerned that it would increase if we are keeping bags of garbage for longer. Our garbage contains soiled diapers and holding them longer would greatly increase odour issues...”*

*“Where am I supposed to keep this garbage for an extra week. If I leave it outside animals will get it, if I leave it in my house it will smell and I will have flies in my house...”*

## 2.5 Making A Choice

Q38 - *If you had to choose between mandatory use of clear garbage bags, EOW garbage collection, or the use of both, which would you choose?* (Full Sample)

Figure 2.5a – Choice between EOW garbage collection and/or clear garbage bags by survey type

In the telephone survey, participants could not see the option for “neither”, and interviewers worked to force a choice from the other three. In the online survey, this was visible after the first day or two of fieldwork, and as a result was selected more often.

	Telephone (n=1,253)	Online (n=6,639)
Clear garbage bags	33%	17%
EOW garbage collection	27%	33%
Both clear garbage bags and EOW garbage collection	21%	12%
Neither <sup>9</sup>	19%	38%

In the telephone survey, between the two, there was a slight preference for clear garbage bags over EOW garbage collection, but not dramatically so. In the online survey, those who made a choice decided on EOW garbage collection over clear bags by a margin of about 2:1.

Figure 2.5b – Random Telephone Survey - Choice between EOW garbage collection and/or clear garbage bags by municipality

(Random telephone survey)	Clear garbage bags	EOW garbage collection	Both clear garbage bags and EOW garbage collections	Neither
Total (n=1,253)	33%	27%	21%	19%
Fort Erie	26%	31%	25%	18%
Grimsby	33%	24%	24%	19%
Lincoln	31%	33%	20%	16%
Niagara Falls	37%	22%	13%	28%
Niagara-on-the-Lake	36%	22%	30%	12%
Pelham	26%	34%	19%	21%
Port Colborne	40%	21%	24%	15%
St. Catharines	33%	30%	20%	17%
Thorold	31%	4%	16%	11%
Wainfleet	33%	21%	19%	27%
Welland	36%	20%	25%	19%
West Lincoln	37%	20%	22%	21%

<sup>9</sup> Neither as an option was added to the online survey(s), but was not provided as a response on the telephone survey.

Figure 2.5c – Online Survey – Choice between EOW garbage collection and/or clear garbage bags by municipality

(Online survey)	Clear garbage bags	EOW garbage collection	Both clear garbage bags and EOW garbage collections	Neither
Total (n=6,639)	17%	33%	13%	38%
Fort Erie	13%	34%	15%	38%
Grimsby	16%	38%	14%	32%
Lincoln	17%	40%	13%	30%
Niagara Falls	17%	29%	10%	44%
Niagara-on-the-Lake	16%	36%	17%	31%
Pelham	13%	37%	13%	37%
Port Colborne	20%	33%	12%	36%
St. Catharines	16%	34%	13%	37%
Thorold	20%	35%	11%	34%
Wainfleet	19%	31%	11%	40%
Welland	18%	31%	13%	38%
West Lincoln	19%	31%	7%	44%

## 3.0 Communications

### 3.1 Sources/Resources

Q4.1 – Where do you tend to get your information about Niagara Region waste programs, services, or initiatives? (Full Sample)

Figure 3.1a – Information Sources

Rank order by telephone survey (Note - In the telephone survey this question was unaided and online survey they could see the list of options)	Telephone (n=1,253)	Online (n=6,639)
Mailings/flyers delivered to your home	66%	43%
Website – Niagara Region	24%	49%
Local daily newspapers	10%	41%
Word of mouth	7%	23%
Local Community weekly newspapers	6%	22%
Website(s) – Other	5%	7%
Facebook	3%	41%
Radio	2%	14%
Television	2%	5%
Local facilities/centres/rinks	2%	3%
Twitter	1%	4%

## 4.0 Sample Description

	Telephone (n=1,253)	Online (n=6,639) Weighted		Telephone (n=1,253)	Online (n=6,639) Weighted
<b>Gender</b>			<b>Home Type</b>		
Male	47%	33%	Single family home (detached or semi-detached)	91%	91%
Female	53%	66%	Townhouse/row house	6%	6%
Other	--	1%	Apartment/condo in a building with 2-6 units	3%	3%
<b>Age</b>			<b>Time in Niagara Region</b>		
18-44 years	21%	38%	5 years or less	8%	11%
45-64 years	49%	36%	6-10 years	6%	7%
65+ years	30%	26%	11-20 years	14%	12%
			21+ years	72%	70%
<b>Kids 18 and under at home</b>					
Yes	25%	36%	<b>Education</b>		
No	75%	64%	High school or less	25%	12%
(In diapers)	19%	15%	Some/graduated college	36%	43%
			Some/graduated university	36%	39%
<b>Household size</b>			Refused/did not answer	3%	8%
1	13%	9%			
2	45%	40%			
3+	42%	51%			

## MULTI-RESIDENTIAL

Those living in or managing multi-residential buildings (7+ units) who receive garbage collection from Niagara Region were given an opportunity to provide their own feedback about waste collection options for the next contract.

Not many qualified responses were received (38), but partially this is a result of a low number of multi-residential buildings receiving curbside garbage collection from Niagara Region. Almost 120 clicked into the multi-residential survey, but about two-thirds were discontinued after indicating their garbage collection was not handled by Niagara Region.

Among the 38 respondents:

- 5 (13%) represented resident associations and condo boards
- 8 (21%) represented property owners
- 25 (66%) represented tenants or unit owners

As a result, it is not possible to provide in-depth analysis. Generally speaking, here are some directional findings:

- 95% are participating in the recycling program
- 63% are participating in the organics collection program
- 47% definitely/probably support the mandatory use of clear garbage bags
- 37% would be able to manage EOW garbage collection, with two thirds (66%) saying that EOW garbage collection would have at least some impact on their household
- making a choice:
  - 29% would choose mandatory clear garbage bags
  - 13% would choose EOW garbage collection
  - 18% would choose both
  - 40% would choose neither

See Appendix 1b for official feedback from Niagara Region Housing and Niagara Region Planning and Economic Development.

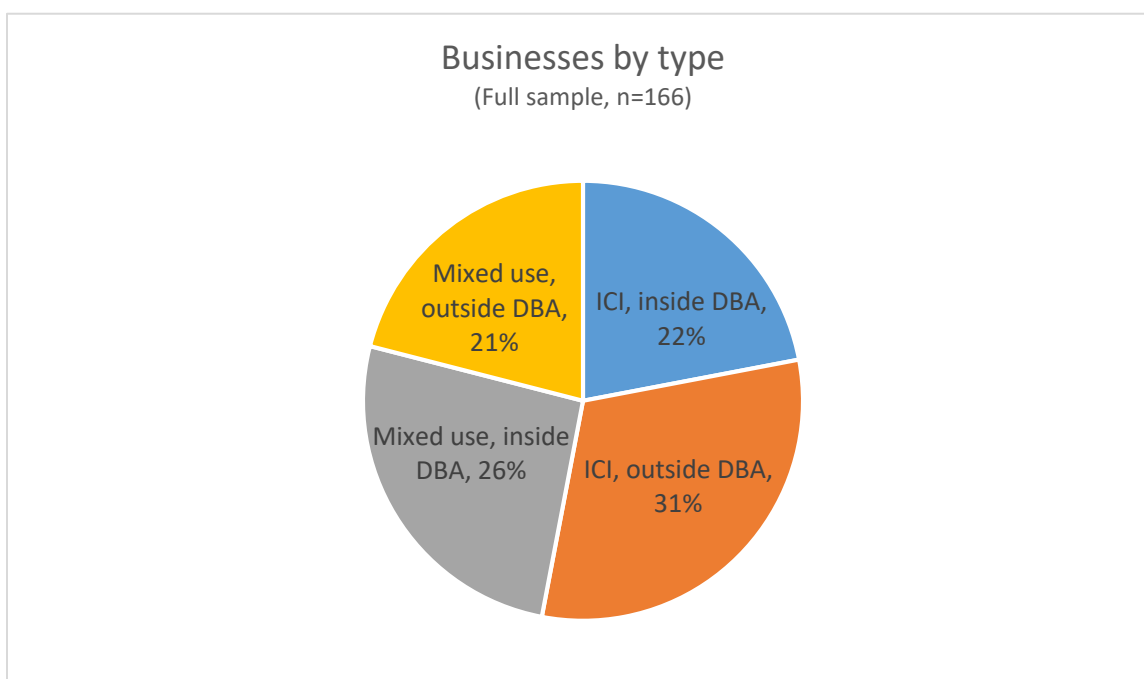
## Industrial, Commercial & Institutional and Mixed Use Sectors

Niagara Region staff identified businesses and MU properties inside and outside DBAs who were receiving curbside garbage collection from Niagara Region, based on best available information.

Letters were sent to those property owners to give them the opportunity to complete the online survey, in addition to the overall advertising and promotion for the entire project. The survey was available online to complete at the convenience of the business or property owner.

In addition, Niagara Region worked with organizations representing businesses (i.e. Chambers of Commerce, Business Improvement Associations, Niagara Industrial Association, Niagara Tourism Agencies, Niagara Economic Development Corporation) to encourage members to participate. In the end, 166 businesses/owners in the IC&I and MU sectors participated.

The businesses in the survey broke down as follows:



All municipalities were represented, but in some cases, by only a couple of businesses:

Municipality	Surveys	%	Municipality	Surveys	%
Fort Erie	24	15%	Port Colborne	14	8%
Grimsby	12	7%	St. Catharines	47	28%
Lincoln	5	3%	Thorold	5	3%
Niagara Falls	33	20%	Wainfleet	3	2%
Niagara-on-the-Lake	4	2%	Welland	11	7%
Pelham	5	3%	West Lincoln	3	2%

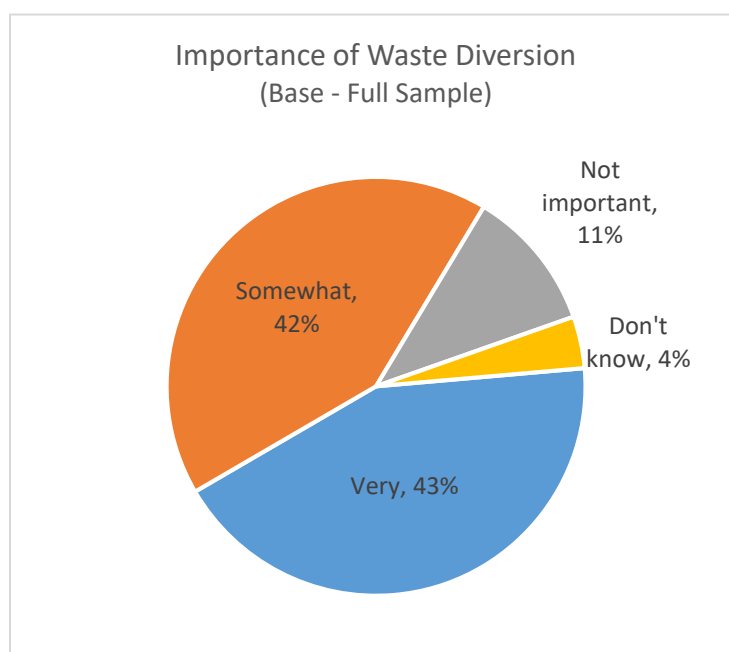
About 7 in 10 business surveys (69%) were completed by the business/property owner or President:

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Owner or President	69%	71%	57%	76%	77%
Manager/Supervisor	10%	14%	16%	7%	--
Senior Manager or Vice-President Level	8%	5%	12%	7%	6%
Administration	8%	5%	15%	5%	3%
Other (Property Manager, etc.)	5%	5%	--	5%	14%

## 5.0 Current Attitudes/Behaviour

### 5.1 Importance of Waste Diversion

Q11 - How important would you say it is that Niagara region works to reduce the amount of garbage that is sent for disposal? (Full sample)



Overall, the IC&I and MU properties who responded to the survey feel it is important to reduce the amount of waste sent for disposal.

85% of survey respondents feel it is 'very' (43%) or 'somewhat' (42%) important.

While the percentage of businesses finding it at least ‘somewhat’ important is a little lower than the residential telephone survey (94%), the difference is in the sentiment. 72% of those in the telephone survey said it was ‘very’ important, compared to 43% of businesses.

Those in the IC&I sector are slightly more likely to say it is important (90%) than those in the MU sector (79%).

## 5.2 Garbage Limits

### 5.2.1 Any challenge meeting limits?

Q12 – Which of these options best describes your business/property related to putting out garbage bags/containers on an average collection day? (Full sample)

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
We could easily put out more garbage bags/containers than what we are allowed	15%	19%	18%	12%	11%
We put out the maximum number of garbage bags/containers allowed each week	41%	32%	47%	37%	43%
On a weekly basis, we do not put out the maximum number of garbage bags/containers	24%	27%	14%	33%	26%
Some weeks, we only put out one or two garbage bags/containers	12%	8%	16%	7%	17%
We could probably skip a week and it wouldn't be a big concern	8%	14%	6%	12%	3%

A little over half of businesses (56%) put out at least their limit every collection, with the balance (44%) putting out less than their limit.

About 15% of businesses who replied to this survey are struggling to stay within their garbage limits. They could easily put out more garbage bags/containers than they are allowed.

### 5.2.2 Bags/Containers put out per week on average

Q13 – On average, how many garbage bags/containers does your property/building usually put out each week for pickup by Niagara Region? (Full sample)

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
4 or less	<b>55%</b>	54%	72%	35%	55%
5-7	<b>31%</b>	30%	22%	42%	31%
8+	<b>14%</b>	16%	6%	23%	14%

More than half (55%) of businesses are putting out four garbage bags/containers per week or less.

In both sectors, businesses/properties inside the DBA are more likely to put out five or more containers than those outside the DBA:

- IC&I – 46% inside the DBA are putting out five or more containers, compared to 28% outside the DBA
- MU – 65% inside the DBA are putting out five or more containers, compared to 45% outside the DBA

### 5.3 Waste Collection Participation

Q21 – Does your property/building put out the following items for curbside collection? (Full sample)

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Recycling – Blue and/or Grey Box/Cart	92%	81%	94%	91%	100%
Take cardboard to a centralized container	37%	32%	39%	42%	31%
Organics – Green Bin/Cart	30%	27%	20%	33%	43%

(NOTE: Please use caution due to small sample size when looking at the results by smaller groups)

Over 9 in 10 businesses are participating in recycling (92%). Businesses inside the DBA are slightly less likely to be participating.

About 3 in 10 businesses are participating in the organics collection program. In general, MU properties are more likely to be participating than IC&I properties.

Several businesses stated that they have no food waste, or don't create enough food waste to make it worth their time.

Q28 – Why not participate in organics collection program?	Total (n=111)	IC&I (n=66)	MU (n=45)
Not applicable to our business/no food or organics	26%	30%	20%
Don't create enough organic food waste to bother	23%	29%	13%
Don't have room/space to store	13%	12%	13%
Bin issues (don't have one, breaks, too expensive)	10%	8%	13%
Don't know enough about it/didn't know we could	9%	6%	13%
Smell/Odour	7%	5%	11%
Bugs/Pests/Animals	5%	5%	7%
Messy	5%	5%	7%
We compost/give to animals/vermicompost	5%	--	13%
Not convenient/too much hassle	5%	6%	2%

*"We don't have food here. And the tenants do their own garbage..."*

*"We don't really generate enough organics to have the Bin--they'd be rotten by the time we collected enough to justify putting it out at the curb..."*

*"We have not been given a Bin to participate, or have been notified that this service is available..."*

## 5.4 Recycling Participation

### 5.4.1 Blue Boxes/Carts

*Q22 - Blue Box/Cart recycling includes containers that are made of plastic, metals, glass or styrofoam. How many Blue Boxes/Carts does your business/property put out at the curb in an average week? (Base – Converted to full sample)*

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Blue Box					
None/not participating monthly	<b>23%</b>	32%	26%	21%	11%
One	<b>32%</b>	35%	33%	33%	26%
Two	<b>19%</b>	5%	22%	16%	31%
Three or more	<b>27%</b>	27%	20%	30%	31%
Blue Cart					
None/not participating monthly	<b>73%</b>	70%	69%	72%	83%
One	<b>16%</b>	14%	24%	7%	17%
Two	<b>5%</b>	5%	6%	7%	--
Three or more	<b>7%</b>	11%	2%	14%	--

27% of businesses in this survey are putting out three or more Blue Boxes per week on average, and 7% are putting out three or more Blue Carts per week (these are primarily inside the DBA).

Just over 1 in 4 businesses (27%) are participating using Blue Carts.

Overall, based on the businesses who replied to the survey, Blue Boxes are used by the majority of businesses. IC&I businesses inside the DBA are the lowest users of Blue Boxes, but are also the group least likely to be participating in recycling programs.

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Blue Boxes only	<b>63%</b>	48%	60%	60%	83%
Blue Carts only	<b>13%</b>	11%	18%	9%	11%
Both Blue Boxes and Carts	<b>15%</b>	19%	14%	19%	6%
Neither (on a monthly basis, if at all)	<b>9%</b>	22%	8%	12%	--

### 5.4.2 Grey Boxes/Carts

Q24 – Grey Box/Cart recycling includes items such as paper, cardboard, cereal boxes, tissue boxes, etc., and bundled plastic bags. How many Grey Boxes/Carts does your property/building put out at the curb in an average week? (Base – Converted to full sample)

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Grey Box					
None/not participating monthly	25%	33%	27%	20%	17%
One	31%	35%	28%	26%	40%
Two	17%	8%	16%	21%	23%
Three or more	27%	24%	29%	33%	20%
Grey Cart					
None/not participating monthly	78%	70%	84%	70%	83%
One	13%	19%	6%	14%	17%
Two	4%	3%	6%	7%	--
Three or more	5%	8%	4%	9%	--

About 3 in 4 businesses (75%) are putting out at least one Grey Box per week on average, and about 1 in 4 businesses (23%) are putting out at least one Grey Cart per week on average.

Businesses inside the DBA are more likely to be using a Grey Cart.

1 in 10 businesses in this survey (10%) are using only Grey Carts, not Boxes. Just under two-thirds (63%) are using Grey Boxes only.

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Grey Boxes only	63%	49%	69%	56%	77%
Grey Carts only	9%	10%	11%	7%	11%
Both Grey Boxes and Carts	13%	19%	4%	23%	6%
Neither (on a monthly basis, if at all)	15%	22%	16%	14%	6%

## 5.5 Organics Participation

### 5.5.1 Green/Bins Carts

Q26 – The Green Bin/Cart organics program includes food waste, paper napkins/towels/bags, paper take-out trays/egg cartons, coffee grounds/filters and tea bags. How many Green Bins/Carts does your property/building put out at the curb in an average week? (Base – Converted to full sample)

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Green Bin					
None/not participating monthly	<b>78%</b>	78%	90%	77%	60%
One	<b>15%</b>	16%	6%	14%	29%
Two	<b>4%</b>	3%	--	7%	9%
Three or more	<b>3%</b>	3%	4%	2%	3%
Green Cart					
None/not participating monthly	<b>93%</b>	94%	94%	85%	94%
One	<b>3%</b>	3%	2%	5%	3%
Two	<b>2%</b>	--	2%	5%	3%
Three or more	<b>2%</b>	3%	2%	5%	--

Combining both Green Bins and Carts, we can see that overall 72% of businesses in this survey do not participate in organics collection on at least a monthly basis.

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Grey Boxes only	<b>20%</b>	19%	10%	19%	37%
Grey Carts only	<b>6%</b>	3%	6%	9%	3%
Both Grey Boxes and Carts	<b>2%</b>	3%	--	5%	3%
Neither (on a monthly basis, if at all)	<b>72%</b>	75%	84%	67%	57%

## 6.0 Waste Collection Options For Next Contract

For Niagara Region's next waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposal collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

The purpose of this survey is to receive feedback from businesses on the possible collection options and to help Regional staff understand business feelings about each option.

## 6.1 Clear Bags

### 6.1.1 Support for clear bags

*Q31 – An option under consideration is the mandatory use of clear garbage bags. Some municipalities in Canada have already made this change. The cost for the clear bags would be about the same as Green/Black garbage bags. Clear garbage bags will make it easier to see recyclable or organic material that should be placed in the Blue/Grey Box or Green Bin or Hazardous Waste items that should be disposed of safely. A smaller opaque bag, such as a grocery bag, can be placed inside the clear garbage bag for disposing of sensitive or personal items. Would you support a switch to clear garbage bags? (Full Sample)*

	Total (n=166)	IC&I Sector		MU Sector	
		Inside DBA (n=37)	Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)
Definitely would support	<b>21%</b>	14%	28%	23%	17%
Probably would support	<b>19%</b>	22%	22%	19%	14%
Might or might not support	<b>13%</b>	18%	12%	9%	6%
Probably would not support	<b>16%</b>	16%	14%	16%	20%
Definitely would not support	<b>31%</b>	30%	24%	33%	43%
<b>Support Ratio (Definitely/probably support vs. would not support)</b>	<b>-7%</b>	<b>-10%</b>	<b>+2%</b>	<b>-3%</b>	<b>-32%</b>

About 40% support the mandatory use of clear garbage bags (21% definitely support, and 19% probably would support).

A majority (60%) do not support the mandatory use of clear garbage bags.

## 6.1.2 Why support/not support clear bags?

Q32 – Why do you say that? (Full Sample)

	Total	Support clear bags	Oppose clear bags
Concerned about invasion of privacy	23%	2%	37%
Keeps unwanted items from landfill	14%	34%	1%
We do not need “garbage police”	10%	7%	12%
Added cost/more effort	8%	5%	10%
Concerned about strength of clear bags	6%	5%	6%
Bad curbside look/don’t want to see that	5%	--	8%
Don’t have time/want to make the effort	5%	2%	7%
We already sort correctly	5%	9%	2%
Don’t always see what customers/tenants put in the garbage	5%	--	7%
Safer/better for waste management people	5%	12%	--
Doesn’t matter what colour the bag is	4%	9%	1%
Encourages use of Blue/Grey Boxes and Green Bins	3%	9%	-
Holds people accountable	3%	9%	--
Don’t want to be told what to do	3%	--	4%
Stupid/no need (General)	2%	--	3%
Have nothing to hide	2%	5%	--

Those who support clear bags:

- feel it would help keep unwanted items from the landfill (34%)
- would make the process safer/better for staff picking up the garbage (12%)
- would encourage better use of Blue/Grey Boxes and Green Bins (9%)
- are not concerned about what colour their garbage bags are (9%)

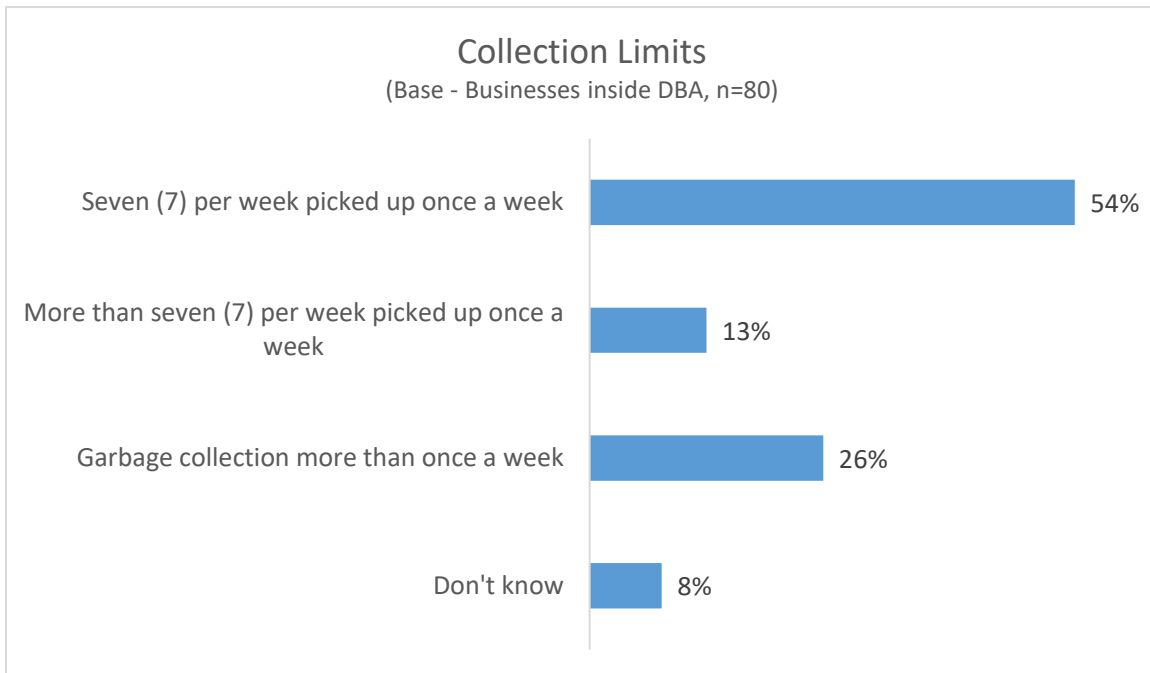
Those who oppose clear bags:

- are concerned about the invasion of their privacy (37%)
- do not feel a need to have “garbage police” (12%)
- feel this change will add more cost/effort for them (10%)
- don’t think clear garbage bags out at the curb will look very good (8%)

## 7.0 INSIDE DBA

### 7.1 Collection limits

*Q33 – Which of the following best describes the total garbage bag/container collection limits or pickup frequency for your business/property? (Base – Business inside DBA, n=80)*



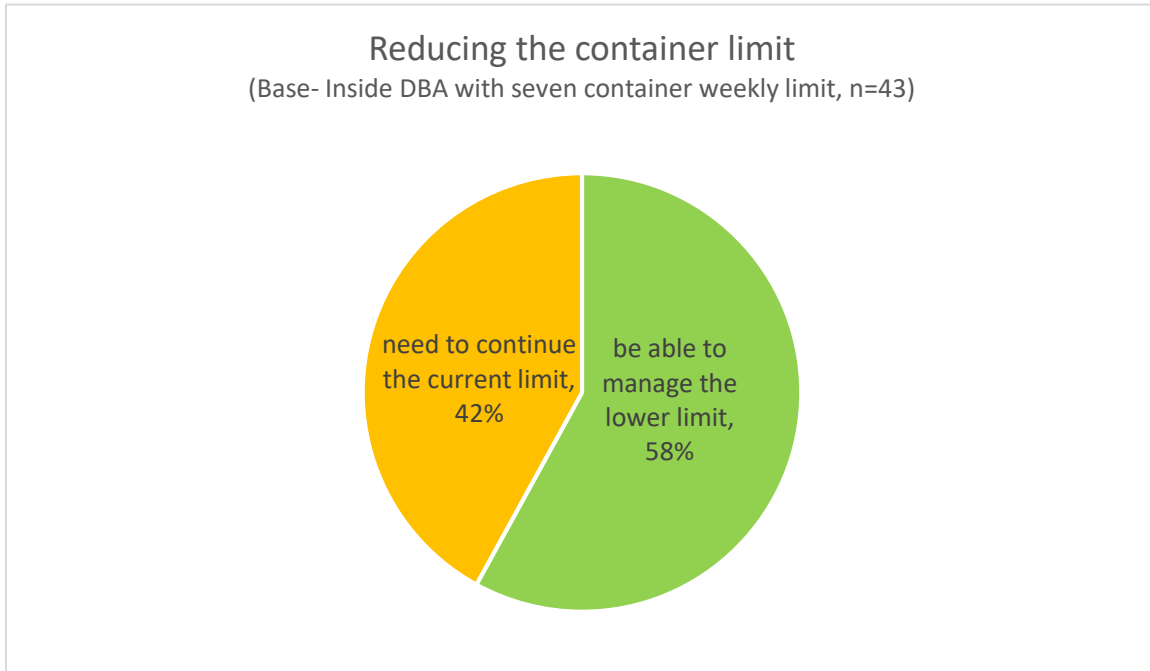
A slight majority of businesses (54%) who responded to this survey were located inside a DBA where they currently have collection of seven (7) garbage bags/containers, picked up once a week.

About 1 in 4 (26%) of businesses receive garbage collection more than once a week.

13% of businesses receive collection of garbage bags/containers picked up more than once a week.

## 7.2 Reducing from seven to four bags/containers

*Q34 – A second option under consideration will be to reduce the number of garbage bags/containers collected per week. The current limit for each property/business owner in your property is seven (7) bags/containers per week, but if this option proceeds, that number would be reduced to four (4) total per week. Data from audits conducted by Niagara Region shows that the average business is putting out about two (2) garbage bags/containers per week. Based on your current waste practices, would your business/property...? (Base – Inside DBA with seven container limit weekly, n=43)*



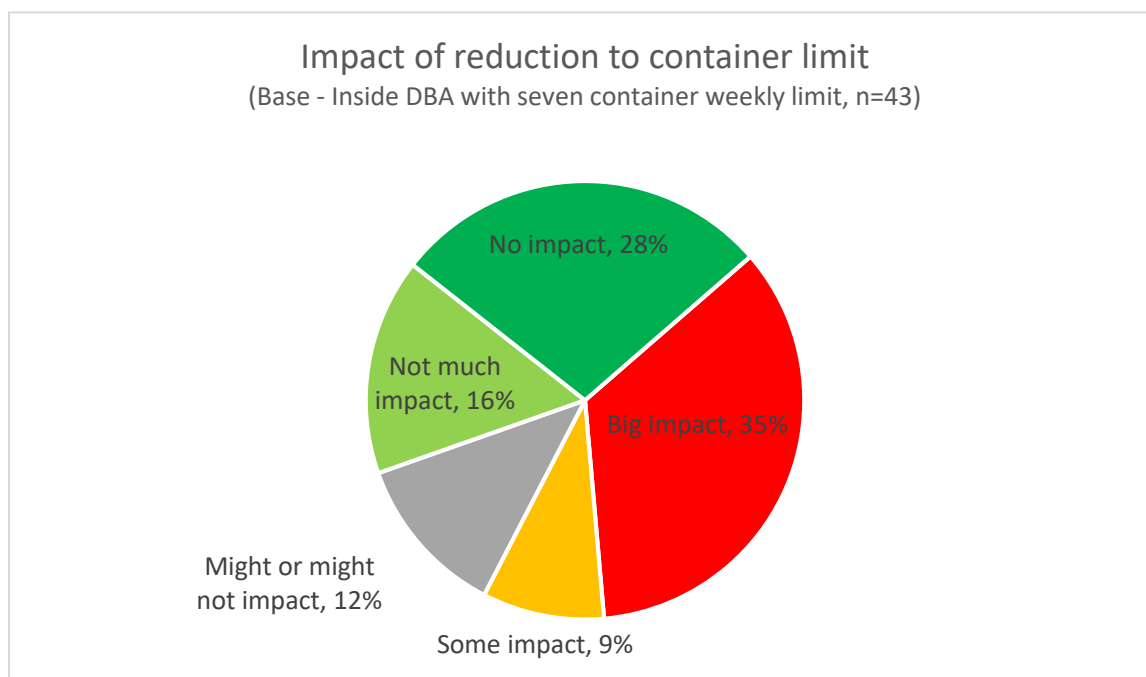
Overall, more than half (58%) would be able to manage a reduction to four garbage bags/containers per week.

The sample is small, however it appears that the IC&I sector would be less challenged to meet this target:

- IC&I (71% could manage)
- MU (46% could manage)

### 7.3 Impact of reduction to four containers per week

Q35 - If Niagara Region reduced the number of garbage bags/containers collected every week to four (4) and continued to collect your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your property as a whole? (Base – Inside DBA with seven container limit weekly, n=43)



The impact of the reduction in containers is relatively neutral. A similar percentage would be impacted by the change as would not be impacted.

44% feel there would be a “big/some” impact, and 44% feel there would be “little to no” impact.

The impact ratio then, would be zero.

Those who feel there would be an impact were asked why. The primary challenge is how to manage businesses with multiple units, and where to store garbage they can’t put out in a given week.

*“We have four rental units and a business in our building, a reduction would be very hard on us...”*

*“We have multiple addresses with more than one business operating out of them. All properties are merged on title, so we are only allowed seven bags. Reducing that number would force us to use a different (private) collection system, very costly. Cannot manage on four bags per week. Struggle with seven bag limit now...”*

*“I put out 6-7 bags every week plus all my recycling. My business does not have the space to store two weeks worth of trash and recycling...”*

## 7.4 Container Reduction

*Q314a/b – A second option under consideration will be to reduce the number of garbage bags/containers collected per week. In other municipalities this has encouraged residents and businesses to participate more fully in the recycling and organics programs. Based on your current waste practices, would your business/property... (Base – Inside DBA receiving enhanced collection, n= 31)*

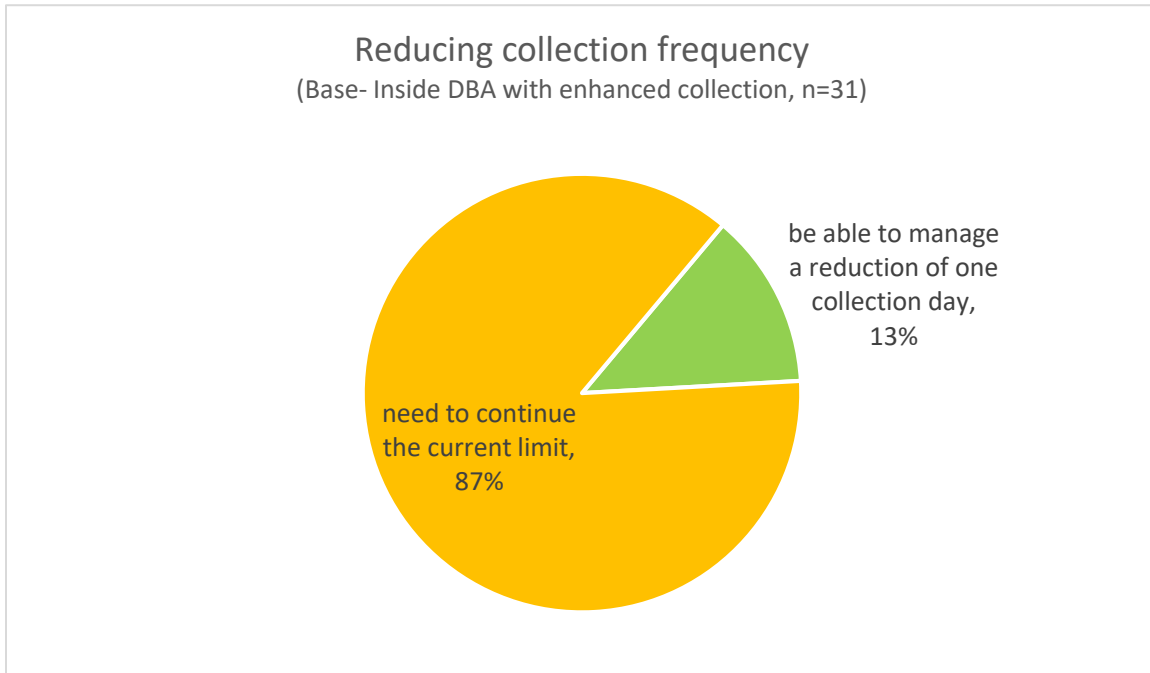
Those currently receiving enhanced collection inside the DBA (more than one collection per week and/or garbage bag limits more than seven) were asked if they could manage a reduction in the garbage bag limit.

7 out of 10 (71%) of businesses indicated they need to continue as is. About 3 in 10 (29%) indicated they could manage a reduction of between one and three bags per collection.

<i>CAUTION: Small Sample</i>	Total (n=31)	Collection more than once a week (n=21)	Garbage bag/container limit of more than seven picked up weekly (n=10)
Be able to manage a reduction in the limit on collection day of one (1) bag/container	3%	5%	--
Be able to manage a reduction in the limit on collection day of two (2) bags/containers	16%	14%	20%
Be able to manage a reduction in the limit on collection day of three (3) bags/containers	10%	14%	--
Need to continue having the current garbage bag/container limit	71%	67%	80%

## 7.5 Container reduction by one per week

*Q315 – Another option under consideration will be to reduce the number of times garbage bags/containers are collected each week. Based on your current waste practices, would your business or property... (Base – Receive enhanced collection, n=31)*



Those receiving enhanced collection were asked if they could manage a reduction by one collection day per week.

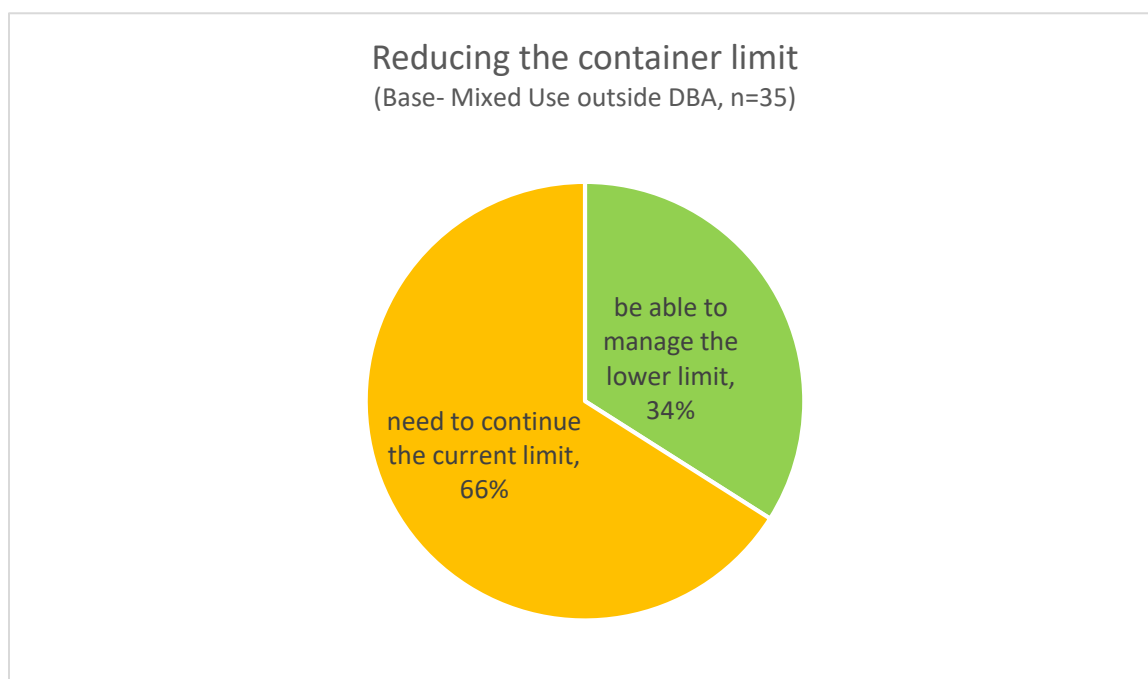
This was not well received by the 31 businesses in the survey who receive enhanced collection.

Almost 9 in 10 (87%) of them could not manage a reduction by one collection per day, and need to continue receiving the collection they have.

## 8.0 Outside DBA

### 8.1 MU Outside DBA - Reducing from six containers to four

Q37 – A second option under consideration will be to reduce the number of garbage containers collected on a weekly basis. The current limit for all tenants/businesses located at your property is now six (6) containers total, but if this option proceeds, that number would be reduced to four (4) containers total. Based on your current waste practices, would your business/property as a whole... (Base – MU outside DBA, n=35)

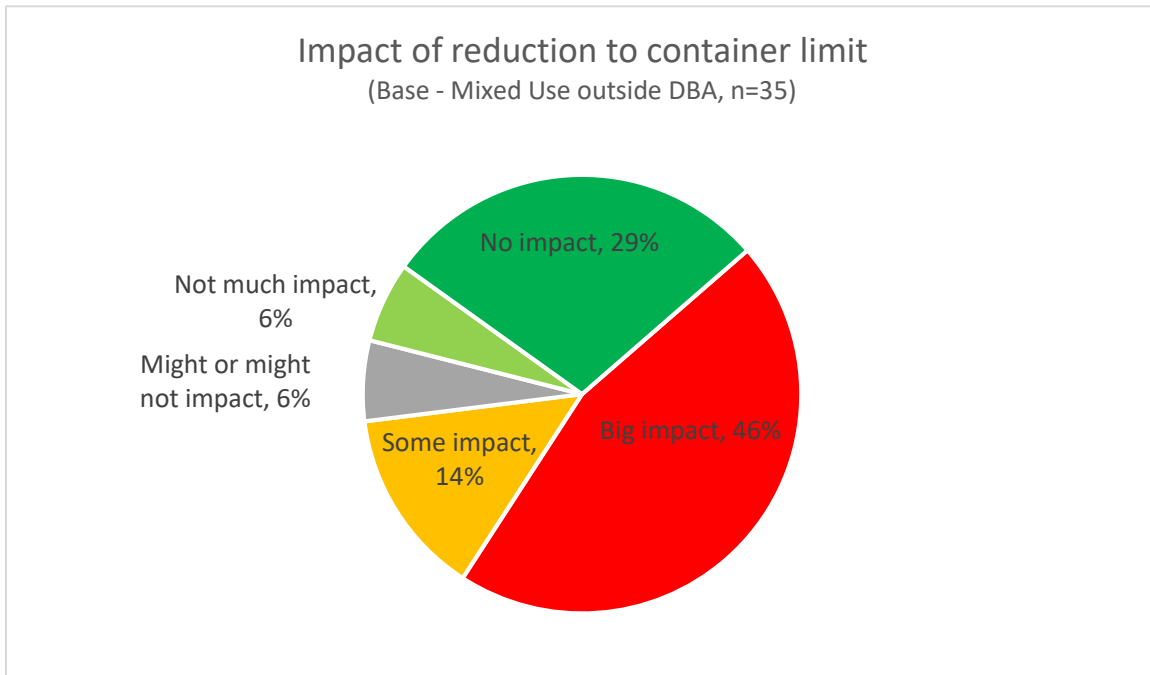


MU properties outside the DBA would be challenged if their garbage bag/container limits were reduced from six to four.

Only about one-third (34%) would be able to manage a lower limit, and two thirds (66%) would need to continue receiving a limit of six garbage bags/containers per week.

## 8.2 Impact of reduction to four containers

Q38 - If Niagara Region reduced the number of garbage bags/containers collected every week to four (4) and continued to collect your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your property as a whole? (Base – MU outside DBA, n=35)



There would be a significant impact to MU properties outside the DBA if the garbage bag/container limit was reduced to four per week.

60% of respondents say there would be at least some impact, compared to 35% who do not see much impact, if any.

The impact ratio would be +25%.

*"I struggle to stay within current limits. Tenants are irresponsible..."*

*"Our restaurant business fluctuates, some weeks we put out less and in the busy season we are at the max allowable bag limit. Our location does not have the space for garbage storage in or outside the building..."*

*"This process is not based on the number commercial units or residential units in the complex therefore it's discriminatory..."*

### 8.3 Change to EOW garbage collection

*Q310 – One option under consideration, which is already in practice in many other municipalities and encourages residents and businesses to use their Green Bin/Cart, is to pick up garbage EOW, but continue to collect Blue/Grey Boxes/Carts and Green Bins/Carts every week. There would be no change or reduction in the total number of garbage bags/containers collected for a two week period, but there would be less frequent pickup. This would mean that your business/property could put out eight (8) garbage bags/containers, EOW. Based on your current waste practices, would you....? (Base – Outside DBA, n=86)*

	Total (n=86)	IC&I (n=35)	MU (n=51)
Be able to manage the lower garbage bag/container limit every week	31%	35%	26%
Need to continue having the current garbage bag/container limit	69%	65%	74%

All businesses outside the DBA were asked if they could manage EOW garbage collection, and more than two-thirds (69%) told us they would not be able to manage.

IC&I sector businesses were slightly more likely to say they could manage (35%) compared to MU properties (26%).

#### 8.4 Impact of EOW Garbage Collection

*Q311 – If Niagara Region collected garbage bags/containers EOW, but collected your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your business/property? (Base – Outside, DBA, n=86)*

	Total (n=86)	IC&I (n=35)	MU (n=51)
A big impact	52%	43%	66%
Some impact	22%	26%	17%
Might or might not be an impact	8%	10%	6%
Not much of an impact	8%	10%	6%
No impact	9%	12%	6%
<b>Impact Ratio (big/some vs. not much/no impact)</b>	<b>+57%</b>	<b>+47%</b>	<b>+71%</b>

74% told us there would be at least some impact to their business if there was a change to EOW garbage collection.

Reasons were similar to other groups:

- No room or space to store 92%
- Worried about bugs/animals 89%
- Smell/Odour 84%
- Messy 73%
- Not convenient 56%

## 8.5 Making a choice

*Q313 – If you had to choose between mandatory use of clear garbage bags, EOW garbage collection, or the use of both, which would you choose? (Base – Outside DBA, n=86)*

	Total (n=86)	IC&I (n=35)	MU (n=51)
Clear garbage bags	36%	47%	20%
EOW garbage collection	15%	17%	11%
Both	7%	8%	6%
Neither	42%	28%	63%

Asking those outside the DBA to make a choice between the options, it is telling how strong the impact of EOW garbage collection would be.

42% chose neither, and 36% chose clear garbage bags over EOW garbage collection, even though they didn't like the clear garbage bag option either.

## 9.0 Changing behaviour related to a change in garbage collection

*How likely is your business/property/building to do the following as a result of a change to your garbage collection?*

*More recyclables would be placed in the Blue/Grey Box/Cart*

	Total (n=166)	IC&I Sector		MU Sector	
		Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)	Outside (n=86)
Very likely	10%	11%	16%	5%	9%
Somewhat likely	14%	16%	14%	16%	9%
Not very likely	14%	22%	10%	12%	14%
Not likely at all	19%	22%	18%	16%	20%
No change for our property/business	43%	29%	42%	51%	49%

*More food and organics would be placed in the Green Bin/Cart*

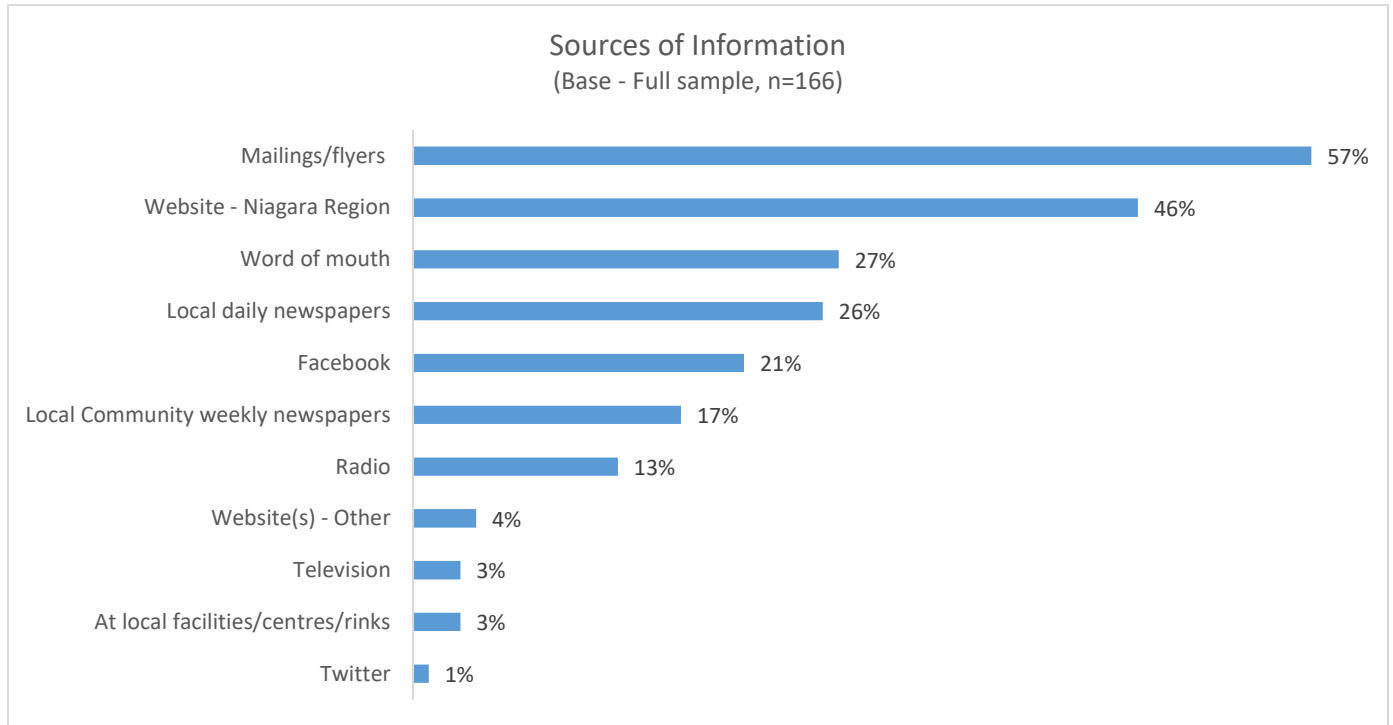
	Total (n=166)	IC&I Sector		MU Sector	
		Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)	Outside (n=86)
Very likely	10%	11%	14%	5%	9%
Somewhat likely	13%	19%	10%	14%	9%
Not very likely	11%	19%	10%	7%	11%
Not likely at all	25%	22%	28%	26%	23%
No change for our property/business	41%	29%	38%	48%	48%

*You will look for other ways/places to dispose of waste*

	Total (n=166)	IC&I Sector		MU Sector	
		Outside DBA (n=51)	Inside DBA (n=43)	Outside DBA (n=35)	Outside (n=86)
Very likely	21%	22%	16%	23%	23%
Somewhat likely	17%	14%	20%	14%	20%
Not very likely	12%	11%	10%	14%	14%
Not likely at all	21%	24%	22%	19%	20%
No change for our property/business	29%	29%	32%	30%	23%

## 10.0 Communications

*Where do you tend to get your information about Niagara Region's waste management programs, services, or initiatives?*



## 11.0 Staff Consultation and Feedback

Niagara Region's Waste Management Services Division staff conducted an extensive, broad-based stakeholder consultation and feedback process.

This included meetings with local area municipality staff/Councils (June 2018-February 2019), Organizations Representing Businesses (July-September 2018), as well as community booths and public open houses (October-November 2018).

All residents and businesses were invited to provide their feedback through the appropriate survey (October-November 2018). Some additional feedback received from residents and business owners is appended to this report.

Organizations Representing Businesses were invited to provide a formal response by November 30, 2018. The letters from those that chose to do so are appended to this report.

See Appendix 3 for further information about public open houses, community booths, meetings with Organizations Representing Businesses, and the promotions undertaken to notify residents and businesses about the project.

## Appendix 1

1a - Feedback from Organizations Representing Businesses

1b - Regional Departments and Agencies, Boards and Commissions

1c – Feedback received from public open houses and Niagara Region’s Waste Info Line

## Appendix 1a - Feedback from Organizations Representing Businesses



Niagara Falls Downtown BIA  
4321 Queen Street  
Niagara Falls, ON  
L2E 2K9  
905-356-5444  
[www.queenstreetniagara.com](http://www.queenstreetniagara.com)  
e-mail: [info@queenstreetniagara.com](mailto:info@queenstreetniagara.com)

November 22, 2018

Niagara Region,  
Public Works,  
Waste Management,  
1815 Sir Isaac Brock Way,  
P.O. Box 1042,  
Thorold, ON  
L2V 4T7

Attention: Brad Whitelaw, Program Manager, Waste Policy & Planning

Dear Mr. Whitelaw:

At yesterday's Board of Management monthly meeting, we addressed the letter sent by your office dated Monday, October 22, 2018 regarding the Proposed Collection Service Options for the Niagara Region's Next Waste Collection Contract.

We did forward this letter to our BIA membership on November 1, 2018 via our Mail Chimp mailing as well as delivering hard copies to our membership as well.

As the BIA for Queen Street, we would like to request that service be maintained as it has been in the past meaning to not reduce the number of containers from seven (7) to four (4). We already have people leaving garbage out prior to the scheduled pick-up day and we are concerned by reducing the amount of containers allowed, we will be facing even greater waste issues. We also do not support the mandatory switch to clear garbage bags. We feel that for those people who come to do business, shop, enjoy a meal or take part in an event on Queen Street, it would be inappropriate to see other people's waste in public view.

Sincerely,

Ron Charbonneau,  
Chair.

RC/ah

## Victoria Centre BIA

1-Victoria Center Business Improvement area will not be seeking “Enhanced Service” curbside pick up for the next contract. As you see from your data and our members believe that 15 garbage container for MU is not being utilized and we cannot support the extra cost of this service. “Base Service” is what the VCBIA will be seeking for the next contract.

2- We cannot support “Base Service” reduction from 7 containers to 4. Since VCBIA will be not seeking the “Enhanced Service”, we feel that the “Base Service” at 7 containers is more of a appropriate number for our members at this time.

3-VCBIA cannot support the Clear bag program at this time. As all members try very hard to educate all their service workers and patrons on what garbage and recycles go into what containers, it’s not always followed 100 %. Thus, some materials from time to time will not get to the appropriate containers. If clear plastic bags are enacted and the contractor sees an unlawful article in the bag, they will not pick up the contaminated bag. With this said the bag will be left curbside and this may cause friction between the service provider and the member. Also, the contamination will be questionable with different opinions between the contractor and member. With the contractor changing staff so often and proper education of the materials in the bags not be preformed on the contractor side, it just leaves the member open for confrontation with the contractor. The VCBIA would like to see a full report on how the contractor will educate its staff on the proper materials that go into the proper containers/bags before the VCBIA will accept the clear bag program.

4- As the VCBIA is a high tourist are and we are in the middle of completing a multi million dollar up dated streetscape plans, appearances are vital to our membership. With that being said we would like pick up of our service to begin at 5:00am and be completed by 7:00am. We do not want to see any curbside garbage or recyclables on the curbside after 7:00am. Tourists begin to come out on the sidewalks for early morning walks or breakfast around 7:00am. We would like them to have there first appearance be a very delightful one, rather then the streets littered with garbage containers for morning pick up.

We hope that these comments are what you were looking for and can be incorporated with the new service contractor.

## Tim Parker

Office Administrator

Victoria Centre BIA

Scotiabank Convention Centre

6815 Stanley Avenue, Niagara Falls L2G 3Y9

Phone: 905-357-6222 x 7234

Cell: 905-714-3828

[www.TopOfCliftonHill.com](http://www.TopOfCliftonHill.com)

CLIFTON HILL DISTRICT – VICTORIA AVENUE



The **PELHAM BUSINESS ASSOCIATION** is committed to working together to support and inspire a thriving, sustainable Pelham business community.

To whom it may concern,

Re: Formal input on Proposed Collection Service Options for Niagara Region's next waste collection contract

The Pelham Business Association (PBA) has had time to review and discuss the proposed collection changes to the regional garbage service options and we can provide the following input.

Based on the information provided by the Niagara Region and the response given back by member businesses, the PBA is supportive of the following proposed options:

- Changing the weekly base garbage collection from (7) to (4) containers per IC & Ibusiness and MU property to align with IC & I businesses outside the DBA
- Changing garbage collection from a weekly to a bi-weekly service
- mandatory use of clear bags for garbage with option of allowing an opaque privacy bag on the interior

We are supportive of the proposed measures in the interest of standardizing garbage collection across the region, increasing participation in the diversion programs (in order to prolong the life of current landfills), and in the interest of reducing costs for the next service contract.

Thank you for the information provided and the opportunity to provide input into the proposed options.

David Tucker, President  
Pelham Business Association  
david@tuckerhomes.ca  
905-327-4212

P.O. Box 954 ■ Fonthill, Ontario ■ L0S 1E0 ■ info@pelhambusinessassociation.ca

### **Grimsby Downtown Improvement Association**

Thank you for inquiring with the Grimsby DIA regarding the new Waste Collection contract and your proposed changes.

The Board of Management of the Grimsby DIA would not be in support of

Every other week collection for our Designated Business Area.

Mandatory use of Clear bags for any property

Changing the weekly container limits from 7 to 4

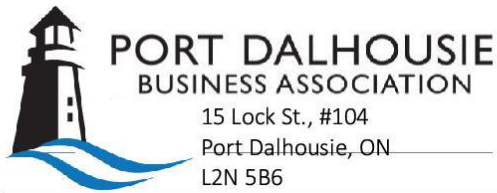
Changing the container limits for mixed use from 6 to 4.

The Board of Management of the Grimsby DIA has not opinion on:

The limit for large items

Or the Appliance and scrap metal curbside collection discontinuing.

The Board of Management of the Grimsby DIA would like to have it noted that when a new contract is negotiated that our Designated Business Area Pick up days change from Tuesday and Thursday to Tuesday and Friday.



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Good afternoon Susan,

After speaking with the Port Dalhousie businesses in regards to the proposed changes to the Niagara Waste Collection many have expressed concern.

The Waste Collection services are already a topic of concern for our businesses, and we feel that the proposed changes would make it more onerous and/or costly for our businesses which already pay relatively high taxes.

Owners have also expressed concerns over the hot summer months where storage of garbage will be an issue for them and surrounding locations.

Louise Foster  
Port Dalhousie Business Association  
Administrative Assistant



[www.MyPortDalhousie.com](http://www.MyPortDalhousie.com) [yourportdalhousie@gmail.com](mailto:yourportdalhousie@gmail.com)

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80 King St., (main floor) St. Catharines, ON L2R 7G1 • T. 905.685.8424 • F. 905.685.7771  
St. Catharines Downtown Association • [www.mydowntown.ca](http://www.mydowntown.ca)

November 30, 2018

Niagara Region  
Public Works  
Waste Management  
1815 Sir Isaac Brock Way  
Thorold, ON L2V 4T7

**Re: Proposed Collection Service Options for Niagara Region's Next Waste Collection Contract**

The St. Catharines Downtown Association is the designated Business Improvement Area (BIA) of Downtown St. Catharines or Designated Business Area (DBA). We represent 550+ commercial property owners and their tenants within a designated geographical boundary consisting of retail, restaurants, licenced establishments, professional offices and services, what you would consider IC&I. Our boundaries also include Mixed-Use (MU) properties.

**Proposed Option 1:**

Currently the DBA collection area and the enhanced service collection area have weekly set-out limits of 7 garbage containers per pick up. According to your audits in 2017, only 1 individual property within the IC&I properties was exceeding the average limit 1 day during the 4 day audit period and 2 individual properties identified as MU properties audited exceeded the limit. Further in 2018, 13 individual properties within the IC&I Properties were exceeding the average limit 2 days during the 8 day audit period and 12 individual properties in the MU properties audited exceeded the limit on average of 2 days during the 8 day audit period. On behalf of the businesses within our BIA I feel that reducing the container limits to 4 from 7 will only create more individual properties exceeding the limits, as this is a considerable reduction to conform to all at once. Some consideration should be given to reducing the amount of containers on a sliding scale in order to mitigate the transition. A strong educational component should also be considered to express the rationale for the drastic reductions if these actions are adopted in the next contract.

**Proposed Option 2:**

The mandatory use of clear bags for garbage, with the option of allowing an opaque privacy bag to be placed inside the clear bag will only cause confusion for the downtown businesses unless there is quite a bit of education to go along with this proposal before it is implemented. I feel it will not be adhered too very easily and with many buildings having mixed use, Waste Management staff will need to decipher who is actually in violation. The rationale for this proposal to increase waste diversion and increase awareness of what is placed in garbage seems a bit excessive if the result is as minimal as in the case of Markham with only a 6% increase in their diversion rate in 2014 after changing to this option.

The Association fully supports the need for more waste to be diverted to better utilize the recycling and organic programs. We have a large amount of food service businesses within the BIA boundaries and downtown core area. A number of these establishments are not able to utilize the organics program at all or if so not to its capacity. Part of this issue is lack of space to properly house organics and recycling container(s) and the need to have multiple pickups throughout the week would be required, as it would most likely be a health violation to store a week's worth of waste in a commercial kitchen. The inability to store the organic waste and recycling in an area that is manageable is also of concern for many of the downtown businesses, as many of them are housed in buildings close to 200 years old, so the structures themselves are not necessarily conducive to today's needs and a lot of attention is already given to meet the health regulation requirements.

.../2

-2-

The Association would fully support Niagara Region Waste Management investigating innovative approaches and tools to better educate and adopt proactive ways of enabling the businesses in the downtown core area to effectively utilize an organics and recycling program as this would certainly cut down on the number of actual garbage containers put out.

I would also like to recommend that Niagara Region Waste Management evaluate the days and times of pick up for the DBA collection area and the enhanced service collection area in order for the businesses to maximize the service provided and in turn the use of the organics and recycling services that would be available.

We certainly need to continue with the cardboard collection container bins located throughout the downtown core as this is definitely a valuable waste diversion benefit that is being utilized currently.

The St. Catharines Downtown Association diligently works to inform and remind all its members of the current waste management services available on a regular basis, but businesses as well as staff complement change on a regular basis resulting in an ongoing struggle to keep everyone informed.

I do want to commend and thank the staff at the Niagara Region Public Works Waste Management department for their outstanding efforts to deal with daily issues and concerns, and their ability to always be receptive to lend a hand when called upon by our Association.

If you require any further comments or clarification please do not hesitate to contact me.

Yours truly,



Tisha Polocko  
Executive Director  
St. Catharines Downtown Association



NIAGARA-ON-THE-LAKE CHAMBER OF COMMERCE & VISITOR & CONVENTION BUREAU

January 31, 2019

VIA EMAIL

Ms Catherine Habermehl  
Commissioner of Public Works (A)  
1815 Sir Isaac Brock Way  
P O Box 1042  
Thorold, Ontario

Dear Catherine

ENHANCED WASTE MANAGEMENT SERVICE – NIAGARA-ON-THE-LAKE DBA

Thank you for the multiple opportunities to review options for the upcoming waste services renewal. We were pleased to have provided input at various times:

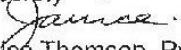
- On a call Aug 8 with Waste Management staff
- In a meeting at our Chamber on Sept 10
- In a meeting at the Tourism Partnership of Niagara on Sept 18
- In a meeting at the Town of Niagara-on-the-Lake on Dec 18

Speaking specifically to the waste pick-up in the Heritage District (identified as a DBA in your study) and as outlined during our discussions, there are several items of importance to the taxpayers in that district:

1. That the base limits not be reduced to a level that creates a cost increase beyond the existing Enhanced Pick-up Charge + Base Charge
2. That all garbage in the DBA be picked up (although the Enhanced Pick-up permits up to 20 bags per address, not all users are anywhere near that level). We asked that the total garbage volume for the DBA be taken into account when determining the total area limit.
3. That the pick-up time be amended to 10 am from 9 am. This will avoid merchants having to put garbage out the night before, which creates a negative visual impact as well as attracts animals to the garbage overnight.

We appreciate the opportunity to provide input and thank the Region for their recently improved attention to our needs for quality service in the area of waste management.

Sincerely

  
Janice Thomson, President

Cc: Brad Whitelaw, Niagara Region  
Sheldon Randall, Town of Niagara-on-the-Lake

Box 1043, Niagara-on-the-Lake, ON L0S 1J0  
Phone: 905-468-1950 Ext 213 Fax: 905-468-4930 E-Mail: [manager@niagaraonthelake.com](mailto:manager@niagaraonthelake.com)

## Appendix 1b - Regional Departments and Agencies, Boards and Commissions

Thank you for the opportunity to review and provide input into the proposed waste collection service changes for the next collection contract. As noted in your e-mail below, ensuring alignment of the proposed changes with broader Corporate initiatives, including the objectives of Growth Management policies, is to be considered. Development Services staff provides the following for your consideration.

Objectives of the Regional Official Plan's (ROP) Growth Management Policies include: directing a significant portion of Niagara's future growth to the Built-up Area through intensification; directing intensification to Local Municipally Designated Intensification Areas; and, building compact, mixed use, transit supportive, active transportation friendly communities in the Built-up Area and in Designated Greenfield Areas. To promote intensification and achieve the intensification targets of the ROP each municipality through its Official Plan will, among other matters, generally encourage intensification throughout the Built-up Area, identify Intensification Areas to support the achievement of the intensification targets, and plan Intensification Areas to provide a diverse mix of land uses. Designated Greenfield Areas will be planned as compact, complete communities by providing opportunities for integrated, mixed land uses as well as through other measures. It is noted as an observation that Niagara is experiencing an increase in higher density forms of development including mixed-use developments, which is anticipated to continue given changes in the housing market occurring in the region.

The proposed collection service changes as noted in the Overview below include a weekly four (4) garbage container limit for mixed-use (MU) properties, which would be changed from the current limits of seven (7) containers inside Designated Business Areas (DBAs) and six (6) containers outside DBAs. It is noted that the proposed reduced limit would not affect larger mixed-use developments that already exceed the current container limits and require private garbage collection. It is also noted that recent curbside audits referenced in Appendix A of Report WMPSC-C 9-2018 indicate the average number of garbage containers placed out weekly by mixed-use properties was below the proposed limit. The report, therefore, indicates that the needs of mixed-use properties are expected to be met based on the audit results, particularly if diversion services are utilized. As such, it is generally not anticipated that smaller mixed-use developments would be affected by the proposed change.

As noted below, as part of the Stakeholder Consultation and Engagement the comments of the local area municipalities on the proposed service changes are to be obtained and considered.

Let me know if you have any questions or wish to discuss these comments further.

Regards,  
Pat

**Pat Busnello, MCIP, RPP**

Manager Development Planning

Planning and Development Services Department

Niagara Region

1815 Sir Isaac Brock Way, P.O. Box 1042, Thorold, ON L2V 4T7

905-980-6000 Ext. 3379 | Toll-Free 1-800-263-7215 | Fax: 905-687-8056

[www.niagararegion.ca](http://www.niagararegion.ca)

Thank you for the opportunity to review and provide input into the proposed waste collection services changes for the next collection contract. Community and Long Range Planning staff provides the following comments for your consideration.

The new Growth Plan for the Greater Golden Horseshoe took effect on July 1, 2017. The Growth Plan provides a framework for growth management and includes policy direction relating to climate change as well as a variety of conservation objectives. The proposed changes to waste collection services align with and support policy 4.2.9.1 d) i) of the Growth Plan, which requires municipalities to develop and implement official plan policies and other strategies in support of integrated waste management, including through enhanced waste reduction, composting and recycling initiatives. In addition, a new Regional Official Plan is under development which will include policies supporting integrated waste management, in conformity with the Growth Plan. Waste management policies will be developed as part of the Climate Change Work Program for the Regional Official Plan, which was endorsed by the Planning and Economic Development Committee and Regional Council in May 2018 through report PDS 22-2018 (Climate Change Framework). Planning and Development Services and Public Works will continue to collaborate on this important policy initiative over the next several years, with an expected completion date of 2021.

Please do not hesitate to contact me if you have any questions or would like to discuss this further.

Regards,  
Lindsey

**Lindsey Savage**, MES, MCIP, RPP  
Planner  
Planning and Development Services  
Niagara Region  
Phone: 905-980-6000 ext. 3630

Appendix 1c – Feedback received from public open houses and Niagara  
Region's Waste Info Line

Comments received through municipal/regional website or communications booths
**Resident Comments**

Changes in Waste collection management: BIO: my business was the owner of a company that built machinery to produce thin wall plastic film like bags and many other products. In the past I was involved with the Canadian Plastics Association (CPA) and have since retired and live in Welland Ontario. I read the Tribune a story that was reported on June 22, 2018. As my past business took me around the world and preached about recycling opened me up to some good and not so good ideas. One of the points I would like to speak about is who we need to talk to find out what is a better and more cost effective way to separate our curb side trash; For sure this begins at home and education and I for one think it must start in Kindergarten and motivate our children to bring it home and never stop promoting the right and wrong way to handle trash. Clear bags? This is a question to make the trash pick up guy be a trash police and this is okay if most cases. But Maybe it starts before he or she gets the clear bag at the curb? Must trash bags have thin wall because of technology and in many cases the bag can be made by adding recycled parts added to it and this is also good. But if the bag is clear or clear enough to see through it this may not be possible to add recycled plastic as well as the bag may have to be made thicker and this is going the wrong direction for waste in our land fills. Most bags are 26" X 36" and that would be called a standard bag. Lets look at the household now and assume it is a one occupant home. This person may only have 1/2 the amount of a 2 person house. Size should matter: I think the manufactures would have no problem of making different sizes of bags for the same job: 26 X 36 or 20% less volume is 20% less plastic say 18"X 24" and so on. Even better make all grocery carry out sacks Clear and it would double as the waste collection: I am sorry for the book but I had this on my mind and wanted to get it into the hands of someone who might care.

Just read the article in The Standard about garbage collection and I can say I am NOT HAPPY. 1. Considering garbage collection every 2 weeks when we have a rodent infestation in this city is just stupid. Have you seen the Public Health inspection reports lately? 2. I pay large property taxes already for this are you prepared to REDUCE MY PROPERTY TAXES. 3. I KNOW FIRST HAND that if Emterra didn't cut corners , had working trucks and hired workers they wouldn't have the ongoing problems they have with garbage collection. You have a contract that is paying Emterra already you should be demanding that service and if they broke that contract by not fulfilling that service then move on to another company. Since when is it ok to pay for what you are not getting? 4. instead of hiring more workers like they should be you come up with a plan to make more unemployment in this city. There has been huge growth due to all the infilling and you get huge property taxes from that and more housing=more garbage and should = more jobs NOT cutbacks.

The Standard reports that Catherine Habermehl of Niagara Region is considering mandatory clear bags for garbage pickup. So I would put my small kitchen bag inside another bag? Instead of using my garbage can? Why would you want to increase the amount of plastic going to our landfills by adding a clear outside bag? We should be REDUCING our plastics footprint, not increasing it. I would not support this proposal at all. I DO support increased use of the organics program and garbage pickup every second week.

**Resident Comments**

Hello . I just read today's Standard article on the garbage / recycling pickup. With all the talk about plastics and that nobody wants the recycled plastics to process back into new products can't the companies whose products come in plastic containers ( water bottles from Nestle) be made to take them back for recycling or at least have their bottle manufacturer take them back? Also with the trash bags being plastic why can't we go back to the days of the garbage can instead. I have not put a plastic garbage bag out for pickup in 2 years. Between the shopping stores and garbage bags there is a ton of plastic buried for ever. Ban the plastic shopping and garbage bags and go back to paper for groceries and a can for track pickup. thanks

Hello I am very disturbed to hear the possible changes to garbage collection in the Standard today. Especially the 2 week pickup. We live in Old Glenridge. Even in this nice area we have a constant battle with vermin. I have a little enclosure outside of our home to hold my garbage and recycling. Every year I have to repair it because raccoons and rats will eat thru the plywood to get at the garbage and recycling. If I have to keep garbage there for two weeks this problem will only get worse. Just last year there was all this talk about a growing rat problem in St. Catharines. How would this terrible change impact that problem??? Please keep it to every week and don't bother with this see-thru bag. Keep it as it is. We already recycle way more than half of our waste. Isn't that good enough for the region.

Hello, I just read about your proposed garbage collection plans and have to comment. Clear garbage bags infringe on people's privacy as to what they are tossing....eg. Incontinence products, unusable underthings. I don't want to have to screen or hide what I throw to the curb! Also, the Green Bin is absolutely wonderful BUT have you ever seen what grows in one after two weeks in warm weather? Let alone the critters that the ripe smells will attract?

I read that the Niagara Region is again looking to change to bi-weekly garbage collection and I would like to express my displeasure and concern regarding this matter. Understanding that the concept and end game is to reduce/divert the amount of garbage going landfills is a good thing, I still believe that it is not practical nor sanitary to achieve this with bi-weekly garbage pick up. If such a level of service reduction should directly affect the amount we pay towards it in our taxes (reduction) if implemented (hopefully not). The main reasons why I feel the bi-weekly waste collection is not practical are as follows: 2. As it stands right now if you happen to miss your garbage day you can deal with the inconvenience, buy a bag and put two bags out the next week. If you switch to bi-weekly pick up and the same scenario happens you have your day one waste sitting around up to a month 3. With current weekly waste pick up during the summer you already have to deal with odors, maggot infested, unsanitary conditions if you are not diligent. Personally I keep my waste in the garage, in a bag, inside of a rubbermaid garbage can and don't achieve a 100% success rate in avoiding the bad odors and maggots so I could only imagine how disgusting it would be for someone that keeps it outside. 4. If my waste is collected on a Monday and I eat chicken, I have to deal with a rotting putrid carcass/bones for two weeks? 5. I know the region has a strong mandate against illegal dumping, bi-weekly pick up will not help this. 6. There have been talks recently about rodent issues, having garbage sit around for two weeks will not help with raccoons, rats, possums, etc. In summary, I would like to reiterate

**Resident Comments**

that I do not think bi-weekly waste pick up is a good idea or what is best for the residents of Niagara/Welland. If you could maybe take some of my points into consideration and ask some of your peers and staff to rebuttal them with sound reasoning it would be greatly appreciated. For further thought I would also like to mention that Sweden burns their waste in a manner that generates electricity and minimal waste. They even import from other countries such as Norway, Italy and the UK. Why are we not researching and implementing this technology? Perhaps it is not something that can be addressed at a municipal level but maybe you can make the provincial and federal governments aware for the citizens of Canada.

In TIMMINS, Ontario - starting few years ago, they use big containers with lids like those used by ambulance building in the falls. One for regular garbage and one for recycling. They have wheels. All houses given two Bins for free. No garbage blowing all over. No losing your Bins from the wind blowing them away. Garbage collected weekly in summer and every two weeks in winter. Winter is lot longer than in this area. Only need driver and truck has arms that pick up garbage Bins and out in truck. There is initial expense of purchasing the Bins and trucks but save wages of one employee per truck plus in winter save money by collecting every two weeks and not weekly. Not too mention it might be worth considering down here.

An older lady voiced her issue with the potential combination of clear garbage bags with EOW collection, due to her diaper exemption. Her main issues were that the diapers would produce a foul smell being stored for an additional week, and clear bags could create an embarrassing situation between her and the neighbours. She suggested having weekly pickup for those who have diaper / medical exemptions, but was still concerned about the embarrassment of sticking out as the only household on the street with weekly collection, which would point out her exemption.

Many residents voiced concern with EOW collection. One specifically threatened to illegally dump if EOW collection is implemented. Another resident was very against EOW collection because of their strong stance against the Green Bin program. This person explained that they would not be using a Green Bin anyways, so EOW collection was a bad option in their opinion.

One gentlemen was against the cancellation of large household appliances/scrap metal collection, due to his concern of a higher rate of competition for these items with other scavengers.

Many residents were not inclined to complete the survey due to the time commitment.

I have completed your survey and it disturbs me, at the end of the survey you ask very personal information regarding gender, age and education level... WHAT does this have to do with garbage collection? I see no need for the region or anyone else to collect and have this personal information. I seriously question the need for this. It is not proper or needed... I do see a need for the people in charge of garbage collection at the region to start managing our current system to ensure the contractor collects our garbage for which we are paying for. Four times this summer our garbage was not collected... There is no need to change the system we currently have; there is a need for you to manage it properly with the contractor to ensure we get what we are paying for rather than trying to reduce this service thus giving us less. IF you are not capable of this your position[s] should be eliminated... thank you...

Started the survey, but it stopped working at the gender question. Additional comments about clear bags: should be using Bins without the bags (additional cost). Additional comments about the EOW garbage collection - would not be reasonable for large families.

**Resident Comments**

Called, wouldn't give any info, didn't want to talk to anyone.. just wanted to voice the fact that she does not agree with garbage every two weeks. She said it should be garbage every week and recycle every two weeks.

What I most liked about this page is that it's reaching out the community to take responsibility for our environment and to take care of it for ourselves and the next generation. Also, to make us part of the decision that is better for us.

why not collect the rotting garbage every week, and the recycle Blue Box or Grey Box every other week

Resident is in favour of EOW collection, limiting large item pick up, and eliminating scrap metal/appliance pick up. However, with regards to large item pick up, the resident suggested that residents should be given 4 tags for large items for the entire year. If they want to put out more than 4 items per year then they should have to buy additional tags.

Regarding Garbage, If garbage pickup goes to a biweekly service instead of weekly service, I will be getting a lawyer to recoup the portion of taxes set aside for garbage pickup (for my self and residence of Port Colborne). I also believe that there should be a protest against the region. My taxes are almost 5k a year and I have 6 kids and garbage is the only real service we get. We will not be able to store garbage for 2 weeks at a time. Now, I would suggest if the region is looking for money that they look elsewhere. My guess is that the region is trying to mask this as an environmental issue to get more money in their budget. If your looking for more money, may I suggest looking to cut staff! Please feel free to contact me, John

Just finished the waist survey. Can someone tell me where is all the garbage that is filling up the Walker dump site? Is it Toronto? Is all that garbage checked for proper recycling for disposal? Niagara shouldn't be taking Toronto's garbage.

I'm a restaurant owner in downtown St Catharines, and have just filled out the survey. I just wanted to follow up to provide some additional feedback. On more than one occasion we have expressed concern regarding the frequency of compost pickup in the downtown BIA, so I was disappointed that this was not listed as a planned change. A weekly pickup is not feasible for us because of the large quantity of compost we generate each week. We don't have room to store that much compost, it quickly becomes smelly, and can attract pests. There are many restaurants in the downtown BIA in a similar circumstance. Unfortunately, we have to hire a 3rd party service to perform our compost pickup, which means we are incurring a significant additional cost because of the inadequacy of the current composting service. If we were not willing to pay this additional cost or could not afford it, what would we do with all of our compost? Please advise, would there be a fine if we were to dispose of our compost via the regular garbage pickups? I'd be curious if that fine would be larger or smaller than the additional compost pickup costs we incur. And isn't that contrary to your intended goal of redirecting waste from landfills? Hoping to hear some positive news from you about increased compost pickup frequency. Thanks for getting back to me. Yes, we are in the enhanced collection service area. From what I understand, this applies only to garbage and recycling, not compost? We definitely put out a lot of recycling so the enhanced service is valuable. The frequency of garbage pickup is valuable to us to avoid having it sitting around in the restaurant, but as an environmentally motivated restaurant, we do try to divert as much garbage to compost and recycling as possible. Unfortunately, because of our present situation with compost, the better we get at diverting garbage to compost, the more it costs us each month. This is a disincentive to divert garbage. Alternately, enhanced compost frequency pickup would be an incentive for us to continue diverting waste to compost.

**Resident Comments**

Also, just to follow up, and I correct in understanding that there would be a fine if we stopped paying for private compost pickup, and instead diverted all of our compost to the garbage pickup service? Can you advise what the amount of that fine is? Just curious as despite my environmental motivations, money in the restaurant industry is tight, and I do need to seriously consider the costs associated with our private compost service. It's currently costing us around \$600 per month.

Should allow extra comments on the survey. In addition the sex of and age of the people filling out the survey is personal information and should not be collected through the survey. As the IP address can be traced and we have no confidence in the confidentiality

comments section - get rid of landfills and start burning garbage to produce energy and rid of ourselves of toxic landfills - technology is there for mostly pollution free burning of garbage

I did not know the city may change my services. Good to be informed

I should have a forum to offer comments on the existing garbage/recycle program. I assume that you do not offer that as you already know it is totally unacceptable and has placed many burdens on the residents of virtually every sector of Niagara region!

The grapevine says the regional Council intends to charge the "sanitation engineers" (who collect garbage) with ensuring that only the waste is in the right containment through the use of transparent bags. Could you confirm or infirm this "news"? Thank you

I will not put my garbage in clear bags due to privacy issues

Comments Received through Niagara Region's Waste Info Line

Resident Comments
Resident is in favour of both EOW collection and clear bags. Would like to see increased leaf and yard waste collection.
Resident is in favour of EOW collection, but was wondering if compacted garbage would be accepted if EOW collection went through. This resident owns a residential sized garbage compactor that compacts waste into paper bags that can fit up to 30 pounds.
Resident is in favour of both EOW collection and clear bags. Resident explained that if the region eliminates scrap metal/appliance pick up they must provide information on scrap metal dealers that will come pick up materials for free, as this could be a concern for elderly or people with disabilities to dispose of scrap metal/appliances.
I would like to add to the garbage pickup survey. I would like to propose that, should garbage pick up times be changed from every week to every other week, perhaps the summer period (June to September) should be every week due to smells.
I have notice lots of black garbage bags set out on the curb on St. Paul St. I feel it is time to require garbage bags to be placed in garbage Bin. Since we put our recyclables in specific containers maybe so should the garbage. I live on Gerrard St. and take doggie walks a couple of times a day so, I do notice the bags being ripped and assume the "rippers" are vermin. At the corner of Duke St. and Queen, the Avondale Store has a ton of garbage, none of it any kind of containers. The prospect of bi-weekly is fine with me, but I a bit concerned about more litter. I have even placed a spare garbage can at the front of our house to encourage folks to use it. When are the public meetings to discuss the bi-weekly pickup?
Hello I just tried to take your survey - but the document never opened in survey form. I am now going to download and print it off - adding to more paper to be recycled. - this is just a FYI I do have a couple of comments on the process 1. If we want the amount of garbage to be cut down - why will you still honour 2 bags of garbage if the collection is every 2 weeks? 2. We need a returnable program for drink boxes, water bottles, beverage cans and large juice containers - this would help clean up streets - as well as eliminate a lot of the mixed recycling I applaud this endeavour but, unfortunately having seen the very sad recent voter turn out - am afraid this will be a tough learning curve for some of the lazier and less responsible residents - even though we will all, hopefully gain from it.
I just finished taking the survey regarding the changes to garbage pickup. My husband I moved here from the Waterloo Region 3 years ago. The Waterloo Region made the change to pickup garbage every other week and the Blue & Green Bins every week. At the beginning there was a lot of negative feedback and people were reluctant to accept this change but as time went by the residents realized it was a positive change. This forced people to properly recycle. If other Regions can make this work there is no reason it can't work here. Good luck with this venture!
Resident was asking how they would determine the recycle from the garbage if they use clear bags for garbage. CSR explained. he is in favour of this.

**Resident Comments**

Curbside scrap metal items Hello, I realise that it is a severe hindrance and cost to the region when items requested for pickup have been inappropriately taken prior your removal team arriving. One solution to this is to enforce the existing laws regarding the illegal scavenging of metal items that have been set out by residents for the Region's pick up service. These people won't need much of a financial risk to stop taking metal. A few small fines will make it uneconomic for them to continue. This way the Region can receive the scrap value. I am also worried about what the illegal scrap people do with non-recyclable parts in appliances, such as some plastics and refrigerants. 1 - What are the Region's economics of scrap metal recycling? 2 - Is it simply more cost effective to surrender to the illegal scrap recyclers?

Business owner is very opposed to 4 container/bag limit and would like to speak to someone in regards to taxes being changed etc.....

Owner of building has pizzeria and tenants, which don't use organics and residents don't recycle, so they are not in favour reduced garbage container limit.

Property owner has 4 businesses and 4 residential properties in complex and is not in favour of reduced garbage limit. The residential tenants do not use GB or recycling program and are not interested in doing so.

Owner of property very upset about letter he received as he seemed to think we were changing his property zoning. Tried to explain that the letter was just to inform him about the survey for proposed options for the upcoming contract. Also talked about water and sewer service, so explained this was for Waste Management curbside collection only. He also wanted to know if services were reduced, would his taxes would be reduced as well?

comments: You go to the expense of a survey and nowhere do you have a box for general comments. With a majority of my friends and acquaintances, and myself included, we now drive pick-up trucks, so please tell my why and in good common sense if I have large articles to dispose of and I wish to run it to the dump I get charge \$25.00 or so for the privilege to dump and save the Region money. I have heard the same complaint from others. I believe you pay by the ton for pick-up, all those pick-up trucks out there might save us poor tax payers a few bucks or so.

comments: Re: Curbside Heavy Item Pickup Hello, Residents still need the current heavy household item pickup service. Old sofas and other unwanted items that aren't attractive to the scrap metal vultures still need to be responsibly disposed of. If free pickup of these items is discontinued then most residents without a truck will have difficulty disposing of them. This will, of course, lead to more illegal dumping. The whole town will look like the Marsdale/Glenridge area after the Brock students move out - piled furniture on the front lawns. Is the current free heavy household item pickup service to continue?

Primary concern is Every-Other-Week creating a storage issue. The building owner has little control over tenant behaviour and would end up having to store the extra garbage. The building is small and there is no additional space for more garbage or a Green Bin container. Currently, the building does not use the Green Bin. Clear bags could also be a problem if the bags are left behind by collectors if not in compliance. This would again create a storage issue.

This is a property owner of a multi-residential building. Property owner is against both EOW collection and clear bags because they feel that tenants are unlikely to comply.

**Resident Comments**

Resident is against both EOW collection and clear bags. They see an issue with rodent problems and windy blowing garbage around if residents are not allowed to use closed top containers. Follow up requested.

Against EOW collection because of the issue of elderly using depends/diaper products. Does not want to get an exemption for diapers due to cost of the doctor's form, and potential embarrassment of neighbours knowing they have the exemption. Concern was also raised to the fact that garbage limits are the same for a one person household as for a multi person household.

Owner of apartment building does not support EOW garbage collection at her 11-unit apartment building, even though they would be allowed to put out up to 22 garbage containers, on an EOW basis. The building only uses the Region's recycling Cart program, but does not use organics. She would be interested in investigating the addition of the organics Cart program to this building.

resident said his concerns are rat problem and every two weeks will encourage it.(this is his main concern)..... and big bins sitting on property are not nice to look at. and encouraging non diligent people to do more bad things and illegal dumping... environmental is putting more owners on owners of homes.

Your survey didn't have an option for "other ideas".... so here is my idea. This has been done in other cities... How about collection on only one side of the street where possible (on less busy streets in the suburbs)... this way the trucks have to only drive down one side of the street, thus saving tons of time and fuel. Trash is put out late at night or early in the morning, so traffic is low anyway, and if an elderly neighbour is unable to move trash, then a friendly neighbour can help them. THIS IS A GREAT MONEY SAVING IDEA!!! You can alternate sides of the street... maybe every month or season... or if it's an even date, then on the even numbered houses, and an odd date the odd numbered side of the street. That way people won't get confused.

He owns this MR building, and does not support EOW garbage collection, due to the potential rodent issue. They do not use the organics collection program, but do use the Region's recycling program. BW suggested setting up an appointment with him to have staff come out and investigate the potential for implementing an organics program. He will need to speak to his building sup't to get him on board and will get back to Region on whether they are interested in doing so. He will be filling out the on-line survey to provide his formal comments.

Business owner is not in favour of keeping their garbage for two weeks. They do not use the Green Bin program and are not interested in doing so.

I just did the survey about possible changes to garbage pick up and there was not a place to comment on the every other week pick up. I would like to communicate my biggest concern. I think the largest issue for bi-weekly pick up is storage and animals. to make sure that no animals get into my garbage, even though we use the Green Bin almost exclusively for food waste I still seem to get animals in my garbage. Do we not have a large enough problem with rats in the city already.

My garbage box only has room for 2 containers. I currently put out a large amount of food-type recycling each week with the garbage. However, if you choose to collect garbage every two weeks I will be forced to stop the food recycling as I will need the room for 2 garbage containers. Seems like a move backwards to me.

**Resident Comments**

I agree with every two week garbage collection but the summer months would still require weekly pick up. I'm certain you can figure that one out.

I completed the survey and felt it was a poorly designed survey only allowing for expanded answers on areas the Region decided were important. When I completed the survey there was no comment at the end to add your other comments. I think the Region did a poor job advertising this survey and the community dates available for presentations. AS a taxpayer I want to know how the proposed recommendations by the Region will become more efficient, promote recycling and be more efficient. I strongly disagree with a Q 2 week garbage collection but increasing the bag limit to 2. Taxpayers also want the job done in the time designated(between 7AM-5pm). I have noticed a steep decline in all areas of service since June 2017. I don't see how the new recommendations would improve this. The present garbage collection company has not been able to live up to their contract. I don't believe the workers are paid well enough to get and retain workers. The company appears to lack appropriate individuals with problem solving skills to solve through problems. Delays are inevitable when it gets hot, cold and when leaf collections takes place yet these have issues have always been there. I just see it as an excuse for the inefficient garbage collection. I have called in several times in the past year to voice my concerns and asked to be kept updated re progress and this was only done once. I am not able to attend the meeting at the St.Catharines library today but would appreciate being able to access the information that is being presented. IF this information can be made available at the Region's website or mailed to me. I believe the recommendations being given will only further aggravate the problem of illegal dumping. My garbage day is on Wednesday and it is now Thursday Nov. 15 @ 446pm and the leaves have not been collected. When garbage, recyclables, leaf bags have to be left out for 2-3 days, it certainly does not promote the idea of St.Catharines being a garden city. This takes away from the look of a neighbourhood.

As the owner of two six plexes in St. Catharines I have concerns about proposed changes to waste pick up. I tried your survey but it doesn't cover my worries. My tenants dispose of their garbage throughout the week into a common trash bin which holds multiple trash bags. This is because they live in an apartment and are not going to store their garbage inside their apartment for a week let alone for two weeks. I carry it to the curb on garbage day. I can't be responsible to sort out their garbage. Even if I changed the way I do things and made them save their garbage inside their apartment for a week or two and carry it to the curb themselves it wouldn't work. Do you really think they are going to go pick it back up and sort it and store it for another two weeks? Absolutely not. They don't own the property and could care less. It will be left there. The overwhelming number of rats and raccoons in the city will tear into it leaving a mess. Please don't make these changes without considering the problems it will cause for multi-unit building owners.

What not just give every household 52 tags at the start of the year and when they run out they start buying them.

Hello, I just filled out the survey regarding new options for waste collection. I was hoping there would be an opportunity to provide more feedback. I lived in Ottawa for 10 years. They had an alternative pick up of Blue/Grey Bins every two weeks which was great! However i think pushing garbage and Green Bins every two weeks( except for winter months Nov-March ) will create opposite effect and complaints especially in summer with the heat and smell. However if clear bags is solution to weekly pick up that works. Also to reduce leaf bags, has region considered loose leaf pick up like the region of waterloo does?

**Resident Comments**

Recently completed survey re changes to our garbage pick-up. First off - wow, whomever thought of more "plastic" doesn't give a hoot about our environment! If you have to go to every second week pick-up, keep it to the cooler months. May thru Sept. should be weekly. The stench would be unbearable and unhealthy in the summer heat. And - a banquet for rats.

Privacy issue. It is a dental office and they are concerned with people seeing bloody gauze, etc. A small privacy bag would not work for their business.

Opposed to clear bags for privacy issues related to medical garbage. Opposed to Every-Other-Week garbage collection for storage concern and if miss collection on windy day then have to hold on to materials. Suggest allowing residents to bring to dump on windy days at no charge.

Landlord of unit is opposed to clear garbage bags because tenant is elderly and has limited transportation. She would have challenges buying and using clear garbage bags.

We should have residents within neighbourhoods set garbage out in a communal location to decrease the amount of stops required per residential area to save time, money and improve service. She is concerned about the use of clear bags in this scenario however, as privacy would be an issue to her.

I attended you waste presentation in Port Colborne. I have a question about Green Bin would dust from a vacuum system be Green Bin or garbage? If the clear plastic bags are implemented people will not be allowed to place the paper dust containers from most central vacuum systems in the garbage.

## Appendix 2 – Surveys

- a. Low density residential - random telephone survey
  - b. Low density residential - online survey
  - c. Multi-residential – online survey
  - d. IC&I/mixed use – online survey

Appendix 2a – Low density residential – random telephone survey



Good..., my name is..., of the Metroline Research Group, a national marketing research company. We are calling on behalf of Niagara Region. We are speaking with Niagara residents about Waste Management Services, and would like to include the opinions of someone in your household. I assure you this is strictly a research survey, and we are not selling anything.

We would appreciate your help by taking 10-12 minutes to answer an important survey that will help Niagara Region plan for the future.

INTERVIEWER, PROVIDE IF NEEDED. If resident questions the research, you can invite them to confirm the legitimacy of the survey by visiting the Niagara Region website, or by contacting Brad Whitelaw or Susan McPetrie at Niagara Region, phone # 905-980-6000, or 800-263-7215, ext. 3316 or 3763 during normal business hours (confirm if Thorold is long distance to see which telephone number to provide).

S1. INDICATE GENDER:

PN: Check quotas

Male	1
Female	2
Other/Unknown	3

S2. This study requires we speak to the head of the household. Would that be you?

Yes	1	No	2 – ASK TO SPEAK TO HEAD HOUSEHOLD
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S3. Which of the following age groups do you fall into?

PN: Quotas according to population

17 years or younger	1 - TERM
18-24 years	2
25-34 years	3
35-44 years	4
45-54 years	5
55-64 years	6
65-74 years	7
75 years and older	8

S4. Which municipality in Niagara region do you live in?

PN: DO NOT READ. CLARIFY AND PROBE AS NEEDED

Fort Erie (Ridgeway, Crystal Beach, Bridgeburg)  
 Grimsby  
 Lincoln (Beamsville, Vineland, Jordan)  
 Niagara Falls (includes Chippawa)  
 Niagara-On-The-Lake  
 Pelham (Fonthill, Ridgville, Fenwick)  
 Port Colborne

St. Catharines (includes Port Dalhousie)  
 Thorold  
 Wainfleet  
 Welland  
 West Lincoln (Smithville)  
 Other – THANK AND END

S5. Postal code – pull from sample management platform for landline and confirm it is correct, for cell phones ask for first three digits of postal code.

\_\_\_\_\_

S6. Which of the following best describes where you live?

Single family home (detached or semi-detached)	1
Townhouse/row house	2
An apartment/condo in a house or building with two to six units (duplex, triplex, fourplex, etc.)	3 – ASK S6b.
An apartment/condo in a building with seven or more units	4 – THANK AND END. DIRECT TO MR SURVEY

S6b. Do you live above a business, or are there any units in your building that are a business?

Yes	1 – THANK AND END DIRECT TO IC&I/MU SURVEY	No	2
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S7. What type of waste collection do you receive?

Put your garbage out to the road/curbside	1
Private/central collection (dumpster/chute, etc.)	2 – THANK AND END

S8. Do you or any members of your household work for any of the following?

PN: Thank and end if any are 'yes'

	Yes	No
A municipal or regional government	1	2
A market research or advertising agency	1	2
The media	1	2
Waste management industry	1	2
Local recycling authority	1	2

S9. Have you or someone in your household completed the on-line survey on the future collection service options for the next waste collection contract?

Yes	1 – THANK AND END	No	2
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## SECTION 1 – GARBAGE COLLECTION

1.1 How important would you say it is that Niagara region works to reduce the amount of garbage that is sent for disposal?

Very important	1
Somewhat important	2
Not very important	3
Not important at all	4
DO NOT READ: Don't know	5

1.2 Niagara Region allows for one bag/container of garbage to be put out per week. Dimensions of the container cannot exceed three feet high by two feet wide (91cm by 61cm) and must not weigh more than 50 pounds. Which of the following best describes your situation in an average week?

We put out more than one garbage bag/container  
 We put out one full garbage bag/container per week  
 On a weekly basis, our garbage bag/container is not completely full  
 Some weeks, we do not have enough to put out the garbage bag/container

- 1.3 How many tags for additional garbage bags does your household buy and use in an average year, if any?

1-6  
7-12  
13-24  
25 or more  
None/don't use  
DO NOT READ: Don't know

## SECTION 2 – RECYCLING/ORGANICS/BULK ITEMS

- 2.1 Does your household put out the following items for curbside collection?

	Yes	No	DO NOT READ: Don't know
Recycling – Blue and/or Grey Box	1	2	9
Organics - Green Bin	1	2	9
Appliances/Scrap Metal	1	2	9
Bulky/Large Items	1	2	9
Leaf/Yard waste	1	2	9
Brush in spring/fall	1	2	9

- 2.2 Blue Box recycling includes containers that are made of plastic, metals, glass, or styrofoam. How many Blue Boxes does your household put out at the curb in an average week?

PN: ASK IF 'YES' TO RECYCLING IN 2.1

0 1 2 3 4 5

- 2.3 Do you put a Blue Box out at the curb more than once a month?

PN: ASK IF ZERO IN 2.2

Yes 1 No 2

- 2.4 Grey Box recycling includes items such as paper, cardboard, cereal boxes, tissue boxes, etc., and bundled plastic

bags. How many Grey Boxes does your household put out at the curb in an average week?

PN: ASK IF 'YES' TO RECYCLING IN 2.1

0 1 2 3 4 5

- 2.5 Do you put a Grey Box out at the curb more than once a month?

PN: ASK IF ZERO IN 2.4

Yes 1 No 2

- 2.6 Green Bin/Cart organics program includes food waste, paper napkins/towels/bags, paper take-out trays/egg cartons, coffee grounds/filters & tea bags. How many Green Bins or containers marked as organics does your household put out at the curb in an average week? **PN: ASK IF 'YES' TO ORGANICS IN 2.1**

0      1      2      3      4      5

- 2.7 Do you put a Green Bin out at the curb more than once a month?  
**PN: ASK IF ZERO IN 2.6**

Yes                      1                                      No                      2

- 2.8 Why do you not participate in the Green Bin/Organics program?  
**PN: ASK IF 'NO TO ORGANICS IN 2.1**  
**PN: DO NOT READ LIST.**

Smell/Odour  
Worried about bugs/maggots/pests/animals  
Don't have room/space to store  
Messy  
Not convenient  
Have a garburator  
Not interested in sorting it out  
Don't know  
Other \_\_\_\_\_

- 2.9 How many times per year would you say your household puts out appliances or scrap metal at the curb for collection? **PN: ASK IF "YES" TO APPLIANCES/SCRAP METAL ITEMS IN 2.1**

0      1      2      3      4      5      6 or more

- 2.10 Do you schedule a pick up with Niagara Region for these types of items, or put them out at the curb for anyone to pick up without scheduling a pick up?  
**PN: ASK IF 1+ IN 2.9**

Schedule a pick up  
Leave out

- 2.11 Bulky/large item collection includes items like carpet and furniture. How many times per year would you say your household puts items like this out at the curb for collection?  
**PN: ASK IF "YES" TO BULKY/LARGE ITEMS IN 2.1**

0      1      2      3      4      5      6 or more

- 2.12 Do you schedule a pick up with Niagara Region for these types of items, or put them out at the curb for anyone to pick up without scheduling a pick up?

PN: ASK IF 1+ IN 2.11

Schedule a pick up

Leave out

### SECTION 3 – FUTURE OPTIONS

For Niagara Region’s new waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposed collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

The purpose of this poll is to receive feedback from residents on the possible collection options and to help regional staff understand resident’s feelings about each option.

- 3.1 The first option is related to large or bulky item pick up, such as carpet or furniture. The change would be to limit the number of large/bulky items collected to a maximum of four per week. In 2018, 92% of the bookings for large or bulky item pick up were for four items or less. If Niagara Region was to make this change, what would be the impact on your household?

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2
No impact	1

- 3.2 The second option under consideration would eliminate curbside pickup by Niagara Region of scrap metal and white goods, such as old appliances. Currently, residents can go online and schedule a pick up of items at their home. Only 6% of Niagara are using the curbside collection of appliances and scrap metal service. Also, as much as 60% of these items that are being put out have already been removed by the time crews arrive to pick them up. There would continue to be an opportunity for residents to take the items to a regional drop-off at no charge, or have it picked up by private scrap metal haulers. If Niagara Region was to make this change, what would be the impact on your household?

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2
No impact	1

- 3.3 A third option under consideration is the mandatory use of clear garbage bags. Some municipalities in Canada have already made this change. The cost for the clear bags would be about the same as green/black garbage bags. Clear garbage bags will make it easier to see recyclable or organic material that should be placed in the Blue/Grey Box/Cart or Green Bin/Cart or Hazardous Waste items that should be disposed of safely. A smaller opaque bag, such as a grocery bag, can be placed inside the clear garbage bag for disposing of sensitive or personal items. Would you support a switch to clear garbage bags?

Definitely would support  
 Probably would support  
 Might or might not support  
 Probably would not support  
 Definitely would not support

- 3.4 Why do you say that?

PN: Do not read list. Accept all responses

Keeps unwanted items from landfill  
 Encourages people to use their Blue/Grey Boxes and Green Bins more  
 Concerned about invasion of privacy  
 Don't want my neighbours seeing my garbage  
 Concerned bags would break  
 Other \_\_\_\_\_

- 3.5 In Niagara region an average of 50% of every garbage bag is food waste. A fourth option under consideration, that is already in practice in many other municipalities which encourages residents to use their Green Bin, is to pick up garbage Every-Other-Week, but continue to collect unlimited Blue/Grey Boxes and Green Bins every week. There would be no change or reduction in the garbage container limit, but there would be less frequent pickup. With collection Every-Other-Week, you would be allowed two garbage bags/containers. Based on your household's waste practices, would you:

be able to manage garbage collection Every-Other-Week	1
OR	
need to continue having your garbage picked up weekly	2

- 3.6 If Niagara Region collected garbage bags Every-Other-Week, but collected your Blue/Grey Boxes and Green Bins every week, what would be the impact on your household?

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2
No impact	1

3.7 Why do you say that?

PN: ASK IF “Big” or “some” impact in 3.6

PN: Do not read list. Accept all responses

Smell  
Storage  
Animals  
Insects  
Pet Waste  
Diapers  
Health concerns  
Messy  
Scheduling  
Don’t know  
Other \_\_\_\_\_

3.8 If you had to choose between mandatory use of clear garbage bags, Every-Other-Week garbage collection, or the use of both, which would you choose?

Clear garbage bags  
Every-other-week garbage collection  
Both clear garbage bags and every other week garbage collection

Section 4 – Communications/Outreach

4.1 Where do you tend to get your information about Niagara Waste programs, services, or initiatives?

PN: Unaided, do not read list

PN: Accept all responses

Local daily newspapers	1
Local Community weekly newspapers	2
Radio	3
Television	4
Website – Niagara Region	5
Website(s) – Other	6
Facebook	7
Twitter	8
At local facilities/centres/rinks	9
Mailings/flyers delivered to your home	10
Word of mouth	11
Other _____	XX
Don’t know	99

## Section 5 - Demographics

5.1 Including yourself, how many people live in your household?

1      2      3      4      5      6      7      8      9      10

5.2 How many are children 18 years or younger?

0      1      2      3      4      5      6      7+

5.3 How many children, if any, are still in diapers?

0      1      2      3      4      5+

5.4 How long have you lived in Niagara Region?

\_\_\_\_\_ years

5.5 What is the highest level of education you have completed?

Some high school or less

Graduated high school

Some college

Graduated college

Some university

Graduated university

Appendix 2b – Low-density residential, online/hard copy survey



# Let's Talk Waste NIAGARA

Thank you for your interest in this online survey regarding waste management options for homes in Niagara region. Please take 7-8 minutes to answer this important survey that will help Niagara Region plan for the future. When you finish, please return it to Niagara Region, using the contact information at the end of the survey.

S4. Which municipality in Niagara region do you live in?

Fort Erie	1	St. Catharines	8
Grimsby	2	Thorold	9
Lincoln	3	Wainfleet	10
Niagara Falls	4	Welland	11
Niagara-On-The-Lake	5	West Lincoln	12
Pelham	6	Other _____	
Port Colborne	7		

S5. Which of the following best describes where you live?

Single family home (detached or semi-detached)	1
Townhouse/row house	2
An apartment/condo in a house or building with two to six units (duplex, triplex, fourplex, etc.)	3
<b>An apartment/condo in a building with seven or more units</b>	<b>4 **</b>

**\*\* There is a different survey for those who live in higher density, multi-unit residential buildings or complexes. You can find that survey on the webpage, or ask to receive it instead.**

S6. ANSWER IF YOU LIVE IN A BUILDING OR COMPLEX WITH TWO TO SIX UNITS: Do you live above a business, or are there any units in your building that are a business?

Yes 1

No 2

S7. What type of waste collection do you receive?

Put your garbage out to the road/curbside	1
Other (dumpster/chute, etc.)	2

S8. Do you or any members of your household work for any of the following?

	Yes	No
A municipal or regional government	1	2
A market research or advertising agency	1	2
The media	1	2
Waste management industry	1	2
Local recycling authority	1	2

S9. Have you or someone in your household completed the on-line survey on the future collection service options for the next waste collection contract?

Yes	1	No	2
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## SECTION 1 – GARBAGE COLLECTION

1.1 How important would you say it is that Niagara region works to reduce the amount of garbage that is sent for disposal?

Very important	1
Somewhat important	2
Not very important	3
Not important at all	4
Don't know	5

1.2 Niagara Region allows for one bag/container of garbage to be put out per week. Dimensions of the container cannot exceed three feet high by two feet wide (91cm by 61cm) and must not weigh more than 50 pounds. Which of the following best describes your situation in an average week?

We put out more than one garbage bag/container	1
We put out one full garbage bag/container per week	2
On a weekly basis, our garbage bag/container is not completely full	3
Some weeks, we do not have enough to put out the garbage bag/container	4

1.3 How many tags for additional garbage bags does your household buy and use in an average year, if any?

1-6	1
7-12	2
13-24	3
25 or more	4
None/don't use	5
Don't know	6

## SECTION 2 – RECYCLING/ORGANICS/BULK ITEMS

2.1 Does your household put out the following items for curbside collection?

	Yes	No	Don't know
Recycling – Blue and/or Grey Box	1	2	9
Organics - Green Bin	1	2	9
Appliances/Scrap Metal	1	2	9
Bulky/Large Items	1	2	9
Leaf/Yard waste	1	2	9
Brush in spring/fall	1	2	9

2.2 ANSWER IF YOU SAID 'YES' TO RECYCLING IN 2.1: Blue Box recycling includes containers that are made of plastic, metals, glass, or styrofoam. How many Blue Boxes does your household put out at the curb in an average week?

0    1    2    3    4    5

2.3 ANSWER IF ZERO PER WEEK: Do you put a Blue Box out at the curb more than once a month?

Yes                      1                                      No                      2

2.4 ANSWER IF YOU SAID 'YES' TO RECYCLING IN 2.1: Grey Box recycling includes items such as paper, cardboard, cereal boxes, tissue boxes, etc., and bundled plastic bags. How many Grey Boxes does your household put out at the curb in an average week?

0    1    2    3    4    5

2.5 ANSWER IF ZERO PER WEEK: Do you put a Grey Box out at the curb more than once a month?

Yes                      1                                      No                      2

2.6 ANSWER IF YOU SAID 'YES' TO ORGANICS IN 2.1: Green Bin/Cart organics program includes food waste, paper napkins/towels/bags, paper take-out trays/egg cartons, coffee grounds/filters & tea bags. How many Green Bins or containers marked as organics does your household put out at the curb in an average week?

0      1      2      3      4      5

2.7 ANSWER IF ZERO PER WEEK: Do you put a Green Bin out at the curb more than once a month?

Yes                      1                                      No                      2

2.8 ANSWER IF YOU SAID 'NO ' TO ORGANICS IN 2.1: Why do you not participate in the Green Bin/Organics program?

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2.9 ANSWER IF YOU SAID 'YES' TO APPLIANCES/SCRAP METAL IN 2.1: How many times per year would you say your household puts out appliances or scrap metal at the curb for collection?

0      1      2      3      4      5      6 or more

2.10 ANSWER IF YOU SAID ONCE OR MORE IN 2.9: Do you schedule a pick up with Niagara Region for these types of items, or put them out at the curb for anyone to pick up without scheduling a pick up?

Schedule a pick up                      1  
Leave out                                      2

2.11 ANSWER IF YOU SAID 'YES' TO BULKY/LARGE ITEMS IN 2.1: Bulky/large item collection includes items like carpet and furniture. How many times per year would you say your household puts items like this out at the curb for collection?

0      1      2      3      4      5      6 or more

2.12 ANSWER IF YOU SAID ONCE OR MORE IN 2.11: Do you schedule a pick up with Niagara Region for these types of items, or put them out at the curb for anyone to pick up without scheduling a pick up?

Schedule a pick up                      1  
Leave out                                      2

## SECTION 3 – FUTURE OPTIONS

For Niagara Region's new waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposed collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

The purpose of this poll is to receive feedback from residents on the possible collection options and to help regional staff understand resident's feelings about each option.

- 3.1 The first option is related to large or bulky item pick up, such as carpet or furniture. The change would be to limit the number of large/bulky items collected to a maximum of four per week. In 2018, 92% of the bookings for large or bulky item pick up were for four items or less. If Niagara Region was to make this change, what would be the impact on your household?

A big impact	1
Some impact	2
Might or might not be an impact	3
Not much of an impact	4
No impact	5

- 3.2 The second option under consideration would eliminate curbside pickup by Niagara Region of scrap metal and white goods, such as old appliances. Currently, residents can go online and schedule a pick up of items at their home. Only 6% of Niagara are using the curbside collection of appliances and scrap metal service. Also, as much as 60% of these items that are being put out have already been removed by the time crews arrive to pick them up. There would continue to be an opportunity for residents to take the items to a regional drop-off at no charge, or have it picked up by private scrap metal haulers. If Niagara Region was to make this change, what would be the impact on your household?

A big impact	1
Some impact	2
Might or might not be an impact	3
Not much of an impact	4
No impact	5

- 3.3 A third option under consideration is the mandatory use of clear garbage bags. Some municipalities in Canada have already made this change. The cost for the clear bags would be about the same as green/black garbage bags. Clear garbage bags will make it easier to see recyclable or organic material that should be placed in the Blue/Grey Box/Cart or Green Bin/Cart or Hazardous Waste items that should be disposed of safely. A smaller opaque bag, such as a grocery bag, can be placed inside the clear garbage bag for disposing of sensitive or personal items. Would you support a switch to clear garbage bags?

Definitely would support	1
Probably would support	2
Might or might not support	3
Probably would <u>not</u> support	4
Definitely would <u>not</u> support	5

- 3.4 Why would you support or not support using clear garbage bags?

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- 3.5 In Niagara region an average of 50% of every garbage bag is food waste. A fourth option under consideration, that is already in practice in many other municipalities which encourages residents to use their Green Bin, is to pick up garbage Every-Other-Week, but continue to collect unlimited Blue/Grey Boxes and Green Bins every week. There would be no change or reduction in the garbage container limit, but there would be less frequent pickup. With collection Every-Other-Week, you would be allowed two garbage bags/containers. Based on your household's waste practices, would you:

be able to manage garbage collection Every-Other-Week 1

OR

need to continue having your garbage picked up weekly 2

- 3.6 If Niagara Region collected garbage bags Every-Other-Week, but collected your Blue/Grey Boxes and Green Bins every week, what would be the impact on your household?

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2

No impact

1

## 3.7 Why would it have an impact/less impact on your household?

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## 3.8 If you had to choose between mandatory use of clear garbage bags, Every-Other-Week garbage collection, or the use of both, which would you choose?

Clear garbage bags	1
Every-other-week garbage collection	2
Both clear garbage bags and every other week garbage collection	3
Neither	4

## Section 4 – Communications/Outreach

## 4.1 Where do you tend to get your information about Niagara Waste programs, services, or initiatives?

Local daily newspapers	1
Local Community weekly newspapers	2
Radio	3
Television	4
Website – Niagara Region	5
Website(s) – Other	6
Facebook	7
Twitter	8
At local facilities/centres/rinks	9
Mailings/flyers delivered to your home	10
Word of mouth	11
Other _____	XX
Don't know	99

## Section 5 - Demographics

S1. Are you...?

Male	1
Female	2
Other	3

S2. Are you the head of your household?

Yes	1	No	2
-----	---	----	---

S3. Which of the following age groups do you fall into?

17 years or younger	1
18-24 years	2
25-34 years	3
35-44 years	4
45-54 years	5
55-64 years	6
65-74 years	7
75 years and older	8

5.1 Including yourself, how many people live in your household?

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

5.2 How many are children 18 years or younger?

0	1	2	3	4	5	6	7+
---	---	---	---	---	---	---	----

5.3 How many children, if any, are still in diapers?

0	1	2	3	4	5+
---	---	---	---	---	----

5.4 How long have you lived in Niagara Region?

\_\_\_\_\_ years

5.5 What is the highest level of education you have completed?

Some high school or less	1
Graduated high school	2
Some college	3
Graduated college	4
Some university	5
Graduated university	6

Appendix 2c – Multi-residential online survey



Thank you for your interest in completing this online survey for multi-residential property tenants, owners/groups/associations in Niagara region about waste management. Please take 7-8 minutes to answer this important survey that will help Niagara Region plan for the future.

S1. Which of the following best describes your capacity related to this property/building?

Resident's association member/condo board member  
 Property management company  
 Building superintendent  
 Building/property owner  
 Tenant or unit owner

S2. Which municipality in Niagara region is your property/building located in?

Fort Erie (Ridgeway, Crystal Beach, Bridgeburg)  
 Grimsby  
 Lincoln (Beamsville, Vineland, Jordan)  
 Niagara Falls (includes Chippawa)  
 Niagara-On-The-Lake  
 Pelham (Fonthill, Ridgeville, Fenwick)  
 Port Colborne

St. Catharines (includes Port Dalhousie)  
 Thorold  
 Wainfleet  
 Welland  
 West Lincoln (Smithville)  
 Other – **THANK AND END**

S3. Which of the following best describes your property/building?

Single family home (detached or semi-detached)  
 Townhouse/row house  
 An apartment/condo in a house or building with two to six units (duplex, triplex, fourplex, etc.)

An apartment/condo in a building with seven or more units

1  
 2 **THANK AND END.**  
     **Direct to LDR survey**  
 3

4

S4. What type of garbage collection service does your property/building receive?

- |   |                   |
|---|-------------------|
| Put your garbage out to the road/curbside | 1                 |
| Centralized collection (dumpster/chute)   | 2 – THANK AND END |
| Both curbside and centralized collection  | 3                 |
| Don't know/not sure                       | 4                 |

S5. Do you take your own garbage to the curb or is that managed by the property/building?

PN: ASK IF S1=5 (Tenant)

- |                         |   |
|-------------------------|---|
| Take to the curb        | 1 |
| Managed by the building | 2 |

S6. How is your garbage taken to the curb for collection on a weekly basis?

PN: ASK IF S1 <= 4 (Non-tenant)

- |   |   |
|---|---|
| Our residents take out their own        | 1 |
| It is one of my weekly responsibilities | 2 |
| Someone else is responsible             | 3 |
| Don't know                              | 4 |

S7. Which of the following best describes the curbside garbage bag/container collection limits or pickup frequency at your property/building?

PN: ASK IF S6= 2 (Non-tenant)

A garbage bag/container limit of one (1) per residential unit, up to a maximum of twelve (12) per week picked up by Niagara Region

Up to twelve (12) garbage bags/containers for pick up by Niagara Region, but have paid private collection for anything more

Don't know

S8. Do you work directly for/in any of the following?

PN: ASK ALL

NOTE: We will not terminate in the online survey, but we can suppress during analysis as needed.

- |   | Yes | No |
|---|-----|----|
| A municipal or regional government      | 1   | 2  |
| A market research or advertising agency | 1   | 2  |
| The media                               | 1   | 2  |
| Waste management industry               | 1   | 2  |
| Local recycling authority               | 1   | 2  |

## SECTION 1 – GARBAGE COLLECTION

- 1.1 How important would you say it is that Niagara region works to reduce the amount of garbage that is sent for disposal?

Very important	1
Somewhat important	2
Not very important	3
Not important at all	4
DO NOT READ: Don't know	5

- 1.2 Which of these options best describes your property/building related to putting out garbage bags/containers to the curb on an average collection day for pickup by Niagara Region?

PN: ASK IF S6= 2 (Non-tenant)

We could easily put out more garbage bags/containers than what we are allowed  
 We put out the maximum number of garbage bags/containers allowed each week  
 On a weekly basis, we do not put out the maximum number of garbage bags/containers  
 Some weeks, we only put out a few garbage bags/containers

- 1.3 On average, how many garbage bags/containers does your property/building usually put out each week?  
 PLEASE PROVIDE AN AVERAGE NUMBER, NO RANGES.

\_\_\_\_\_

## SECTION 2 – RECYCLING/ORGANICS

- 2.1 Does your property/building put out the following items for curbside collection?

	Yes	No	DO NOT READ: Don't know
Recycling – Blue and/or Grey Box/Cart	1	2	9
Organics - Green Bin/Cart	1	2	9

- 2.2 Blue Box/Cart recycling includes containers that are made from plastic, metal, glass, or styrofoam. How many Blue Boxes/Carts does your property/building place at the curb in an average week?

PN: ASK IF 'YES' TO RECYCLING IN 2.1

PN: ASK IF S6= 2 (Non-tenant)

Blue Boxes

0    1    2    3    4    5    6    7    8

Blue Carts

0    1    2    3    4    5    6    7    8

2.3 Do you put a Blue Box/Cart at the curb more than once a month?

PN: ASK IF ZERO IN 2.2

Yes	1	No	2
-----	---	----	---

2.4 Grey Box/Cart recycling includes items such as paper, cardboard, cereal boxes, tissue boxes, etc., and bundled plastic bags. How many Grey Boxes/Carts does your property/building place at the curb in an average week? PN: ASK IF 'YES' TO RECYCLING IN 2.1

PN: ASK IF S6= 2 (Non-tenant)

Grey Boxes

0	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---

Grey Carts

0	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---

2.5 Do you put out a Grey Box/Cart at the curb more than once a month?

PN: ASK IF ZERO IN 2.4

Yes	1	No	2
-----	---	----	---

2.6 Green Bin/Cart organics program includes food waste, paper napkins/towels/bags, paper take-out trays/egg cartons, coffee grounds/filters & tea bags How many Green Bins/Carts or containers marked as organics does your property/building place at the curb in an average week? PN: ASK IF 'YES' TO ORGANICS IN 2.10

PN: ASK IF S6= 2 (Non-tenant)

Green Bins

0	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---

Green Carts

0	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---

2.7 Do you put a Green Bin/Cart or container at the curb more than once a month?

PN: ASK IF ZERO IN 2.6

Yes	1	No	2
-----	---	----	---

- 2.8 Why does your property/building not participate in the Green Bin/Cart Organics program? CLICK ALL THAT APPLY OR ADD SOME OF YOUR OWN.

PN: ASK IF 'NO TO ORGANICS IN 2.1

PN: MULTIPLE RESPONSE OPTION

Smell/Odour

Worried about bugs/maggots/pests/animals

Don't have room/space to store

Messy

Not convenient

Have a garburator

Not interested in sorting it out

Don't know

Other \_\_\_\_\_

### SECTION 3 – FUTURE OPTIONS

For Niagara Region's new waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposed collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

The purpose of this survey is to receive feedback from taxpayers on the possible collection options and to help Regional staff understand reaction to each option.

- 3.1 One option under consideration is the mandatory use of clear garbage bags. Some municipalities in Canada have already made this change. The cost for the clear bags would be about the same as green/black garbage bags. Clear garbage bags will make it easier to see recyclable or organic material that should be placed in the Blue/Grey Box/Cart or Green Bin/Cart or Hazardous Waste items that should be disposed of safely. A smaller opaque bag, such as a grocery bag, can be placed inside the clear garbage bag for disposing of sensitive or personal items. Would you support a switch to clear garbage bags?

PN: ASK ALL

Definitely would support

Probably would support

Might or might not support

Probably would not support

Definitely would not support

- 3.2 Why do you say that?

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- 3.3 Today in Niagara Region, only about 1 in 4 multi-residential buildings which use Niagara Region's garbage collection services, use the organics collection program. A second option under consideration, that is already in practice in many other municipalities which encourages residents to use their Green Bin/Cart, is to pick up garbage Every-Other-Week, but continue to collect unlimited Blue/Grey Boxes/Carts and unlimited Green Bins/Carts every week. There would be no change or reduction in the garbage container limit for a two-week period, but there would be less frequent pickup. With collection Every-Other-Week, your property/building would be allowed to put two (2) garbage bags/containers per unit, up to a maximum of twenty-four (24) out at the curb for pickup by Niagara Region. Based on your current waste practices, would you:

PN: ASK ALL

be able to manage garbage collection Every-Other-Week 1

OR

need to continue having your garbage picked up weekly 2

- 3.4 If Niagara Region collected garbage bags/containers Every-Other-Week, but collected your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your household/property/building?

PN: ASK ALL

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2
No impact	1

- 3.5 Why do you say that? CLICK ALL THAT APPLY OR ADD YOUR OWN.

PN: ASK IF "Big" or "some" impact in 3.4

PN: MULTIPLE RESPONSE OPTION

Smell  
 Storage  
 Animals  
 Insects  
 Pet Waste  
 Diapers  
 Health concerns  
 Messy  
 Scheduling  
 Don't know  
 Other \_\_\_\_\_

- 3.6 If you had to choose between mandatory use of clear garbage bags, Every-Other-Week garbage collection, or the use of both, which would you choose?

PN: ASK ALL

Clear garbage bags

Every-other-week garbage collection

Both clear garbage bags and every other week garbage collection

- 3.7 How likely is your unit/property/building to do the following as a result of a change to your garbage collection? Would you say...?

PN: Rotate

	Very likely	Somewhat likely	Not very likely	Not likely at all	No change
...more recyclables would be placed in the Blue/Grey Box/Cart	5	4	3	2	1
...more food and organics would be placed in the Green Bin/Cart	5	4	3	2	1
...you will look for other ways/places to dispose of waste	5	4	3	2	1

#### Section 4 – Communications/Outreach

- 4.1 Where do you tend to get your information about Niagara Region's waste management programs, services, or initiatives? CLICK ALL THAT APPLY OR ADD YOUR OWN.

PN: MULTIPLE RESPONSE OPTION

Local daily newspapers	1
Local Community weekly newspapers	2
Radio	3
Television	4
Website – Niagara Region	5
Website(s) – Other	6
Facebook	7
Twitter	8
At local facilities/centres/rinks	9
Mailings/flyers delivered to your home	10
Word of mouth	11
Other _____	XX
Don't know	99

Section 5 - Demographics

PN: ONLY ASK DEMOGRAPHIC QUESTIONS OF TENANTS – S1=5

5.1 Including yourself, how many people live in your household?

1      2      3      4      5      6      7      8      9      10

5.2 How many are children 18 years or younger?

0      1      2      3      4      5      6      7+

5.3 How many children, if any, are still in diapers?

0      1      2      3      4      5+

5.4 How long have you lived in Niagara Region?

\_\_\_\_\_ years

5.5 What is the highest level of education you have completed?

Some high school or less

Graduated high school

Some college

Graduated college

Some university

Graduated university

Appendix 2d – IC&I/mixed use online survey



Thank you for your interest in this online survey regarding waste management options for businesses in Niagara region. Please take 7-8 minutes to answer this important survey that will help Niagara Region plan for the future.

S1. Which municipality in Niagara region is your business/mixed use property located in?

Fort Erie (Ridgeway, Crystal Beach, Bridgeburg)  
 Grimsby  
 Lincoln (Beamsville, Vineland, Jordan)  
 Niagara Falls (includes Chippawa)  
 Niagara-On-The-Lake  
 Pelham (Fonthill, Ridgeville, Fenwick)  
 Port Colborne

St. Catharines (includes Port Dalhousie)  
 Thorold  
 Wainfleet  
 Welland  
 West Lincoln (Smithville)  
 Other – **THANK AND END**

S2. What type of garbage collection service does your business/mixed use property receive at this address?

Put your garbage out to the road/curbside or laneway for pickup by Niagara Region 1  
 Paid garbage collection picked up by a private company 2 – **THANK AND END**

S3. Are you an owner or a tenant at this address?

Property owner  
 Tenant/renter

S4. How would you classify your business(es) located at this address? **CLICK ALL THAT APPLY.**

**PN: Multiple response option**

Industrial - manufacturing, warehousing, logistics, etc.  
 Commercial - offices, hospitality, food, retail, etc.  
 Institutional - hospitals, community centres, medical centres, libraries, etc.  
 Other \_\_\_\_\_

S5. Does this property have any residential units?

Yes 1 – Mixed use

No 2 – IC&I

S6. Is your business/property located inside or outside the Designated Business Area (DBA), also known as the Business Improvement Area (BIA) in your municipality?

Inside 1

Outside 2

Not sure 3 – Will provide link to a map of the DBA for their municipality based on their answer to S1, so they can define where they are

S7. Does your business work directly for/in the following?

NOTE: We will not terminate in the online survey, but we can suppress during analysis as needed.

	Yes	No
A municipal or regional government	1	2
A market research or advertising agency	1	2
The media	1	2
Waste management industry	1	2
Local recycling authority	1	2

## SECTION 1 – GARBAGE COLLECTION

1.1 How important would you say it is that Niagara Region works to reduce the amount of garbage that is sent for disposal?

Very important	1
Somewhat important	2
Not very important	3
Not important at all	4
Don't know/not sure	5

1.2 Which of these options best describes your business/property related to putting out garbage bags/containers on an average collection day?

- We could easily put out more garbage bags/containers than what we are allowed
- We put out the maximum number of garbage bags/containers allowed each week
- On a weekly basis, we do not put out the maximum number of garbage bags/containers
- Some weeks, we only put out one or two garbage bags/containers
- We could probably skip a week and it wouldn't be a big concern

1.3 On average, how many garbage bags/containers does your property/building usually put out each week?  
PLEASE PROVIDE AN AVERAGE NUMBER, NO RANGES.

\_\_\_\_\_

## SECTION 2 – RECYCLING/ORGANICS

2.1 Does your business/property put out the following items?

	Yes	No Not sure	Don't know/
Recycling – Blue and/or Grey Box/Cart to the curb/laneway	1	2	9
Take cardboard to a centralized containers	1	2	9
Organics - Green Bin/Cart	1	2	9

2.2 Blue Box/Cart recycling includes containers that are made from plastic, metal, glass, or styrofoam. How many Blue Boxes/Carts does your business/property put out at the curb in an average week?

PN: ASK IF 'YES' TO RECYCLING IN 2.1

Blue Boxes

0    1    2    3    4    5    6    7    8

Blue Carts

0    1    2    3    4    5    6    7    8

2.3 Do you put a Blue Box/Cart out at the curb more than once a month?

PN: ASK IF ZERO IN 2.2

Yes                      1                                      No                      2

2.4 Grey Box/Cart recycling includes items such as paper, cardboard, cereal boxes, tissue boxes, etc., and bundled plastic bags. How many Grey Boxes/Carts does your business/property put out at the curb in an average week? PN: ASK IF 'YES' TO RECYCLING IN 2.1

Grey Boxes

0    1    2    3    4    5    6    7    8

Grey Carts

0    1    2    3    4    5    6    7    8

2.5 Do you put a Grey Box/Cart out at the curb more than once a month?

PN: ASK IF ZERO IN 2.4

Yes                      1                                      No                      2

- 2.6 Green Bin/Cart organics program includes food waste, paper napkins/towels/bags, paper take-out trays/egg cartons, coffee grounds/filters & tea bags. How many Green Bins/Carts does your property/business put out at the curb in an average week?

PN: ASK IF 'YES' TO ORGANICS IN 2.1

Green Bins

0      1      2      3      4      5      6      7      8

Green Carts

0      1      2      3      4      5      6      7      8

- 2.7 Do you put a Green Bin/Cart out at the curb more than once a month?

PN: ASK IF ZERO IN 2.6

Yes

1

No

2

- 2.8 Why does your business/property not participate in the Green Bin/Cart organics program?

PN: ASK IF 'NO TO ORGANICS IN 2.1

PN: MULTIPLE RESPONSE OPTION

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## SECTION 3 – FUTURE OPTIONS

For Niagara Region’s new waste collection (garbage, recycling and organics) contract, residents and businesses are being asked for their opinion about several proposed collection options. Adopting some or all of these options would help reduce the amount of waste going to disposal, and limit future costs to businesses and taxpayers.

The purpose of this survey is to receive feedback from businesses/property owners on the possible collection options and to help Regional staff understand business reaction to each option.

**NOTE: Clear bag questions to be asked whether inside or outside the DBA**

- 3.1 One option under consideration is the mandatory use of clear garbage bags. Some municipalities in Canada have already made this change. The cost for the clear bags would be about the same as green/black garbage bags. Clear garbage bags will make it easier to see recyclable or organic material that should be placed in the Blue/Grey Box/Cart or Green Bin/Cart or Hazardous Waste items that should be disposed of safely. A smaller opaque bag, such as a grocery bag, can be placed inside the clear garbage bag for disposing of sensitive or personal items. Would you support a switch to clear garbage bags?

Definitely would support  
Probably would support  
Might or might not support  
Probably would not support  
Definitely would not support

- 3.2 Why do you say that?

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**NOTE: Asked of IC&I or mixed use inside the DBA**

- 3.3 Which of the following best describes the total garbage bag/container collection limits or pickup frequency for your business/property?

A garbage bag/container limit of seven (7) per week picked up once a week  
(Survey will ask 3.4)

Garbage bag/container limit of more than seven (7) per week picked up once a week  
(Survey will skip to 3.14)

Garbage collection more than once a week (Survey will skip to 3.14)

Don’t know/not sure (Survey will skip to 3.16)

- 3.4 A second option under consideration will be to reduce the number of garbage bags/containers collected per week. The current limit for each property/businesses owner in your property is seven (7) bags/containers per week, but if this option proceeds, that number would be reduced to four (4) total per week. Data from audits conducted by Niagara Region shows that the average business is putting out about two (2) garbage bags/containers per week. Based on your current waste practices, would your business/property:

PN: ASK IF 3.3 =1

be able to manage the lower garbage bag/container limit every week 1

OR

need to continue having the current garbage bag/container limit 2

- 3.5 If Niagara Region reduced the number of garbage bags/containers collected every week to four (4) and continued to collect your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your property as a whole?

A big impact 5

Some impact 4

Might or might not be an impact 3

Not much of an impact 2

No impact 1

- 3.6 Why do you say that?

PN: ASK IF 3.5 =(4,5)

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NOTE: Asked of mixed use outside the DBA

- 3.7 A second option under consideration will be to reduce the number of garbage containers collected on a weekly basis. The current limit for all tenants/businesses located at your property is now six (6) containers total, but if this option proceeds, that number would be reduced to four (4) containers total. Based on your current waste practices, would your business/property as a whole:

be able to manage the lower garbage bag/container limit every week 1

OR

need to continue having the current garbage bag/container limit 2

- 3.8 If Niagara Region reduced the number of garbage containers collected every week to four (4) and continued to collect your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your property as a whole?

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2
No impact	1

- 3.9 Why do you say that?

PN: ASK IF 3.8 =(4,5)

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**NOTE:** Asked of IC&I outside the DBA

- 3.10a Approximately 1 in 10 businesses participate in Niagara Region's Green Bin/Cart organics program. One option under consideration, which is already in practice in many other municipalities and encourages residents and businesses to use their Green Bin/Cart, is to pick up garbage Every-Other-Week, but continue to collect Blue/Grey Boxes/Carts and Green Bins/Carts every week. There would be no change or reduction in the total number of garbage bag/containers collected for a two week period, but there would be less frequent pickup. This would mean that your business/property could put out 8 garbage bags/containers, Every-Other-Week. Based on your current waste practices, would you:

be able to manage garbage collection every other week 1

OR

need to continue having your garbage picked up weekly 2

**NOTE: Asked of mixed-use outside the DBA**

3.10b About 1 in 5 mixed use properties participate in Niagara Region’s Green Bin/Cart organics program. One option under consideration, which is already in practice in many other municipalities and encourages residents and businesses to use their Green Bin/Cart, is to pick up garbage Every-Other-Week, but continue to collect Blue/Grey Boxes/Carts and Green Bins/Carts every week. There would be no change or reduction in the total number of garbage bag/containers collected for a two week period, but there would be less frequent pickup. This would mean that your mixed use property could put out eight (8) garbage bags/containers, Every-Other-Week. Based on your current waste practices, would you:

be able to manage garbage collection every other week 1

OR

need to continue having your garbage picked up weekly 2

3.11 If Niagara Region collected garbage bags/containers Every-Other-Week, but collected your Blue/Grey Boxes/Carts and Green Bins/Carts every week, what would be the impact on your business/property?

A big impact	5
Some impact	4
Might or might not be an impact	3
Not much of an impact	2
No impact	1

3.12 Why do you say that? CLICK ALL THAT APPLY OR ADD YOUR OWN.

**PN: ASK IF “Big” or “some” impact in 3.11**

**PN: MULTIPLE RESPONSE OPTION**

Smell  
Storage  
Animals  
Insects  
Pet Waste  
Diapers  
Health concerns  
Messy  
Scheduling  
Don’t know  
Other \_\_\_\_\_

3.13 If you had to choose between mandatory use of clear garbage bags, Every-Other-Week garbage collection, or the use of both, which would you choose?

Clear garbage bags  
Every-other-week garbage collection  
Both clear garbage bags and Every-Other-Week garbage collection

**NOTE: Asked of IC&I receiving enhanced collection**

- 3.14a A second option under consideration will be to reduce the number of garbage bags/containers collected per week. In other municipalities this has encouraged residents and businesses to participate more fully in the recycling and organics programs. Data from audits conducted by Niagara Region shows that the average business is putting out between three and four garbage bags/containers per collection day. However, almost 40% are not participating in the Blue/Grey Box/Cart recycling program and over 90% are not participating in the Green Bin/Cart organics collection program. Based on your current waste practices, would your business:
- PN: ASK IF S5=2 AND 3.3 =2,3

be able to manage a reduction of the garbage bag/container limit on each collection day by:

- one (1) bag/container 1
- two (2) bags/containers 2
- three (3) bags/containers 3

OR

need to continue having the current garbage bag/container limit 4

**NOTE: Asked of mixed-use receiving enhanced collection**

- 3.14b A second option under consideration will be to reduce the number of garbage bags/containers collected per week. In other municipalities this has encouraged residents and businesses to participate more fully in the recycling and organics programs. Data from audits conducted by Niagara Region shows that the average property is putting out around three garbage bags/containers per collection day. However, almost 40% are not participating in the Blue/Grey Box/Cart recycling program and over 90% are not participating in the Green Bin/Cart organics collection program. Based on your current waste practices, would your property:
- PN: ASK IF S5=1 AND 3.3 =2,3

be able to manage a reduction of the garbage bag/container limit on each collection day by:

- one (1) bag/container 1
- two (2) bags/containers 2
- three (3) bags/containers 3

OR

need to continue having the current garbage bag/container limit 4

**NOTE: Asked of both IC&I and mixed-use receiving enhanced collection**

- 3.15 A third option under consideration will be to reduce the number of times garbage bags/containers are collected each week. Based on your current waste practices, would your business or property:
- PN: ASK IF 3.3 =3

be able to manage a reduction of one (1) garbage collection day each week

OR

need to continue having the current frequency of garbage collection

**NOTE: Back to asking all**

- 3.16 How likely are you to do the following as a result of a change to your garbage collection? Would you say ...? **PN: Rotate**

	Very likely	Somewhat likely	Not very likely	Not likely at all	No change for our business/property
...more recyclables would be placed in the Blue/Grey Box/Cart	5	4	3	2	1
...more food and organics would be placed in the Green Bin/Cart	5	4	3	2	1
...you will look for other ways/places to dispose of waste	5	4	3	2	1

#### Section 4 – Communications/Outreach

- 4.1 Where do you tend to get your information about Niagara Region's waste management programs, services, or initiatives? **CLICK ALL THAT APPLY OR ADD YOUR OWN.**

**PN: MULTIPLE RESPONSE OPTION**

Local daily newspapers	1
Local Community weekly newspapers	2
Radio	3
Television	4
Website – Niagara Region	5
Website(s) – Other	6
Facebook	7
Twitter	8
At local facilities/centres/rinks	9
Mailings/flyers delivered to your home	10
Word of mouth	11
Other _____	XX
Don't know	99

#### Section 5 – Business Information

- 5.1 Which of these best represents your role in the business?

Owner or President  
 Senior Manager or Vice-President level  
 Administration  
 Manager/Supervisor  
 Other \_\_\_\_\_

## Appendix 3 – Broad Based Public Consultation

**Public Open Houses** (All public open houses are from 6:00pm to 8:00pm, with a presentation at 6:30pm)

<b>Municipality</b>	<b>Venue</b>	<b>Address</b>	<b>Event Date</b>
Niagara-on-the-Lake	Community Centre	14 Anderson Lane, NOTL	November 1, 2018
Niagara Falls	Gale Centre – Memorial Community Room	5152 Thorold Stone Road, Niagara Falls	November 5, 2018
Welland	Community Wellness Complex - Theatre	145 Lincoln Street, Welland	November 6, 2018
Port Colborne	Roselawn Centre – Dining Room	296 Fielden Avenue, Port Colborne	November 8, 2018
Pelham	Pelham Meridian Centre – Accursi Room	100 Meridian Way, Fonthill	November 12, 2018
Fort Erie	Leisureplex- Banquet Hall	3 Municipal Centre Drive, Fort Erie	November 13, 2018
St. Catharines	St. Catharines Public Library- Central Branch, Mills Room	54 Church Street, St. Catharines	November 15, 2018
Thorold	Niagara Region Headquarters Building- CE101 and CE102	1815 Sir Isaac Brock Way, Thorold	November 19, 2018
Lincoln	Fleming Centre- 2 <sup>nd</sup> Floor Meeting Room	5020 Serena Drive, Beamsville	November 20, 2018
West Lincoln	Town of West Lincoln Municipal Office- Council Chambers	318 Canborough Street, Smithville	November 22, 2018
Grimsby	Peach King Centre – Auditorium	162 Livingston Avenue, Grimsby	November 27, 2018
Wainfleet	Firefighters Memorial Community Hall	31907 Park Street, Wainfleet	November 28, 2018

**Community Booths:**

<b>Municipality</b>	<b>Venue</b>	<b>Address</b>	<b>Event Date</b>	<b>Event Time</b>
St. Catharines	Pen Centre	221 Glendale Avenue, St. Catharines	October 30, 2018	9am-9pm
Niagara Falls	MacBain Community Centre	7150 Montrose Road, Niagara Falls	November 5, 2018	9:30am-4pm
Niagara-on-the-Lake	Community Centre	14 Anderson Lane, NOTL	November 6, 2018	9am-3:30pm
Port Colborne	Vale Health and Wellness Centre	66 Charlotte Street, Port Colborne	November 7, 2018	4:30pm-9pm
Thorold	Thorold Public Library	14 Ormond Street, Thorold	November 8, 2018	10am-7:30pm
Pelham	Pelham Public Library	43 Pelham Town Square, Fonthill	November 12, 2018	10am-4:30pm

**Niagara Region Waste Collection – February 2019**

<b>Municipality</b>	<b>Venue</b>	<b>Address</b>	<b>Event Date</b>	<b>Event Time</b>
Fort Erie	Fort Erie Centennial Library	136 Gilmore Rodd, Fort Erie	November 13, 2018	9:30am-4:30pm
Welland	Seaway Mall	800 Niagara Street, Welland	November 14, 2018	10am-8pm
Lincoln	Fleming Centre	5020 Serena Drive, Beamsville	November 20, 2018	9am -5pm
West Lincoln	West Lincoln Public Library - Smithville	177 West Street, Smithville	November 21, 2018	10am-4:30pm
Wainfleet	Wainfleet Arena	31943 Park St, Wainfleet	November 22, 2018	2:30pm-8:30pm
Grimsby	Grimsby Public Library	18 Carnegie Lane, Grimsby	November 26, 2018	9am-8:30pm

Record of Consultation with Organizations Representing Businesses (as of November 30, 2018)

Municipality	Meeting Date	Organization Name	Meeting Attendees from Organization Representing Businesses (ORB)	ORB Reps. Not in Attendance	Public Works Official in Attendance	Email Sent to Organization to Request Formal Feedback	Letter on Proposed Collection Options for Businesses Provided to Organization by Email
Fort Erie	23-Aug-18	Ridgeway Business Improvement Association (BIA)	Marge Ott	N/A	Kelly Walsh	10-Oct-18	24-Oct-18
		Crystal Beach BIA	No DBA rep present	Casey Marzec	Kelly Walsh	10-Oct-18	24-Oct-18
		Bridgeburg Station BIA	No DBA rep present	Julie Brady	Kelly Walsh	10-Oct-18	24-Oct-18
Grimsby	01-Aug-18	Grimsby Downtown Improvement Association (Friendly by Nature)	Leigh Jankiv	N/A	Bob LeRoux	10-Oct-18	24-Oct-18
Lincoln	10-Aug-18	Downtown Beamsville BIA	Stephanie Hicks	N/A	Dave Graham	10-Oct-18	24-Oct-18
Niagara Falls	15-Aug-18	Clifton Hill BIA	No DBA rep present	Joel Noden	Geoff Holman	10-Oct-18	24-Oct-18
		Fallsview BIA	Sue Mingle	Wayne Thomson	Geoff Holman	10-Oct-18	24-Oct-18
		Lundy's Lane BIA	David Jankovic	Tish DiBellonia	Geoff Holman	10-Oct-18	24-Oct-18

**Niagara Region Waste Collection – February 2019**

<b>Municipality</b>	<b>Meeting Date</b>	<b>Organization Name</b>	<b>Meeting Attendees from Organization Representing Businesses (ORB)</b>	<b>ORB Reps. Not in Attendance</b>	<b>Public Works Official in Attendance</b>	<b>Email Sent to Organization to Request Formal Feedback</b>	<b>Letter on Proposed Collection Options for Businesses Provided to Organization by Email</b>
		Main and Ferry BIA	Ruth Ann Nieuwesteeg	N/A	Geoff Holman	10-Oct-18	24-Oct-18
		Victoria Centre	Eric Marcon	Tim Parker	Geoff Holman	10-Oct-18	24-Oct-18
		Queen Street Niagara Falls Downtown BIA (The Q)	No DBA rep present	Ron Charbonneau	Geoff Holman	10-Oct-18	24-Oct-18
<b>Niagara -on-the-Lake</b>	10-Sep-18	Niagara-on-the-Lake	Janice Thompson	N/A	Sheldon Randall	10-Oct-18	24-Oct-18
<b>Pelham</b>	08-Aug-18	Pelham Business Association	David Tucker	N/A	Derek Young, Ryan Cook	10-Oct-18	24-Oct-18
<b>Port Colborne</b>	24-Aug-18	Port Colborne-Main Street BIA	Frank Danch	N/A	Chris Lee	10-Oct-18	24-Oct-18
		Port Colborne-Downtown BIA	Betty Konc	N/A	Chris Lee	10-Oct-18	24-Oct-18
<b>Port Dalhousie</b>	22-Aug-18	Port Dalhousie Business Association	Wolfgang Guembel	N/A	Dan Dillon	10-Oct-18	24-Oct-18
<b>St. Catharines</b>	22-Aug-18	St. Catharines Downtown Association	Tisha Polocko	N/A	Dan Dillon	10-Oct-18	24-Oct-18
<b>Thorold</b>	02-Aug-18	Thorold BIA	Marsha Coppola, Tim Whalen	N/A	Sean Dunsmore	10-Oct-18	24-Oct-18

**Niagara Region Waste Collection – February 2019**



<b>Municipality</b>	<b>Meeting Date</b>	<b>Organization Name</b>	<b>Meeting Attendees from Organization Representing Businesses (ORB)</b>	<b>ORB Reps. Not in Attendance</b>	<b>Public Works Official in Attendance</b>	<b>Email Sent to Organization to Request Formal Feedback</b>	<b>Letter on Proposed Collection Options for Businesses Provided to Organization by Email</b>
	26-Sept-18	Venture Niagara	Susan Morin	N/A	N/A	10-Oct-18	24-Oct-18
	26-Sept-18	Niagara Centre Board of Trade and Commerce	John D’Amico	N/A	N/A	10-Oct-18	24-Oct-18
<b>Welland</b>	09-Aug-18	Downtown Welland BIA	Amanda MacDonald, Delores Wright	N/A	Eric Nickel	10-Oct-18	24-Oct-18
		North Welland BIA	John Clark	N/A	Eric Nickel	10-Oct-18	24-Oct-18
<b>Fort Erie, Grimsby, Lincoln, Niagara Falls, NOTL, Pelham, Port Colborne, St. Catharines, West Lincoln, Welland</b>	13-Sept-18	Greater Niagara Chamber of Commerce	Mishka Balsom	N/A	N/A	10-Oct-18	24-Oct-18
<b>Fort Erie, Grimsby, Lincoln, Niagara Falls, Pelham, Port</b>	22-Aug-18	Niagara Chamber of Commerce Partnership	Rebecca Shelley (Grimsby) Johnathan George (Fort Erie), Paul Scottile (Niagara Falls),	N/A	N/A	10-Oct-18	24-Oct-18



**Niagara Region Waste Collection – February 2019**



<b>Municipality</b>	<b>Meeting Date</b>	<b>Organization Name</b>	<b>Meeting Attendees from Organization Representing Businesses (ORB)</b>	<b>ORB Reps. Not in Attendance</b>	<b>Public Works Official in Attendance</b>	<b>Email Sent to Organization to Request Formal Feedback</b>	<b>Letter on Proposed Collection Options for Businesses Provided to Organization by Email</b>
<b>Colborne, Welland, West Lincoln</b>			Delores Fabiano (Niagara Falls), Denise Potter (West Lincoln), Jim Arnold (Niagara Falls), Len Stolk (Port Colborne/ Wainfleet), Gary Bruce (Lincoln), Anna Murre (Lincoln)				
	21-Sept-18	Niagara Industrial Association	Adam Joon, Aaron Tisdelle	N/A	N/A	10-Oct-18	24-Oct-18
<b>Fort Erie, Grimsby, Lincoln, Niagara Falls, NOTL, Port Colborne, St. Catharines, Welland, West Lincoln</b>	18-Sept-18	Tourism Niagara	Karin Jahnke-Haslam, Anthony Annunziata	Tourism Niagara met on behalf of Noel Buckley (Niagara Falls Tourism) Victor Ferraiuolo (Niagara Falls Tourism)	N/A	N/A	N/A



**Niagara Region Waste Collection – February 2019**



Municipality	Meeting Date	Organization Name	Meeting Attendees from Organization Representing Businesses (ORB)	ORB Reps. Not in Attendance	Public Works Official in Attendance	Email Sent to Organization to Request Formal Feedback	Letter on Proposed Collection Options for Businesses Provided to Organization by Email
				Janice Thomson (NOTL) Brian York (St. Catharines) Erin Thomson (Twenty Valley Tourism) Ron Bodnar (Niagara South Coast Tourism)			


Let's Talk Waste Promotion				
	Medium	Date	Location	Sample/Link
<b>LETTERS</b>				
	Letters to Business Owners (inside DBA)	22-Oct	Business Inside DBA	<a href="#">Letter</a>
	Letters to Business Owners (outside DBA)	22-Oct	Business Outside DBA	<a href="#">Letter</a>
	Letters to Multi-residential Owners	22-Oct	Multi-residential buildings	<a href="#">Letter</a>
<b>WEB</b>				
	Webpage	23-Oct	Niagara Region Website	<a href="#">Webpage</a>
	Webpage banner	23-Oct	Niagara Region Waste webpage	
	Local Area Municipalities			
<b>MEDIA COVERAGE</b>				
	Media Release	25-Oct	Niagara Region Website	<a href="#">Media Release</a>
	Radio Interview	05-Nov	I Heart Radio	

Let's Talk Waste Promotion				
	Television Coverage	Nov 5 - Nov 30	Cogeco - YourTV	<a href="#">Show</a>
	Articles	28-Oct	Erie Media	<a href="#">Article</a>
		05-Nov	Niagara Falls Review	
		05-Nov	St. Catharines Standard	<a href="#">Article</a>
		07-Nov	Voice of Pelham	<a href="#">Article</a>
<b>NEWSPAPER</b>				
<b>PRINT</b>				
	Print Advertising	25-Oct	Niagara this Week	 <p><b>Do you use Niagara Region's curbside garbage collection service? If so, we want to hear from you!</b></p> <p>Niagara Region is in the process of consulting with various groups (i.e. residents, business owners, associations, etc.) to obtain their input on the proposed collection service options being considered for Niagara Region's next waste collection contract.</p> <p>To find out more information, complete the on-line survey, or obtain a list of public open houses and community booth dates, visit <a href="http://niagararegion.ca/letstalkwaste">niagararegion.ca/letstalkwaste</a>.</p> <p>Survey closes at midnight on November 30, 2018</p> <p><b>Niagara Region</b> Waste Info-Line 905-356-4141 or 1-800-594-5542</p>
		27-Oct	St. Catharines Standard	
		01-Nov	Niagara this Week	
		03-Nov	Niagara Falls Review	
		03-Nov	Welland Tribune	
		08-Nov	Niagara this Week	
		10-Nov	St. Catharines Standard	
		15-Nov	Niagara this Week	
		15-Nov	News Now	
		22-Nov	Niagara this Week	
<b>ONLINE</b>		22-Nov	News Now	 <p><b>Let's Talk Waste NIAGARA</b></p> <p>Niagara Region wants your input on the proposed options for the next waste collection contract</p> <p><b>Niagara Region</b></p>
	24 Hour Online Advertising	30-Oct	St. Catharines Standard	 <p><b>Let's Talk Waste NIAGARA</b></p> <p>Niagara Region wants your input on the proposed options for the next waste collection contract</p> <p><b>Niagara Region</b></p>
		30-Oct	Niagara Falls Review	
		30-Oct	Welland Tribune	
		06-Nov	St. Catharines Standard	
		06-Nov	Niagara Falls Review	
		06-Nov	Welland Tribune	
		13-Nov	St. Catharines Standard	

Let's Talk Waste Promotion				
		13-Nov	Niagara Falls Review	
		13-Nov	Welland Tribune	
		20-Nov	St. Catharines Standard	
		20-Nov	Niagara Falls Review	
		20-Nov	Welland Tribune	
		24-Nov	Niagara this Week	
	1 Week Online Advertising	Nov 22-29	News Now	
	Big Box Takeover	30-Oct	St. Catharines Standard	
		30-Oct	Niagara Falls Review	
		30-Oct	Welland Tribune	
		05-Nov	St. Catharines Standard	
		05-Nov	Niagara Falls Review	
		05-Nov	Welland Tribune	
		11-Nov	St. Catharines Standard	
		11-Nov	Niagara Falls Review	
		11-Nov	Welland Tribune	
		20-Nov	St. Catharines Standard	
		20-Nov	Niagara Falls Review	
		20-Nov	Welland Tribune	
	SOCIAL MEDIA			

Let's Talk Waste Promotion				
	Facebook Paid Ad	Oct 25- Nov 28	Niagara Region Facebook	 <p>Niagara Region October 25 at 3:25 PM · 🌐</p> <p>Do you use Niagara Region's curbside garbage collection service? We want your input on the proposed options for the next waste collection contract. Take the survey or attend a public open house to have your say.</p> <p><b>Let's Talk Waste NIAGARA</b></p> <p>NIAGARAREGION.CA <b>Let's Talk Waste Niagara</b> Niagara Region's next waste collection contract... <a href="#">Learn More</a></p>
	Twitter Post	Oct 23- Nov 28	Niagara Region Twitter	 <p>Niagara Region @NiagaraRegion · Oct 26</p> <p>Do you use #Niagara Region's curbside garbage collection service? We want your input on the proposed options for the next waste collection contract. Take the survey or attend a public open house to have your say. <a href="https://bit.ly/2PUe116">bit.ly/2PUe116</a></p> <p><b>Let's Talk Waste NIAGARA</b></p>

Let's Talk Waste Promotion				
	Facebook Events for Open Houses	Nov 1 - Nov 28	Niagara Region Facebook	
INTERNAL				
	Vine Intranet	31-Oct	Niagara Region Vine	

Let's Talk Waste Promotion				
	Vine Weekly	01-Nov	Vine Weekly	<p>Let's Talk Waste Niagara</p>  <p>Hi Ashley, Niagara Region's Waste Management department is consulting with various groups (i.e. residents, business owners, associations, etc.) for input on the proposed collection service options being considered for Niagara Region's next waste collection contract.</p> <p>Information, survey and open houses</p>

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## **MEMORANDUM**

**WMPSC-C 6-2019**

**Subject: Special Events Recycling and Organics – 2018 Program Results**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Emily Hughes, Waste Diversion Coordinator**

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The purpose of this memorandum is to provide an overview of the 2018 Special Events Recycling and Organics (SER&O) programs to the Waste Management Planning Steering Committee. SER&O programs are available throughout the year to all community public events within the Niagara Region. These programs assist in diverting waste generated at public events from landfill, and reduce disposal costs for event organizers. The SER&O programs also increase public awareness of Niagara Region's waste diversion programs at community events, which can lead to improved waste diversion practices in residential homes. The Special Events Recycling program has been in place since 2005 and the Special Events Organics program began in 2013.

### 2018 Special Events Recycling Program

The 2018 Special Events Recycling program serviced events in all 12 local municipalities. Key highlights of the 2018 recycling program included:

- 180 events serviced compared to 200 events in 2017
- 25,355 kilograms of recyclables collected and diverted from landfill, a 35 per cent increase of material captured and diverted over 2017

### 2018 Special Events Organics Program

The 2018 Special Events Organics program serviced events in nine local municipalities. Key highlights of the 2018 organics program include:

- 98 events serviced compared to 112 events in 2017
- 23,524 kilograms of organics collected and diverted from landfill, a 28 per cent decrease from 2017

### Eco-Defenders

Niagara Region continues to strengthen its partnership with Eco-Defenders, a local non-profit community group that provides waste sorting volunteers to events interested in maximizing their diversion efforts. The table below provides a couple of examples of the impact the Eco-Defenders volunteer group has had for events that utilized the group for the first time in 2018, to further reduce waste destined for landfill.

Eco-Defender Volunteer Group Impact						
Event Name	2017 Event Results *Did not have Eco-Defenders		2018 Event Results With Eco-Defenders		2017-2018 Diversion Increase	
	Recyclables (kg)	Organics (kg)	Recyclables (kg)	Organics (kg)	Recyclables (%)	Organics (%)
Jazz in the Park Niagara-on-the-Lake	103	181	128	301	24.2	66.3
Au Marche St. Catharines	0	37	15	52	100	40.5

Eco-Defenders have been trained by Niagara Region staff to properly sort event waste and improve the quality of organic and recyclable material generated from the events. Material diverted by Eco-Defenders is free of contamination, and minimal garbage is produced at these events resulting in reduced disposal costs for event coordinators. In 2018, Niagara Region partnered with the Eco-Defenders to service 12 events, an increase from the 10 events serviced in 2017. Niagara Region staff will work to expand their partnership with Eco-Defenders and other community stakeholders throughout Niagara in order to maximize waste diversion in 2019.

### Program Costs

The 2018 total cost of the SER&O programs was \$29,245, a 44 per cent increase in the total program cost compared to \$20,344 in 2017. The total cost includes collection costs, processing costs, program supplies and promotional materials. The increase in cost was related to the purchase of additional recycling tools and a new Special Events Organics collection contract.

Additional recycling tools, including recycling carts and locks, were purchased in 2018 to replace worn and damaged tools, which accounted for \$5,685 in additional spending.

At the end of 2017, Niagara Region released a Request For Quote for a new Special Events Organics collection contract. Davidson Environmental successfully procured the two year contract. Although less organics tonnage was collected in 2018, there was an increase in cost for this service as a result of the new contract of just over \$3,000.

### Diversion

The 2018 SER&O programs diverted 48,879 kilograms of waste from Regional landfills, which is roughly the same amount that was diverted in 2017 (48,729 kilograms). Although the number of events serviced in 2018 decreased by 10 per cent, the overall tonnage remained the same. This is primarily due to the increase in the number of Eco-

Defender events as well as recurring events that are familiar with the Region's program and have produced consistent tonnage.

Niagara Region staff reached out to all events serviced in 2017 to follow up on repeat service in 2018, however, not all of the events re-registered.

In 2018, Niagara Region staff placed additional emphasis on diversion training and coaching for event contacts and volunteers. The additional follow up with the event contacts helped to capture higher quality recycling and organic material, and reduced the instances of material mishandling. As a result, there was no significant contamination in the recycling and organic material, and only 477 kilograms (55 per cent less than 2017) of material from five events was sent to landfill during the 2018 SER&O season due to the mismanagement of the recyclables and organics at the event.

As of the end of January, more than 20 events have already requested SER&O services for the 2019 season.

Respectfully submitted and signed by,

---

Emily Hughes  
Waste Diversion Coordinator

## **Appendices**

Appendix A – 2018 Special Event Recycling and Organics Events

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Appendix A – 2018 Special Events Recycling and Organics Events

Municipality	Month	Name of Event
Fort Erie	June	Stevensville Springfest
Fort Erie	July	28 <sup>th</sup> Annual Ridgeway Summer Festival
Fort Erie	July	Friendship Festival
Fort Erie	August	Station 3 Community Day & Artisan Vendor Market
Fort Erie	August	2018 PWC MS Bike
Fort Erie	September	SNLM Key-2-Hope Sugarbowl 5/10k Run, Walk & Roll
Fort Erie	September	Ridgeway Fall Festival
Grimsby	July	Canada Day Celebration
Lincoln	May	Spring Fair
Lincoln	May	Niagara Children's Water Festival
Lincoln	June	Summer Solstice Concert
Lincoln	July-August	Sunset Music Series – <b>9 events</b>
Lincoln	September	Pioneer Day
Lincoln	September	Lincoln Rerooted
Lincoln	October	Balls Falls Thanksgiving Festival
Lincoln	October	Vineland ARTfest
Lincoln	October	O'Shavings Country Craft Show
Niagara Falls	May	Mandarin MS Walk 2018
Niagara Falls	June	Ragnar Relay
Niagara Falls	June	Springlicious
Niagara Falls	June	Niagara Falls Women's Half Marathon
Niagara Falls	June	Ride to Conquer Cancer 2018
Niagara Falls	June	Niagara Falls Rotary Rib Fest
Niagara Falls	June	SCVFA Annual Carnival
Niagara Falls	June	Niagara Region Corporate Picnic
Niagara Falls	June-July	CIFRA Dance Camp
Niagara Falls	July	Niagara Falls Canada Day
Niagara Falls	July	Maple Leaf Cup
Niagara Falls	July	Summer Daze BBQ Classic
Niagara Falls	July	Day of 1000 Musicians
Niagara Falls	July-Sept	Chippawa Volunteer Firefighters Association/ Slo Ptich
Niagara Falls	September	Carmel Fine Art and Music Festival
Niagara Falls	October	Niagara Falls International Marathon
Niagara Falls	October	Community Garden Clean-up
Niagara Falls	October	Christmas Eve Dinner Gift Giveaway
NOTL	March	Bunny Trail Fundraiser
NOTL	May	Virgil Stampede
NOTL	May	Party in the Vineyard: Food Truck Edition
NOTL	May-Sept	The "Original" Supper Market – <b>18 events</b>
NOTL	June	Strawberry Festival
NOTL	June	Fort George in the Great War
NOTL	July	Celebrate Canada Day
NOTL	July	NEOB Lavendar Festival
NOTL	July	The Commons Market

Municipality	Month	Name of Event
NOTL	July	International Cool Climate Chardonnay Celebration
NOTL	July	St David's Lions Carnival
NOTL	July	Jazz in the Park
NOTL	August	Peach Pickers Picnic
NOTL	August	Fife and Drum Muster Soldiers Field Day
NOTL	September	Niagara Polo
NOTL	September	Scout Brigade of Fort George
Pelham	June	Pelham Supper Market – <b>15 events</b>
Pelham	June	Niagara Region Corporate BBQ
Pelham	July	Pelham Canada Day Celebration
Pelham	July	Pelham Summerfest 2018
Pelham	December	Pelham Outdoor Christmas Market
Port Colborne	August	Canal Days
St. Catharines	February	18 <sup>th</sup> Annual Mayor's Pancake Breakfast – Toque Tuesday
St. Catharines	April	In the Soil Arts Festival
St. Catharines	May-June	Niagara Olympic Club School Track Meets
St. Catharines	May	Hike for Hospice
St. Catharines	May	Spring Niagara Craft Show
St. Catharines	May	Fruitbelt – Niagara Cuboree
St. Catharines	May	Rankin Cancer Run
St. Catharines	June	CSSRA Regatta
St. Catharines	June	Grapes of Wrath Mud Run
St. Catharines	June	Niagara Veg Fest
St. Catharines	June-August	Port Dalhousie Supper Market – <b>13 events</b>
St. Catharines	June	FIBA Americas Championship Street Festival
St. Catharines	June	Kids Ultimate Challenge
St. Catharines	June	Lions Annual Carnival
St. Catharines	June	Employee Appreciation Day
St. Catharines	June	TD Wealth Tailgate Party
St. Catharines	June	Ride Don't Hide
St. Catharines	July	Westburne's Canada Day Community Celebration
St. Catharines	July	Horse Power Car Show
St. Catharines	July	Vacation Bible School
St. Catharines	July	Tiamo Festival
St. Catharines	July	International Cool Climate Chardonnay Celebration
St. Catharines	July	World Music on the Beach
St. Catharines	July	World Hepatitis Day Community Awareness Event
St. Catharines	August	St. Catharines Rotary Rib Fest
St. Catharines	August	Royal Canadian Henley Regatta
St. Catharines	August	St. Catharines Wing Fest
St. Catharines	August	Grantham Food Festival
St. Catharines	August	Mayor's Au Marche
St. Catharines	August	Port Weller Annual Banquet Day
St. Catharines	August	Concord Year End Tournament

<b>Municipality</b>	<b>Month</b>	<b>Name of Event</b>
St. Catharines	August	Niagara Greek Festival
St. Catharines	August	Community Days Carnival
St. Catharines	September	Celebration of Nations
St. Catharines	September	Big Move Cancer Ride
St. Catharines	September	River Lions CEBL Launch Party
St. Catharines	September	Falls Handmade Market
St. Catharines	September	Niagara Grape and Wine Festival
St. Catharines	September	Kids Day Fishing Derby
St. Catharines	September	CIBC Run for the Cure
St. Catharines	October	Niagara Regional Native Centre Pow Wow
St. Catharines	October	LCHS Barktoberfest Fundraiser
St. Catharines	October	Pumpkinville
St. Catharines	October	Cicada Music Arts 2018
St. Catharines	October	Strides2Wellness Walk/Run/Roll
St. Catharines	December	The Great Holiday Food Drive
Thorold	June	Public Works Week BBQ
Thorold	July	Canada Day Celebration
Thorold	July	Thorold Car Show
Thorold	September	Toronto Marlies vs. Rochester Americans
Thorold	October	2019 Canada Games Torch Relay
Wainfleet	September	Marshville Heritage Festival
Welland	May	South Niagara Invitational Regatta
Welland	June	Niagara Tuner Truck Expo
Welland	June	NRAS Grow to Fair Festival
Welland	June	ROWONTARIO Small Boat Trials
Welland	June	Niagara Region Corporate Picnic
Welland	June	Canadian Dragon Boat Championships
Welland	July	ROWONTARIO Provincial Masters Rowing Regatta
Welland	July	Owenpalooza
Welland	July	2018 ICF Canoe Polo World Championships
Welland	July	Canoe Polo World Championships Opening Ceremonies
Welland	September	Feast Street Niagara
Welland	September	Head of the Welland – 5 Bridges Classic Regatta
Welland	September	Central Fire Station Restoration Celebration
Welland	September	Last Chance Cart Show and Swap Meet
Welland	October	Welland Fall Festival
Welland	October	University Women's Club Book Sale
West Lincoln	July	West Lincoln Canada Day

## MEMORANDUM

**WMPSC-C 7-2019**

**Subject: 2015/2016 Waste Composition Study Results**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Brad Whitelaw, Program Manager, Policy and Planning**

The purpose of this memorandum is to respond to the Councillor Information Request made at the January 8, 2019 Public Works Committee meeting to provide information respecting what constitutes the 36% of non-recyclable and non-compostable materials in the garbage bags collected between 2015 and 2016, as described in Report PW 3-2019.

### Background:

AET Group was retained by Niagara Region to complete the 2015/2016 Waste Composition Study (Study). This Study involved conducting four seasonal, two-week waste audits of curbside garbage, recycling and organic materials collected from 170 low-density residential (LDR) households across Niagara region, between July 2015 and April 2016.

### Survey Results:

Based on the results of this Study, it was determined that the average Niagara LDR household's garbage container contained the following:

- 49.80% was "**Green Bin Organics**", which included the following materials:

Material	Percent
○ <b>non-food organic waste</b> (e.g. pet waste, tissue/towelling, etc.)	19.00%
○ <b>avoidable food waste</b> (e.g. leftover bakery, meat, fruit, vegetables)	18.30%
○ <b>unavoidable food waste</b> (e.g. vegetable and fruit peelings, fats, oils)	12.50%

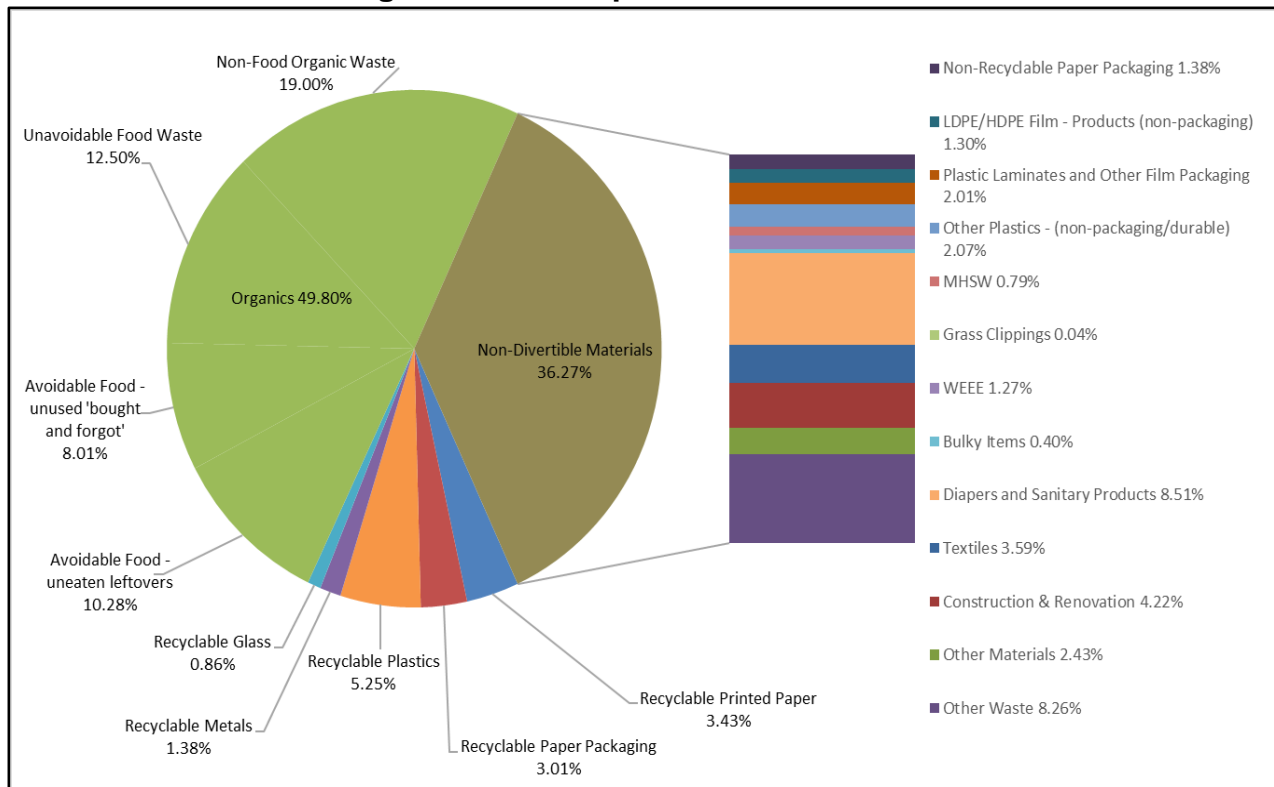
- 13.93% was "**Blue/Grey Box Recyclables**", which included the following materials:

Material	Percent
○ <b>recyclable plastics</b> (e.g. pop/water bottles, margarine tubs, etc.)	5.25%
○ <b>recyclable printed paper</b> (e.g. newspapers, fine paper, etc.)	3.43%
○ <b>recyclable paper packaging</b> (e.g. cereal/tissue boxes, cardboard, etc.)	3.01%
○ <b>recyclable metals</b> (e.g. aluminum and steel food/beverage cans, etc.)	1.38%
○ <b>recyclable glass</b> (e.g. clear and coloured food/beverage containers)	0.86%

- 36.27% was “**Non-Divertible Materials**”, which included the following materials not acceptable in the Region’s curbside recycling or organics collection programs:

<b>Material</b>	<b>Percent</b>
○ <b>diapers and sanitary products</b> (e.g. feminine hygiene products)	8.51%
○ <b>other waste</b> (e.g. vacuum bags, furnace filters, non-recyclable fast-food containers, etc.)	8.26%
○ <b>construction/renovation waste</b> (e.g. wood, plaster, etc. These materials are divertible at Region’s Drop-off Depots)	4.22%
○ <b>textiles</b> (e.g. clothing, shoes, mats, drapes, etc. These materials are divertible at Region’s Drop-off Depots or at charitable organizations)	3.59%
○ <b>other materials</b> (e.g. coffee pods, steel baking trays, ceramics, glass dishes, window glass, rubber tubes and hoses, etc.)	2.43%
○ <b>other plastics (non-packaging/durable)</b> (e.g. tubs, toys, etc. These materials are divertible at Region’s Drop-off Depots)	2.07%
○ <b>plastic laminates and other film packaging</b> (e.g. chip bags, cereal liners, pasta bags, etc.)	2.01%
○ <b>non-recyclable paper packaging</b> (e.g. multi-layer paper/plastic, paper ice cream cartons)	1.38%
○ <b>LDPE/HDPE film products (non-packaging)</b> (e.g. freezer bags, sandwich bags, food wrap, etc.)	1.30%
○ <b>Waste Electrical and Electronic Equipment (WEEE)</b> (e.g. telecom equipment, small home appliances, and other electronics. These materials are divertible at Region’s Drop-off Depots)	1.27%
○ <b>Municipal Hazardous or Special Waste (MHSW)</b> (e.g. batteries, oil, MHSW liquids, etc. These materials are divertible at Region’s MHSW Depots)	0.79%
○ <b>bulky items</b> (e.g. carpets, mats, small furniture, etc.)	0.40%
○ <b>grass clippings</b> (These are divertible at Region’s Drop-off Depots or through grasscycling)	0.04%

## Overall 2015/2016 Garbage Stream Composition



A copy of the complete Study is included as Appendix 1.

Respectfully submitted and signed by

*Brad Whitelaw*

Brad Whitelaw, BA, CIM, P.Mgr, CAPM  
Program Manager, Policy and Planning

## Appendices

Appendix 1 – 2015/2016 Waste Composition Study

## **2015/2016 Seasonal Low-Density Residential Dwelling Curbside Waste Composition Study**

### **Niagara Region Comprehensive Report**

Prepared for

The Regional Municipality of Niagara

Prepared by

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December 22, 2016

Project No. NIA\_WAC1415\_052



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## EXECUTIVE SUMMARY

Niagara Region (the Region) solicited bids from proponents (proposal number 2014-RFP-50) to conduct a comprehensive low-density residential dwelling waste composition study and prepare a detailed summary report. The Region retained the services of AET Group to conduct the waste composition study involving samples from all twelve local area municipalities (LAMs) across the region, from July 6, 2015 to April 22, 2016 (four seasonal two-week audits). The twelve LAMs include: Fort Erie, Grimsby, Lincoln, Niagara Falls, Niagara-on-the-Lake, Pelham, Port Colborne, St. Catharines, Thorold, Wainfleet, Welland and West Lincoln.

The project objectives were to conduct a series of four seasonal, low-density residential dwelling waste audits within each municipality of the Niagara region. The results collected were used to provide the following information:

- Determine the 2015/2016 program performance measures that include:
  - Capture rate;
  - Diversion (recovery) rate;
  - Participation rate;
  - Residue rate;
  - Set-out rate;
  - Waste generation rate;
- Resource Productivity and Recovery Authority (RPRA, formerly WDO) Datacall's Best Practice performance metric for "Projected kg/hhld Recovered";
- Identify set-out trends that include:
  - Mixed recycling (fibres and containers in one Blue or Grey Box);
  - Total number of non-traditional boxes (non-Blue/Grey Box containers) and transparent bags being set out at each household;
  - Placement of plastic bags/film in boxes;
- Provide qualitative summary of observations and quantify the extent of recycling cross-contamination, specifically including:
  - Frequency, percentage and weight of each recyclable material category being placed in the incorrect recycling container;
  - Households in the study area that set-out loose vs. bundled plastic bags in the Blue/Grey Box stream and identify how many households placed them in their Grey Box correctly vs. their Blue Box;
  - Overall level of cross-contamination by Blue Box and Grey Box streams.
- Compare the 2015/2016 seasonal waste audit results and program performance measures for participants in recycling and organics programs to non-participants in recycling and/or organics programs (i.e. composition of waste in those households that do participate in the recycling and/or organics program vs. those households that do not participate);
- Provide qualitative summary of observations and quantify the differences in the comparison of seasonal waste audit results with the 2010/2011 Niagara region seasonal

- waste audit results and provide a detailed analysis, by seasonal waste audit, material stream, Niagara region municipality and region-wide;
- Provide a comprehensive trend analysis of various material streams to determine changes in performance from the 2010/2011 seasonal waste audit results; quantify changes in metrics; provide rationale as to why changes (or no changes) may have occurred, and propose mechanisms to improve performance, including the identification of material streams that could be targeted for improved recycling/capture;
  - Complete some comparison (when possible) against pre and post Level of Service (LOS) changes, in addition to the average of the four waste audits in 2010/2011;
  - Reference the impact of both LOS changes and improvements/initiatives included in the Region's 2011-2015 Blue Box Recycling Plan;
  - Provide commentary on any lessons learned.

All waste composition data should be considered a sample that represents a snapshot in time. There may be variances in results depending on set-out data. In addition, there are other diverted tonnages from other diversion programs in the region that are not included in this waste composition study. These programs include: materials received at drop-off depots (i.e. concrete, asphalt, shingles, yard waste, MHSW, WEEE, recyclables, etc.), curbside yard waste and bulky/white goods collection and Resource Productivity and Recovery Authority-calculated tonnages (i.e. backyard composting, grasscycling and stewardship programs).

Caution must be used when looking at individual municipality data due to the low sample size (ranging from 10-30 households). One household's good or bad habits can skew the results easily on the individual municipality basis. The results compiled for the region as a whole provide a more accurate representation of the waste composition trends in the Niagara region.

The results from the waste composition study are detailed below.

### 1. Program Performance Measures:

The key program performance measures are outlined in the table below. This also provides an overview of the changes from the 2010-11 audits to the 2015-16 audits.

Performance Measures	2010-11 Niagara Audits (4 Season Average)		2015-16 Niagara Audits (4 Season Average)		% Change 2010-11 vs. 2015-16 Audits
	kg/hh/wk	kg/hh/yr	kg/hh/wk	kg/hh/yr	
<b>Overall Waste Generation:</b>	13.49	701.68	11.91	619.16	-11.73%
Garbage Generation	6.57	341.88	6.14	319.29	-6.54%
Recycling Generation	4.47	232.32	3.76	195.72	-15.80%
Green Bin Organics Generation	2.45	127.49	2.00	104.15	-18.25%
<b>Divertible Material in the Garbage Stream:</b>					
Recyclable Material in the Garbage Stream:	0.91	47.51	0.86	44.46	-6.04%
Green Bin Organic Material in the Garbage Stream:	3.33	173.84	3.06	159.01	-8.17%
<b>Contamination Rates (%):</b>					
Recycling Stream (combined Blue Box and Grey Box)	10.57%		7.69%		-27.23%
Green Bin Organics Stream	1.63%		0.84%		-48.39%
<b>Capture Rate of Divertible Materials:</b>					
Recycling Stream	81.22%		80.18%		-1.28%
Green Bin Organics Stream	41.02%		38.25%		-6.75%
<b>Diversion Rate:</b>	47.48%		45.70%		-3.74%
<b>Participation Rates:</b>					
Recycling Stream (residents place either Blue or Grey Box out for recycling)	72.76%		82.15%		12.90%
Green Bin Organics Stream	41.73%		47.58%		14.01%
Garbage Stream	75.89%		87.47%		15.25%
<b>Set-Out Rate (# items/hh/wk):</b>					
Recycling Stream (combined Blue Box and Grey Box)	1.30		1.45		11.48%
Green Bin Organics Stream	0.46		0.42		-9.36%
Garbage Stream	0.98		0.86		-11.79%
<b>Set-Out Rate (# full container equiv./set-out):</b>					
Recycling Stream (combined Blue Box and Grey Box)	1.67		1.82		9.08%
Green Bin Organics Stream	0.59		0.51		-13.13%
Garbage Stream	1.07		0.99		-7.24%

<sup>1</sup> Participation rates were calculated differently in 2010-2011 versus 2015-16. The calculations in 2010-11 were based on households weekly set-outs. The calculations in 2015-16 classified a household as a participant if they set-out material at least once during the two week study period.  
Yearly generation of waste was calculated by multiplying the weekly generation by fifty two weeks.

### Explanation of Key Performance Measures:

#### Diversion:

Of all the waste produced by low-density residential dwellings in the Niagara region, a total of 45.70% is diverted from the landfill through the Blue and Grey Box recycling and Green Bin organics programs in place.

### Disposed Divertible Material:

- A total of 63.73% (203 kg/hh/yr) of the garbage stream was comprised of divertible material;
  - 49.80% (159 kg/hh/yr) Green Bin organics and;
  - 13.93% (44 kg/hh/yr) Blue and Grey Box recyclables.
- The most commonly disposed Green Bin organic materials included:
  - Food waste (i.e. food scraps, including: peelings and eggshells, leftover uneaten food, bought and forgot wasted food);
  - Pet waste (i.e. kitty litter) and;
  - Paper tissue/towelling.
- The most commonly disposed Blue and Grey Box recyclable materials included:
  - Boxboard (i.e. cereal boxes, tissue boxes);
  - Corrugated cardboard;
  - Mixed fine paper (i.e. plain white writing paper, mailing envelopes & bills);
  - #1 PET bottles and jars (i.e. plastic water/pop bottles);
  - Flexible films (i.e. retail carry-out bags, milk bags, overwrap for toilet paper);
  - Other rigid plastic packaging (i.e. unmarked plastic containers);
  - Aluminum foil and trays;
  - Steel food and beverage cans (i.e. soup cans, tuna cans) and;
  - Clear glass containers (i.e. glass bottles for food and beverages).

### Capture Rates:

- The overall capture rate for Blue and Grey Box recyclable materials was 80.18%.
- Individual material types that had high capture rates included:
  - Newsprint (daily newspaper and sales flyers);
  - Corrugated cardboard;
  - Magazines & catalogues;
  - Glass food & beverage containers;
  - Gable top containers (i.e. milk cartons)
- The overall capture rate for Green Bin organic materials was 38.25%.
- Individual organic material types that had high capture rates included:
  - Yard waste;
  - Unavoidable Food Waste (i.e. food scraps including peelings and egg shells)

### Contamination Rates and Cross-Contamination:

- The overall contamination rate of the Blue Box stream was 13.32%.
- A total of 3.69% of the stream consisted of Grey Box cross-contamination (largely newsprint, boxboard, corrugated cardboard and flexible films).
- Blue Box contamination rates for the individual municipalities ranged from a low of 8.45% to a high of 23.93%.
- The overall contamination rate of the Grey Box stream was 4.11%.
- A total of 1.65% of the stream consisted of Blue Box cross-contamination (largely gable top containers).
- Grey Box contamination rates for the individual municipalities ranged from a low of 2.19% to a high of 11.30%.

- The overall contamination rate of the Green Bin organics stream was 0.84%.
- Green Bin contamination rates for the individual municipalities ranged from a low of 0.05% to a high of 3.65%.

## **2. Trend Analysis Results:**

After the Region implemented new Level of Service (LOS) changes in February of 2011, the overall generation and diversion of materials immediately increased.

The new LOS changes included the following:

- Reduction in garbage bag/container set-out limit from 2 items/week to 1 item/week;
- Recycling collection for both Blue Box and Grey Box changed from alternating weekly collection to weekly collection for both Blue Box and Grey Box streams;
- Region-wide weekly collection for Green Bin organics. This was an expansion of services since some municipalities did not have Green Bin collection prior to the LOS changes.

The biggest change seen from the 2010-2011 audits to the 2015-2016 audits is the reduction in waste generation for all waste streams. This means that low-density residential dwellings are producing less garbage, less Blue and Grey Box material and less Green Bin organic material (by weight). This may be attributable to changes in packaging trends, a decrease in overall consumption or disposal of materials.

With lower generation rates, there is an expectation for lower volumes of material. This is not the case for recyclable materials when comparing set-out rates from 2010-2011 to 2015-2016. There is a 9.08% increase in number of full container equivalents/set-out for the recycling stream. This trend could be attributed to the increase in plastic packaging on the market. The plastic packaging has a greater volume with less weight. This requires more recycling boxes to be set-out by low-density residential dwellings. Both garbage and Green Bin organics experienced a decrease in volume of material from 2010-2011 to 2015-2016. The set-out trends are displayed in the table below. The set-out rates show that low-density residential dwellings have adjusted to the one (1) bag/container limit for garbage. The Region provides instruction and support to the contracted hauling company, as well as by-law enforcement to ensure compliance is met throughout the region.

With a lower garbage set-out limit, an increase in contamination levels is expected. Contamination rates for all three diversion programs (Blue Box, Grey Box and Green Bin) have decreased since 2010-2011.

Divertible materials (Blue Box, Grey Box and Green Bin) placed in the garbage stream has decreased from 221 kg/hh/yr in 2010-2011 to 203 kg/hh/yr in 2015-2016. This means that less recyclable and organic materials (by weight) are entering the Region's landfills each year.

The curbside waste diversion rate calculated for low-density residential dwellings has decreased slightly from 2010-2011 to 2015-2016. There was a spike in recycling generation immediately after the LOS changes in February of 2011. Since then, generation has decreased, making it

more difficult to achieve a high diversion rate. Overall, this diversion rate has decreased from 47.48% in 2010-2011 to 45.70% in 2015-2016. It must be noted that this diversion rate is based on a subset of total waste stream. The Region's calculation for waste diversion based on RPRA's Generally Accepted Principles (GAP), which includes additional parameters.

The overall capture rates for the 2015/2016 audits have decreased slightly since 2010/2011, but have remained higher than the pre-LOS changes.

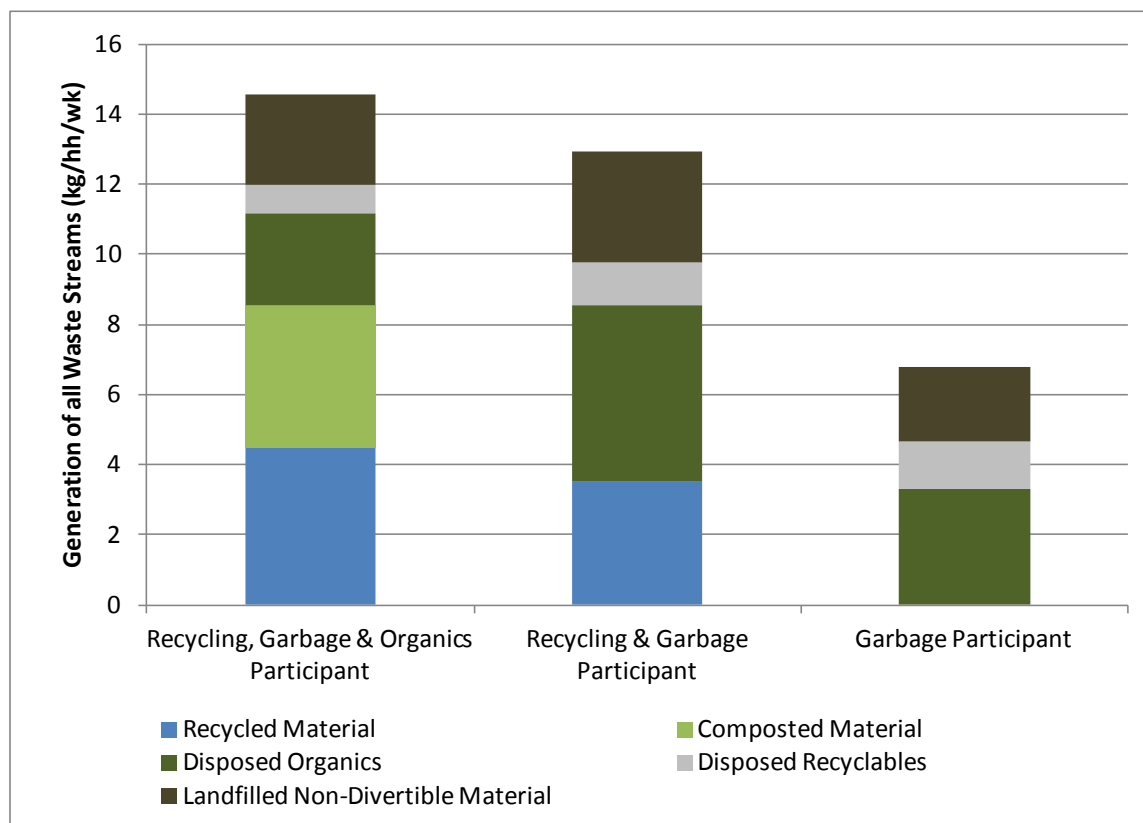
The curbside waste diversion rate for the Region remained fairly constant from 2004 to early 2011, at approximately 40%. However, after the service changes were implemented, this diversion rate climbed to over 50% for both the Spring and Summer 2011 audits. This diversion rate decreased to 45.7% for the 2015/2016 audits. A more thorough examination of changing waste trends can be found in a separate technical memo accompanying this report, as Appendix D. This memo details the keys areas for the Region to achieve a higher diversion rate, including further capture of Green Bin organic material. In addition, the memo provides background on the changing packaging trends (i.e. lightweight flexible packaging, on-the-go packaging styles and portability) increasing convenience for the consumer.

### **3. Participant Type Comparisons:**

In order to assess trends on participants in the diversion programs and non-participants in the diversion programs, participant types were created. The main participant types include:

- 'Recycling, Garbage and Organics Participant' – this participant type represents low-density residential dwellings that set out recycling (Blue or Grey Box), garbage and Green Bin organics;
- 'Recycling & Garbage Participant' – this participant type represents low-density residential dwellings that set out recycling (Blue or Grey Box) and garbage only;
- 'Garbage only Participant' – this participant type represents low-density residential dwellings that set out garbage only.

The results indicate that the quantity of waste produced (all streams equalled 14.57 kg/hh/wk) is the highest for 'Recycling, Garbage and Organics Participants'. However, they produced the least amount of garbage (5.58 kg/hh/wk) compared to the other participant types. The composition of waste (all streams) produced is outlined in the figure below. All annual generation values can be calculated by multiplying the weekly generation value by fifty two weeks.



The focus should be on the total amount of divertible material that has been disposed by each participant type. The following table displays the amount of divertible material that is disposed by each participant type.

	Recycling, Garbage & Organics Participant	Recycling & Garbage Participant	Garbage Participant
	kg/hh/wk	kg/hh/wk	kg/hh/wk
Disposed Green Bin Organics	2.65	5.02	3.28
Disposed Blue and Grey Box Recyclables	0.78	1.22	1.38
<b>Total</b>	<b>3.43</b>	<b>6.24</b>	<b>4.67</b>

#### 4. Qualitative Summary of Observations of 2015-2016 Waste Composition Study results:

Auditors are able to see trends in the waste streams depending on how they have to separate the waste during the audit sorting. The following trends were noted:

- A lot of food waste in the garbage was removed from packaging or bags;
  - In order to capture the food waste, residents would have to take extra steps to remove spent food from its packaging.

- Retail carry-out bags were used to contain garbage;
  - This directly affects the capture rate for flexible films since people are utilizing them as garbage bags.

A degree of contamination in the recycling stream is able to be removed at the Recycling Centre, however, several factors come into play when looking at the transfer of materials and how contamination is able to make it to the end to the end of the line, marketed commodity. During the audit process, auditors scrape empty and separate contents from their packaging and place into individual material categories. The machinery at the Recycling Centre does not have the same degree of separation. This is something to keep in mind when comparing waste composition results to the Region's RPRA calculation for Projected kg/hhld Recovered.

### **Conclusion**

All of the information discussed above is provided in further detail in the following report and attached appendices. The following report summarizes the results of the 2015-2016 low-density residential dwelling curbside waste composition study. This includes an introduction, methodology, detailed audit results, trends and analysis results and observations and lessons learned.

## 1.0 INTRODUCTION

### 1.1 Definitions

Avoidable Food Waste:	Food waste that could have been consumed before disposal. This includes: leftover food that was prepared but not eaten (e.g. plate scrapings, half-eaten sandwich, uneaten leftovers) as well as untouched food that expired or went bad before it could be eaten (e.g. food still in packaging, whole produce, uncooked food, whole slices of bread).
Capture Rate:	The capture rate is the percentage of a divertible material collected, out of the total amount of that material generated. It is an excellent indicator of how well a diversion program is working for a particular material.
Contamination Rate:	The percentage of material in a recycling or organics bin that is not accepted in the program. A high contamination rate may lead to the hauler not accepting the material for the diversion program and redirecting the material for disposal.
Diversion Rate:	The diversion rate is the percentage of the total waste generated that is diverted from disposal into the Region's curbside low-density residential recycling and organics streams.
Garbage Stream:	Material that is collected for disposal rather than diversion. It will include divertible material where the diversion programs are not operating at 100% efficiency. This material is sometimes referred to as residual waste.
MHSW:	Municipal Hazardous or Special Waste is material that is potentially harmful to the environment and should be disposed of through special handlers.
Organics Stream:	Material that is diverted from the garbage stream in the Region's curbside low-density residential Green Bin Program.
Participation Rate:	Represents the average proportion of sampled households that had material set out in a particular stream at least once over a seasonal two week study period.
Participant Type:	Participant type refers to the different types of waste set-out combinations. Each household is classified as a designated

participant type after each two week sampling period. This participant type is based on their two week waste set-out profile. There are seven (7) participant types. They include:

- G – Garbage only Participant,
- R – Recycling only Participant,
- O – Organics only Participant,
- RG – Recycling & Garbage Participant,
- RGO – Recycling, Garbage & Organics Participant,
- RO – Recycling & Organics Participant, and
- GO – Garbage & Organics Participant.

**Recycling Stream:** Material that is diverted from the garbage stream in the Region’s curbside low-density residential dwelling Blue & Grey Box recycling program.

**Set-out Rate:** The average number of items (i.e. Blue/Grey Boxes, Green Bins or garbage bags/bins) set out per household per week or full container equivalents set out per household per week. Unless otherwise stated, this average is calculated over all households in an area, not just those that have material set out. This does not include any households, which items were previously collected by collection contractor or opted out of the survey.

**Unavoidable Food Waste:** Food that could not be further eaten or prepared (e.g. vegetable and fruit peelings, fats, oils, bones, etc.)

## 1.2 Background

Niagara Region (the Region) solicited bids from proponents (proposal number 2014-RFP-50) to conduct a comprehensive low-density residential dwelling waste composition study and prepare a detailed summary report. AET Group Inc. (AET) was selected as the successful proponent to carry out this study. The waste composition study was conducted in all twelve LAMs across the Region from July 6, 2015 to April 22, 2016 (four seasonal two-week audits). Results gathered from the study are used to determine participation rates, set-out rates, capture rates, contamination rates, and diversion rates.

The following report details the results of the 2015/2016 waste audits and compares the results to the Region’s previous studies. All waste composition data should be considered a sample that represents a snapshot in time. There may be variances in results depending on set-out data. In addition, there are other diverted tonnages from other Regional diversion programs that are not included in this waste composition study. These programs include: materials received at drop-off depots (i.e. concrete, asphalt, shingles, yard waste, MHSW, WEEE, recyclables, etc.), curbside

bulky/white goods and yard waste collection and Resource Productivity and Recovery Authority-calculated tonnages (i.e. backyard composting, grasscycling and stewardship programs).

### 1.3 Objectives

The waste composition study was intended to accomplish the following objectives when considering the Region's current program:

- Collect accurate low-density residential dwelling waste generation and composition data from each municipality within the region;
- Calculate various program performance measures such as waste generation, diversion, capture, participation, set-out and contamination rates;
- Compare program performance measures for participants in recycling and organics programs to non-participants in recycling and/or organics programs;
- Compare the results of the low-density residential dwelling waste audits with the previous Niagara Region waste audits; and,
- Develop a comprehensive final report, which details all the program performance measures, trend analysis, comparison to previously conducted studies in the region and other comparative analyses.

## 2.0 METHODOLOGY

### 2.1 Waste Audit Methodology

Four seasonal waste audits were conducted between July 6, 2015 and April 22, 2016, as follows:

Summer Audit: July 6 – 17, 2015

Fall Audit: October 19 – 30, 2015

Winter Audit: January 18 – 29, 2016

Spring Audit: April 11 – 22, 2016

This report details the results from all four seasons.

#### 2.1.1 Waste Sampling Process

Niagara Region staff provided AET with a list of 170 low-density residential dwellings to be sampled for the waste composition study. Garbage, recycling and organic material was collected each day in two to four different areas across the region. Following the Summer seasonal audit, a total of four (4) households requested to be removed from the study. A fifth household requested to be removed from the study during the Fall seasonal audit.

Each day, the areas sampled were spread over the twelve LAMs, which had been targeted for the study. There were a total of 17 different areas sampled from during the study; three in

Niagara Falls, three in St. Catharines, two in Welland, and one area in Thorold, Fort Erie, Grimsby, Lincoln, Niagara-on-the-Lake, Pelham, Port Colborne, West Lincoln and Wainfleet. Blocks of 10 consecutive households were selected by the Region.

The material from each household was collected and audited separately. Each season, the samples were collected over two consecutive weeks. The number of garbage cans/bags, Green Bins, recycling boxes and the approximate amount of garbage, organics and recyclable material set out for each home measured in terms of full container (cans/bags/bins/boxes) equivalents was recorded. In addition, mixed recycling set-outs were noted, as well as the use of alternate containers. Plastic film in the recycling boxes was noted, if it was present, which bin it was placed in and if it was bagged. Leaf & yard waste and bulky/white good items were weighed at the curbside and left behind for the regular waste hauler to collect (weights of material generated in these streams is not included in the composition analysis within this report).

Some material had been collected by the Region's waste collection contractor prior to the time of AET's arrival, and, as a result, the number of households sampled was adjusted in the calculations to account for this. All material collected by AET was taken to the Humberstone landfill site, located in the City of Welland, at 700 Humberstone Road, to be audited by AET staff.



**Figure 2.1 AET Staff Collecting Set-out Data**



**Figure 2.2 AET Staff Collecting Curbside Samples**

Table 2.1 summarizes the sample areas selected by the Region for the audit.

**Table 2.1 Summary of Waste Audit Sample Areas**

Municipality	2015/2016 Audit (four seasons)
<b>Fort Erie</b>	Urban SFH: 10 hhlds Addresses: 2430, 2434, 2440, 2444, 2448, 2452, 2456, 2460, 2464, 2470 Coral Ave. Avg. House Price: \$172-\$217k Demographics: Low-Medium Income
<b>Grimsby</b>	Urban SFH: 10 hhlds Addresses: 5, 7, 9, 11, 13, 15, 17, 19, 21, 23 Brierwood Avenue Avg. House Price: \$214-\$243k Demographics: Medium-High Income
<b>Lincoln</b>	Urban SFH: 10 hhlds Addresses: 4145, 4153, 4159, 4165, 4171, 4177, 4185, 4191, 4195, 4203 Victoria Ave. (Vineland) Avg. House Price: \$170-\$300k Demographics: Medium Income
<b>Niagara Falls</b>	Urban Townhouses: 10 hhlds Addresses: 7645 Preakness St., units 57,56,54,49,48,45,40,28,27,26 Avg. Age of Homes: 25 years old Avg. House Price: N/A (rentals) Demographics: Medium Income
	Urban SFH: 10 hhlds Addresses: 6995, 6997, 7013, 7015, 7037, 7039, 7057, 7059, 7069, 7071 Briarwood Ave. Avg. Age of Homes: 45 years old Avg. House Price: \$116-\$135k Demographics: Low Income
	Rural SFH Farms: 10 hhlds Addresses: 13442, 13400, 13368, 13330, 13250, 13230, 13210, 13090, 13040, 12924 Crowland Avenue Avg. Age of Homes: 35 years old Avg. House Price: \$190-\$358k Demographics: High Income
<b>Niagara-on-the-Lake</b>	Rural SFH & Farms: 10 hhlds Addresses: 323, 343, 351, 357, 363, 395, 401, 407, 413, 419 Queenston Road Avg. Age of Homes: 85 years old Avg. House Price: \$176-\$576k Demographics: High Income
<b>Pelham</b>	Urban SFH: 10 hhlds Addresses: 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20 Blackwood Place, Fonthill Avg. House Price: \$283-\$379k Demographics: High Income
<b>Port Colborne</b>	Urban SFH: 10 hhlds Addresses: 168, 172, 176, 178, 182, 190, 194, 206, 210 and 214 Neff Street Avg. Age of Homes: 35 years old Avg. House Price: \$100-156k Demographics: Low-Medium Income

Municipality	2015/2016 Audit (four seasons)
<b>St. Catharines</b>	Urban SFH: 10 hhlds Addresses: 103, 105, 107, 109, 111, 113, 115, 117, 119, 121 Stoney Brook Cres. Avg. Age of Homes: 25 yrs old Avg. House Price: \$165-190k Demographics: Medium-High Income
	Urban SFH: 10 hhlds Addresses: 1, 5, 7, 9, 11, 13, 15, 17, 19, 21 Greenbriar Place Avg. Age of Homes: 25 yrs. old Avg. House Price: \$220-\$320k Demographics: High Income
	Urban SFH: 10 hhlds Addresses: 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 Oriole Drive Avg. Age of Homes: 60 yrs. old Avg. House Price: \$156-157k Demographics: Medium Income
<b>Thorold</b>	Urban SFH: 10 hhlds Addresses: 3, 5, 7, 9, 11, 15, 17, 19, 21, 23 Welland Street, South Avg. Age of Homes: 85 yrs. old Avg. House Price: \$129-\$182k Demographics: Low-Medium Income
<b>Wainfleet</b>	Rural Farms: 10 hhlds Addresses: 32173, 32363, 32373, 32433, 32449, 32585, 32633, 32761, 32769, 32775 Feeder Road, West Avg. House Price: \$150-\$340k Demographics: Medium-High Income
<b>Welland</b>	Urban SFH: 10 hhlds Addresses: 2, 4, 8, 16, 20, 28, 38, 42, 44, 48 Clifford Avenue Avg. Age of Homes: 90 yrs. old Avg. House Price: \$80-\$145k Demographics: Low Income
	Semi-rural SFH: 10 hhlds Addresses: 518, 520, 522, 524, 526, 532, 534, 536, 538, 540 Forks Road Avg. Age of Homes: 35 yrs. old Avg. House Price: \$129-\$268k Demographics: Low-Medium Income
<b>West Lincoln</b>	Rural SFH with Farms: 10 hhlds Addresses: 5869, 5981, 6211, 6285, 6419, 6547, 6567, 6571, 6601, 6683 Young Street Avg. House Price: \$83-\$495k Demographics: High Income

### 2.1.2 Waste Sorting Process

All of the material collected during the sampling period was sorted and weighed. Garbage, organics and recyclables were sorted and weighed separately for each household sampled. At the conclusion of the waste audit, the results were combined to yield an accurate representation of garbage, organics and recyclables for the Niagara region. Samples were sorted into 10 major waste groups, consisting of 97 individual categories. Waste categories were

adapted from Stewardship Ontario's waste audit protocol, and expanded to include a more detailed breakdown of non-packaging and non-printed paper materials. Additional categories were added by the Region, for further analysis. The full list of sort categories can be seen on the audit results sheet, in Appendix A.

Separated material for each waste stream was sorted into bins, based on the 97 categories, and weighed individually. The material weights were measured using a digital BLS Briefcase 40 scale measuring to the nearest 1/100<sup>th</sup> kilogram and then recorded. After being weighed, non-divertible material was dumped into a large bin, which was located just outside the sorting facility. Recyclable material was separated into two streams; fibres and containers, and placed into separate bins, which were also located outside the sorting facility. Clean organic material was placed in large carts for collection by the Region's organics hauler. Figure 2.3 illustrates AET staff sorting waste samples.



**Figure 2.3 AET Staff Sorting Samples**

## **2.2 Limitations**

The 170 low-density residential dwellings selected by the Region for the audit represent sample areas from across all twelve LAMs, varying housing types and demographics (17 audit areas of 10 consecutive houses). Although this sample size exceeds Stewardship Ontario's recommended minimum waste audit sample size of 100 households for the region as a whole, caution should be exercised when analyzing the audit data for local area municipalities individually. This is due to the fact that the number of households sampled in each municipality individually may not be representative of that municipality as a whole since most municipalities are represented by only one sample area of 10 households.

Despite the Region's notification to contracted waste/recycling haulers of upcoming audits, in some cases, the contractor collected materials from the designated sample areas prior to AET's arrival. In these cases, the participation and composition data was lost for the affected sample areas. Adjustments were made by AET to omit these lost samples from calculations, thereby not

affecting participation/set-out rates; however, this does leave gaps in the data for some sample areas.

## 2.3 Quality Assurance / Quality Control

The following Quality Assurance/Quality Control (QA/QC) operations and procedures were followed by AET to ensure accurate and consistent collection and reporting of audit data:

- Development of a unique identifier code for each household to protect the confidentiality of the households sampled.
- Isolation of samples collected into individual piles, in which each bag was flagged with a unique tag, identifying the sample household.
- Use of professionally calibrated scales.
- List of all material categories and descriptions available to staff at the audit table to ensure consistent classifications.
- Regular adjustment to audit bin tare weights to ensure accurate weigh-outs.
- Extensive photo gallery compiled of samples collected and notable materials from each sample.
- Hard copies and electronic copies of all sample collection logs and waste audit logs.
- Internal review of all data entry, analysis and reporting.

## 3.0 2015/2016 WASTE COMPOSITION AUDIT RESULTS

### 3.1 Low-Density Residential Dwelling Curbside Collection Results

This section summarizes the combined low-density residential dwelling curbside participation and set-out results for the 17 sample areas audited over the four seasonal 2015/2016 audits. Results are summarized by waste stream, by municipality, and for the region, as a whole. As noted in the limitations section, a high degree of confidence can be placed on the results for the region as a whole (~165 household sample size); however, caution should be exercised when interpreting the results on a municipality by municipality basis, as individual municipalities are only represented by sample sizes of 10-30 households.

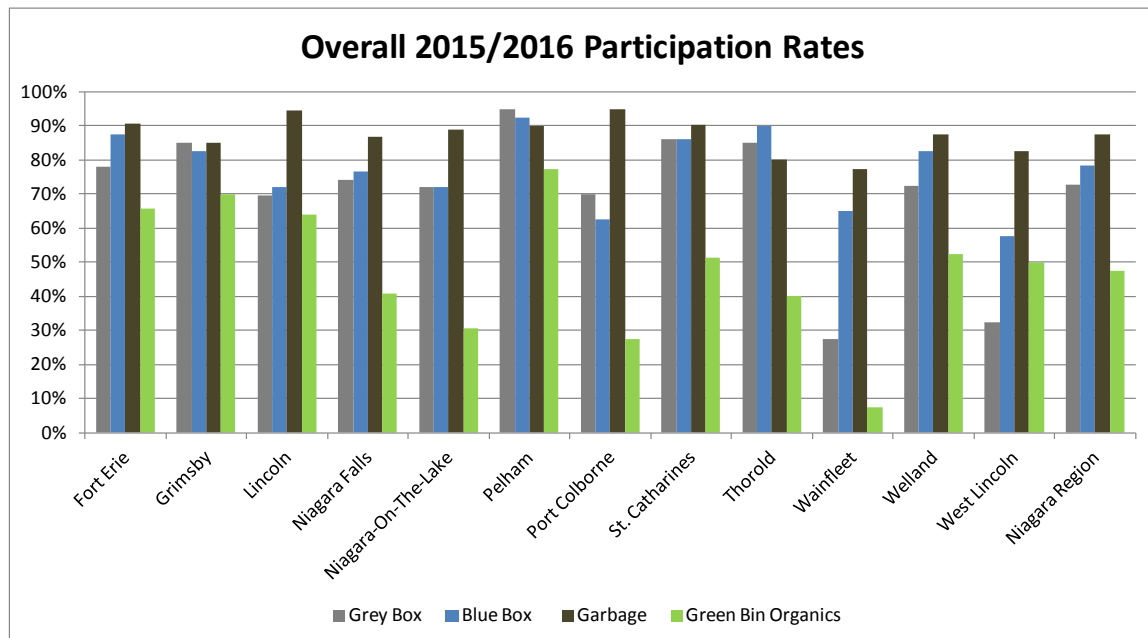
#### 3.1.1 Participation Rates

Table 3.1 summarizes the participation rates for audited households during the overall four-season 2015/2016 audit. The participation rate represents the proportion of households in a sample area that had an item set out in the various waste streams at least once during a two week seasonal study period (e.g. if a household did not have recycling set out in week 1, but did have recycling set out in week 2 of a seasonal audit, they were considered a recycling participant for that season). It must be noted that the participation rates were calculated differently for the 2010/2011 audits, where households were classified as participants on a weekly basis (e.g. if a household did not have recycling set out on week 1, but did have recycling set out on week 2, their participation rate was considered 50%). Note that the 'Combined Recycling' results are calculated based on combined data from the Blue and Grey Box streams.

**Table 3.1 Summary of Overall Four-Season 2015/2016 Participation Rates**

Participation Rates	Combined Recycling	Grey Box Recycling	Blue Box Recycling	Mixed Recycling	Garbage	Green Bin
Fort Erie	87.50%	78.13%	87.50%	0.00%	90.63%	65.63%
Grimsby	85.00%	85.00%	82.50%	0.00%	85.00%	70.00%
Lincoln	80.56%	69.44%	72.22%	2.78%	94.44%	63.89%
Niagara Falls	79.17%	74.17%	76.67%	0.83%	86.67%	40.83%
Niagara-On-The-Lake	77.78%	72.22%	72.22%	2.78%	88.89%	30.56%
Pelham	95.00%	95.00%	92.50%	5.00%	90.00%	77.50%
Port Colborne	75.00%	70.00%	62.50%	2.50%	95.00%	27.50%
St.Catharines	90.52%	86.21%	86.21%	1.72%	90.42%	51.32%
Thorold	90.00%	85.00%	90.00%	2.50%	80.00%	40.00%
Wainfleet	65.00%	27.50%	65.00%	2.50%	77.50%	7.50%
Welland	82.50%	72.50%	82.50%	0.00%	87.50%	52.50%
West Lincoln	67.50%	32.50%	57.50%	5.00%	82.50%	50.00%
<b>Niagara Region</b>	<b>82.15%</b>	<b>72.80%</b>	<b>78.40%</b>	<b>1.81%</b>	<b>87.47%</b>	<b>47.58%</b>

Figure 3.1 below illustrates these results for each of the four primary waste streams (Grey Box, Blue Box, Garbage and Green Bin).



**Figure 3.1 Overall Four-Season 2015/2016 Participation Rates**

The participation rate across all sample areas was 78.40% for the Blue Box stream and 72.80% for the Grey Box stream, with the Combined Recycling participation rate (participants in either Blue Box or Grey Box) at 82.15%. Looking at individual municipalities' participation rates, there was notable variance. Blue Box participation rates ranged from 57.50% (West Lincoln), 62.5% (Port Colborne), and 65% (Wainfleet) on the low end to 92.5% (Pelham), and 90% (Thorold) on the high end. Grey Box participation rates ranged from 27.5% (Wainfleet) and 32.5% (West Lincoln) on the low end to 95% (Pelham), and 86.21% (St. Catharines) on the high end.

It is suspected that the variance in participation and set-out rates is tied more to the specific type of housing (demographics) of each sample area, rather than the municipality in which they are located. For example, the lower Grey Box participation rates in West Lincoln and Wainfleet are likely due to the number of farms in these sample areas, where residents were more likely to have other uses for the fibre materials. Farms in other municipalities could be expected to have similar findings. Another general observation is that households in higher income urban areas tend to have higher recycling participation rates (e.g. Pelham with house values ranging from \$283-\$379k). This is not a trend in high income rural areas such as NOTL and West Lincoln. Also noteworthy is the relatively high participation rate in the Thorold sample area, given that it is identified by the Region as a low-medium income area. The houses sampled in Thorold are older houses that are up to 85 years old. Other factors, such as average number of occupants per

household, average age of residents (e.g. retired, young families, etc.), and affordability of purchasing new Blue/Grey Boxes can also be influencing factors in sample areas' results.

The average garbage stream participation rate across the region was 87.47%. The garbage stream participation rate between individual municipalities varies, however, not as much as the recycling streams. Garbage stream participation rates ranged from 77.5% (Wainfleet) to 95% (Port Colborne).

The average organics stream participation rate across the Niagara Region was 47.58%. Looking at individual municipalities' participation rates, there was notable variance. Organics participation ranged from 7.5% (Wainfleet) to 65.00% (Grimsby) and 77.5% (Pelham).

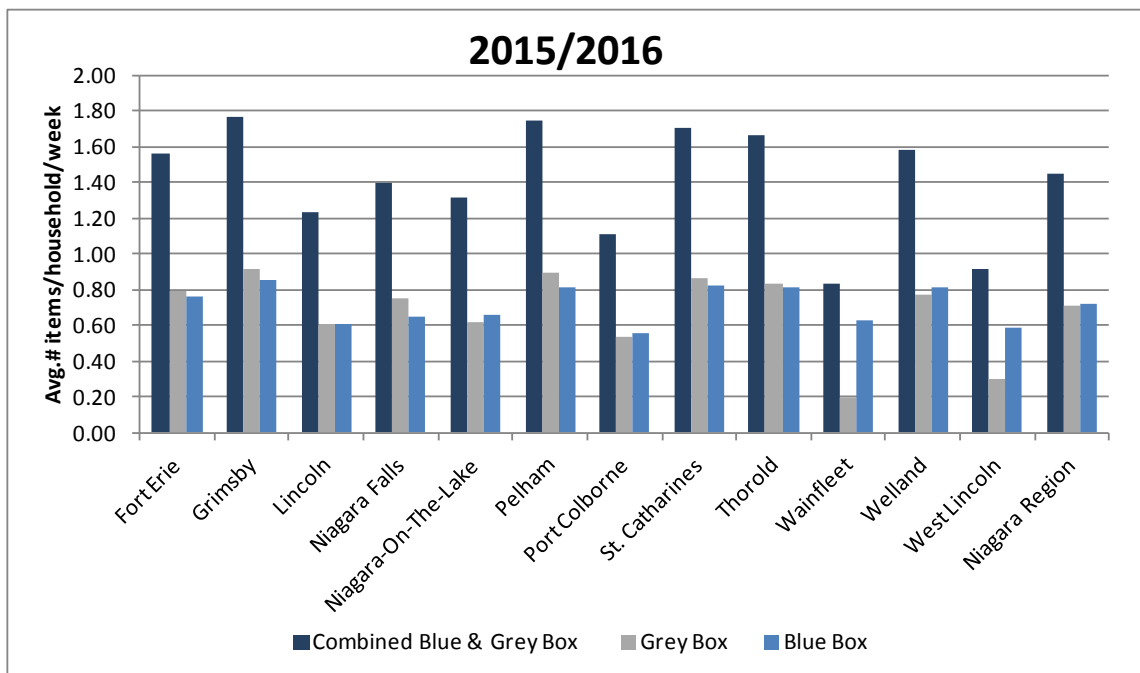
### **3.1.2 Set-out Rates**

Table 3.2 summarizes the set-out rates for audited households during the overall Four-Season 2015/2016 audit period. The set-out rates represent the average weekly number items and full container equivalents set out by households for each waste stream (averaged across all households in sample areas, not just those households that participated). Also summarized in this table is the average number of full container equivalents per household with a set-out (this is averaged across only those households that had a set-out). Full container equivalent refers to the volume of a standard Blue/Grey Box, garbage bag/can or standard Green Bin.

**Table 3.2 Summary of Set-out Rates – Overall 4-Season 2015/2016**

2015/2016 Audit	Set-out Rates	Combined Blue & Grey Box	Grey Box	Blue Box	Mixed Recycling	Garbage	Green Bin Organics
Fort Erie	avg.# items/hh/wk	1.56	0.80	0.77	0.00	0.81	0.52
	avg. # full container equiv./hh/wk	1.28	0.70	0.58	0.00	0.70	0.33
	avg. # full container equiv./set-out	1.62	1.03	0.81	0.00	0.86	0.65
Grimsby	avg.# items/hh/wk	1.76	0.91	0.85	0.00	0.74	0.59
	avg. # full container equiv./hh/wk	1.42	0.73	0.69	0.00	0.55	0.27
	avg. # full container equiv./set-out	1.94	1.01	0.97	0.00	0.80	0.45
Lincoln	avg.# items/hh/wk	1.24	0.61	0.61	0.01	0.79	0.54
	avg. # full container equiv./hh/wk	1.20	0.58	0.62	0.00	0.65	0.22
	avg. # full container equiv./set-out	1.90	1.16	1.12	0.25	0.82	0.41
Niagara Falls	avg.# items/hh/wk	1.40	0.75	0.65	0.00	0.92	0.39
	avg. # full container equiv./hh/wk	1.34	0.66	0.67	0.00	0.86	0.20
	avg. # full container equiv./set-out	1.99	1.09	1.12	0.75	1.16	0.55
Niagara-On-The-Lake	avg.# items/hh/wk	1.31	0.62	0.67	0.03	0.81	0.28
	avg. # full container equiv./hh/wk	1.06	0.49	0.52	0.06	0.59	0.16
	avg. # full container equiv./set-out	1.73	0.91	0.90	4.00	0.76	0.58
Pelham	avg.# items/hh/wk	1.75	0.90	0.81	0.04	0.78	0.64
	avg. # full container equiv./hh/wk	1.50	0.74	0.72	0.04	0.64	0.25
	avg. # full container equiv./set-out	1.98	1.05	1.03	1.50	0.87	0.44
Port Colborne	avg.# items/hh/wk	1.11	0.54	0.56	0.01	0.84	0.25
	avg. # full container equiv./hh/wk	0.94	0.46	0.47	0.01	0.65	0.07
	avg. # full container equiv./set-out	1.57	0.96	0.91	1.00	0.77	0.29
St. Catharines	avg.# items/hh/wk	1.71	0.87	0.83	0.01	0.94	0.45
	avg. # full container equiv./hh/wk	1.35	0.69	0.66	0.01	0.81	0.25
	avg. # full container equiv./set-out	1.69	0.96	0.92	1.00	1.02	0.57
Thorold	avg.# items/hh/wk	1.66	0.84	0.81	0.01	0.70	0.39
	avg. # full container equiv./hh/wk	1.42	0.71	0.69	0.02	0.60	0.21
	avg. # full container equiv./set-out	1.76	0.96	0.89	1.25	0.86	0.60
Wainfleet	avg.# items/hh/wk	0.84	0.20	0.63	0.01	0.90	0.05
	avg. # full container equiv./hh/wk	0.76	0.15	0.59	0.01	0.87	0.02
	avg. # full container equiv./set-out	1.59	0.92	1.28	1.00	1.42	0.50
Welland	avg.# items/hh/wk	1.58	0.77	0.81	0.00	0.88	0.49
	avg. # full container equiv./hh/wk	1.41	0.68	0.73	0.00	0.74	0.23
	avg. # full container equiv./set-out	2.04	1.10	1.08	0.00	0.94	0.50
West Lincoln	avg.# items/hh/wk	0.91	0.30	0.59	0.03	0.96	0.35
	avg. # full container equiv./hh/wk	0.88	0.23	0.63	0.02	0.93	0.17
	avg. # full container equiv./set-out	1.67	1.05	1.32	0.75	1.28	0.48
Niagara Region	avg.# items/hh/wk	1.45	0.71	0.73	0.01	0.86	0.42
	avg. # full container equiv./hh/wk	1.26	0.60	0.65	0.01	0.75	0.21
	avg. # full container equiv./set-out	1.82	1.02	1.02	0.00	0.99	0.51

Figures 3.4-3.7 below illustrate these results for each of the three primary waste streams (recycling, garbage, organics).



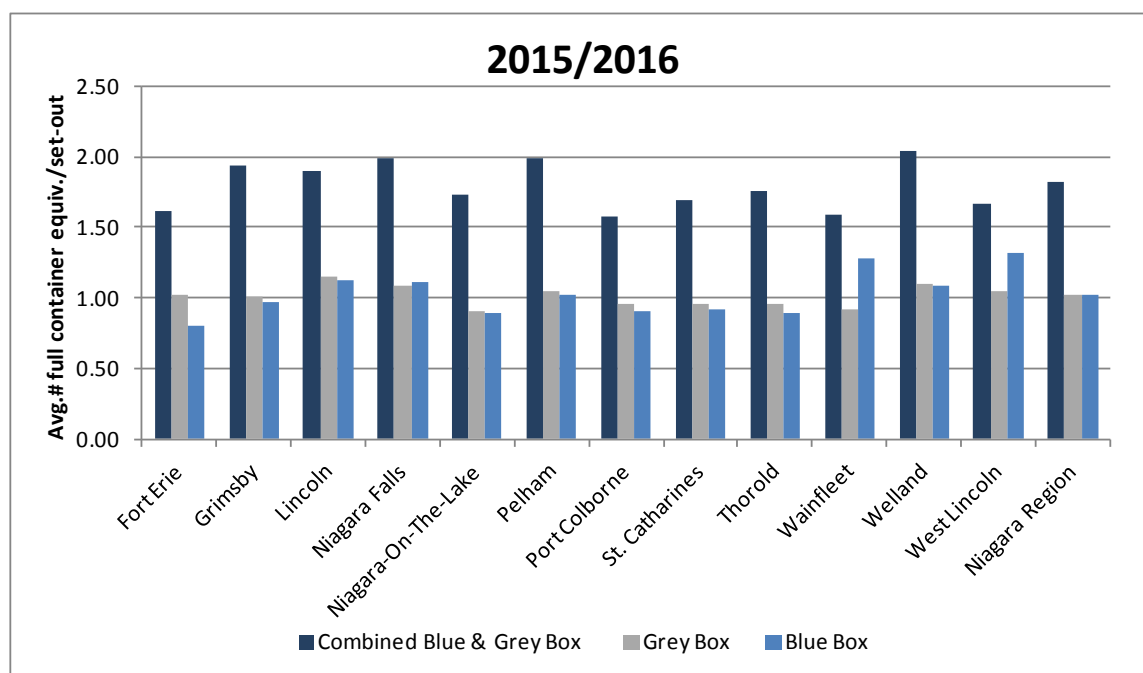
**Figure 3.2 Recycling Streams Set-out Avg. # items/household/wk**

The average number of items set out per household per week (items/hh/wk) across the region was 0.73 for the Blue Box stream and 0.71 for the Grey Box stream, with the Combined Recycling set-out average (Blue & Grey Box) at 1.45 items/hh/wk. Blue Box set-out rates ranged from 0.56 items/hh/wk (Port Colborne) to 0.85 items/hh/wk (Grimsby). Grey Box set-out rates ranged from 0.20 items/hh/wk (Wainfleet) and 0.30 (West Lincoln) to 0.91 (Grimsby) and 0.90 (Pelham). It should be noted that this is an average across all sample area households, including those without set-outs, but not those that were collected by the hauler prior to the audit team's arrival. As a result of this calculation method, the average number of items set out per household per week is directly tied to the participation rate. As observed with the participation rates, the rural areas tend to have lower set-out rates (particularly Grey Box stream). Anecdotally, rural residents may also be more susceptible to blowing litter issues (large vehicles driving by at higher speeds, exposed open field surroundings), which could influence their tendency to set out less fibre materials at the roadside. In addition, the distance from the household to the curbside in rural areas is usually greater, which makes it more difficult for people to transport their waste to the curbside for collection. Farms that qualify and have registered with the Region have a 4 bag/container limit and might find it easier to set everything out in garbage bags, instead of having to bring their recycling and Green Bins back into the house after it has been collected.

The average number of full container equivalents per household per week generally follows the same pattern. The average number of full container equivalents per household per week (avg. # full container equiv./hh/wk) across the Niagara region was 0.65 for the Blue Box stream and

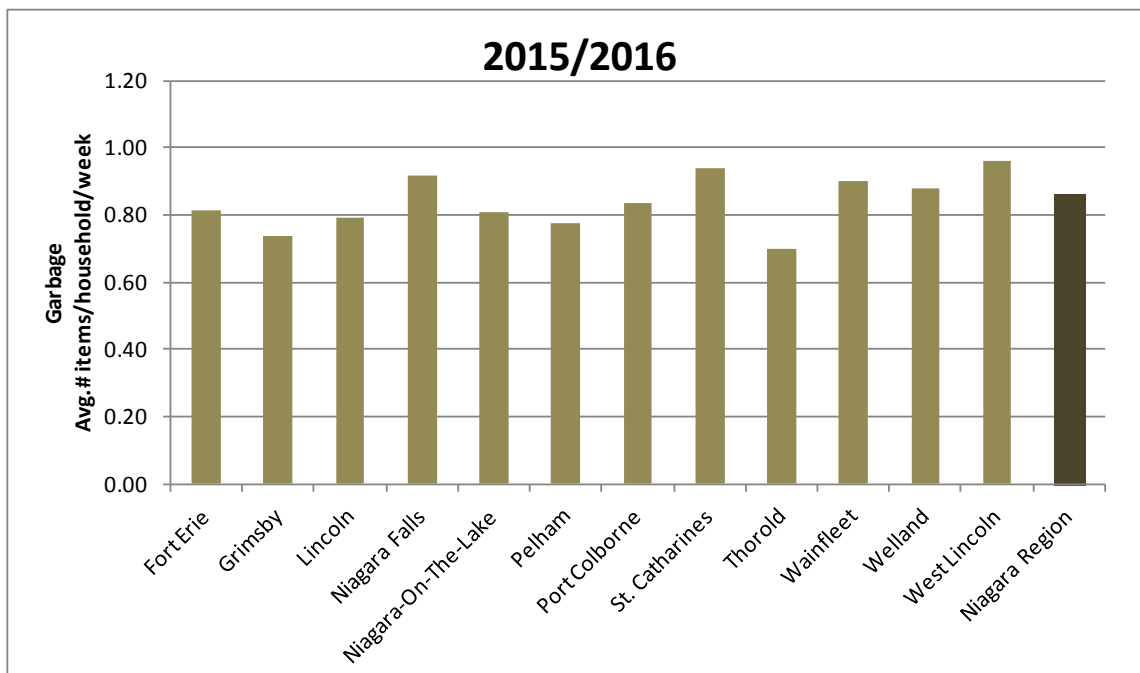
0.60 for the Grey Box stream, with the combined recycling average (Blue & Grey Box) at 1.26 full container equiv./hh/wk.

Looking specifically at the subset of households that had items set out, Figure 3.3 below illustrates the average number of full container equivalents per set-out.



**Figure 3.3 Recycling Streams Set-out Avg. # full container equivalents/set-out**

The average number of full container equivalents per set-out across the region was 1.02 for both the Blue Box stream and the Grey Box stream, with the combined recycling full container equivalents per set-out average (Blue & Grey Box) at 1.82. The average number of full container equivalents per set-out in the Blue Box stream ranged from 0.81 (Fort Erie) to 1.32 (West Lincoln). The Grey Box full container equivalents per set-out ranged from 0.91 (Niagara-On-The-Lake), and 0.92 (West Lincoln), to 1.16 (Lincoln). Variances in the average # of full container equivalents per set out could be affected by households' storage space available in/outside of the home for accumulating materials. For example, households with more opportunity to store materials (e.g. in a shed/garage or barn) may tend to accumulate materials over a longer period of time until containers are full before setting out. Households with space restrictions may be less likely to want materials accumulating in the home (odours) or outside (animals). Rural households with higher full container equivalents per set out may also accumulate materials over a longer period of time (more than one week) to avoid carrying containers to the roadside more than necessary.

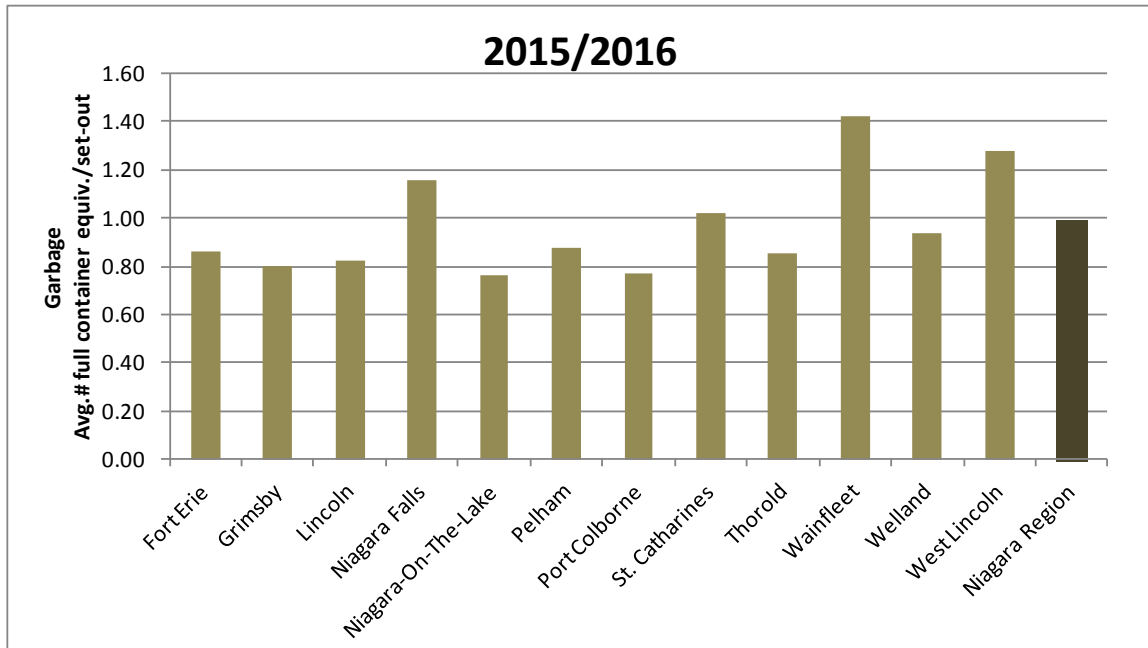


**Figure 3.4 Garbage Stream Set-out Avg. # items/household/wk**

The average number of garbage items set out per household per week across the region was 0.86. This ranged from a high of 0.96 (West Lincoln) to a low of 0.70 (Thorold). It should be noted that this is an average across all sample area households, including those without set-outs, but not those that were collected by the hauler prior to the audit team's arrival. The same discussions of variability in set-out rates for the recycling streams are also applicable to the garbage stream here.

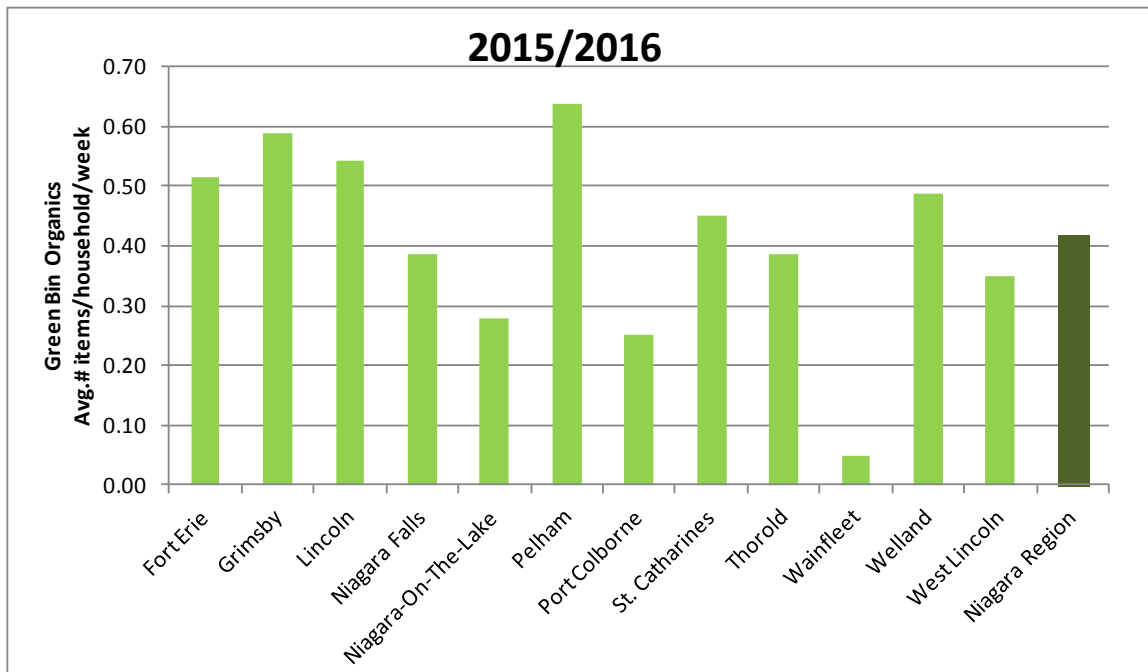
The average number of full container equivalents per household per week generally follows the same pattern. The average number of full container equivalents per household per week across the region was 0.75.

Looking specifically at the subset of households that had items set out, Figure 3.5 below illustrates the average number of full container equivalents per set-out.



**Figure 3.5 Garbage Stream Set-out Avg. # full container equivalents/set-out**

The average number of full garbage container equivalents per set-out across the region was 0.99. This ranged from 0.76 (Niagara-On-The-Lake) to 1.42 (Wainfleet).

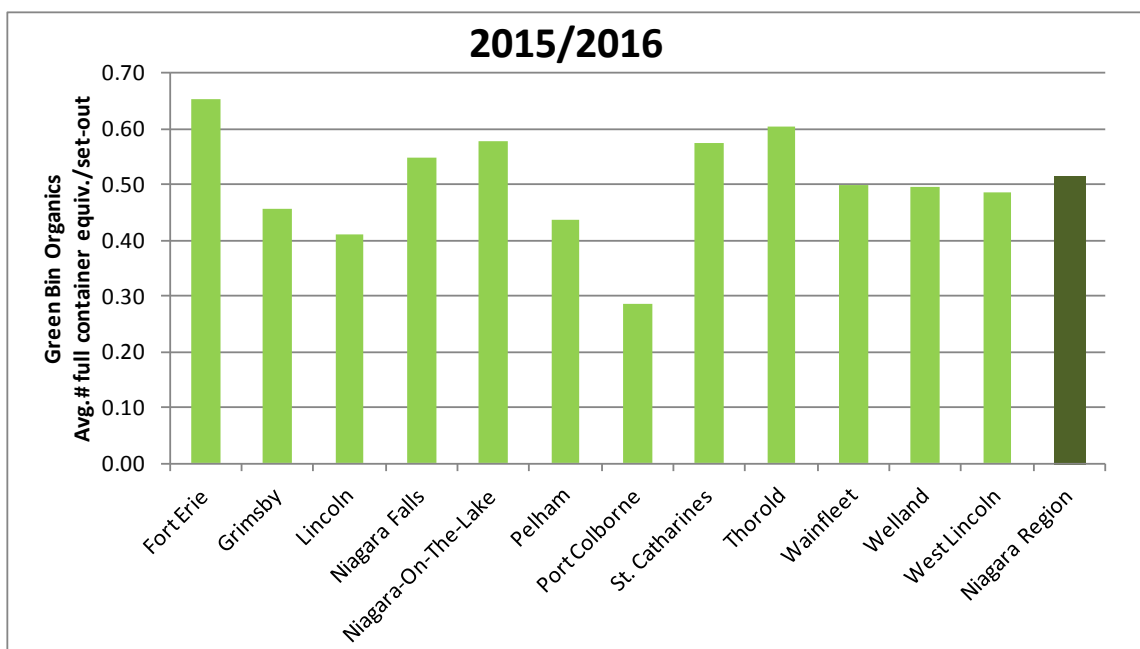


**Figure 3.6 Organics Stream Set-out Avg. # items/household/wk**

The average number of organics items set out per household per week across the Niagara region was 0.42. This ranged from 0.05 in Wainfleet, to 0.64 in Pelham. It should be noted that this is an average across all sample area households, including those without set-outs, but not those that were collected by the hauler prior to the audit team's arrival.

The average number of full container equivalents per household per week generally follows the same pattern, however notably lower. The average number of full container equivalents per household per week across the region was 0.21.

Looking specifically at the subset of households that had items set out, Figure 3.7 below illustrates the average number of full container equivalents per set-out.



**Figure 3.7 Organics Stream Set-out Avg. # full container equivalents/set-out**

The average number of full organics container equivalents per set-out across the Niagara region was 0.51. This ranged from 0.29 in Port Colborne to 0.65 in Fort Erie. This shows that capacity is not an issue in the Green Bins. Households participating in the program have ample space in the existing Green Bins to accommodate more materials. This also shows that participating households are less likely to accumulate organics over longer periods in the Green Bin until full before setting out (odour avoidance).

It should also be noted that the municipalities of Niagara Falls, St. Catharines and Welland each had two to three different sample areas audited, representing a mixture of demographics. This translates into their above summarized results being more 'average' or smooth than those municipalities where only one area of a particular demographic was audited.

## 3.2 Plastic Film

In order to assess Niagara Region's plastic film recycling success, auditors recorded the presence of film in recycling boxes at the curbside. Across all four seasons, a total of 24.22% of Grey and Blue Boxes set out contained plastic film. When looking at the boxes containing film, a total of 37.17% were placed in the Blue Box, 58.56% were placed in the Grey Box and 4.28% were placed in both the Blue and Grey Box. Of the film placed in the Blue Boxes, 22.58% were bagged and the remaining 77.42% were loose. Of the film placed in the Grey Boxes, 68.94% were bagged and the remaining 33.06% were loose. Table 3.3 summarizes the results on plastic film.

**Table 3.3 Overview of Plastic Film**

Recycling Bin Type	Total Number of Households with a Set-out	Total Number of Bins Containing Films	Percentage (%) of Bagged Films	Percentage (%) of Loose Films
Grey Box	772	235	68.94%	31.06%
Blue Box	838	155	22.58%	77.42%

## 3.3 Alternative Set-Out Containers

The presence of non-traditional recycling containers was recorded at the curbside during collection. Table 3.4 provides an overview of the number of households that utilized alternate set-out containers. It was observed and noted that a large portion of the alternative set-out containers were transparent bags. Other types of alternative containers include corrugated cardboard boxes, plastic (e.g. Rubbermaid) storage containers and laundry hampers. Across all four seasons, a total of 9.86% of households set-out bagged recyclables.

**Table 3.4 Overview of Alternate Set-Out Containers**

	# of Houses	# of Households Sampled	% of Alternate Containers
Houses with Alternate Grey Boxes	110	1319	8.34%
Houses with Alternate Blue Boxes	182	1319	13.80%
Houses with Alternate Mixed Boxes	2	1319	0.15%
Houses with Bagged Recyclables	130	1319	9.86%

## 3.4 Mixed Recycling & Common Cross Contaminating Materials

Recycling containers that were mixed (i.e. co-mingled Grey Box and Blue Box materials) at the curbside were noted separately during curbside collection. The following materials were most commonly found, as a form of cross-contamination:

- Flexible films (grocery and retail carry-out bags, dry cleaning bags, bread bags, flexible frozen food bags, plastic overwrap film for cases of water and paper towels, etc.) are commonly found in both streams. Residents often associate the plastic material with their Blue Box.

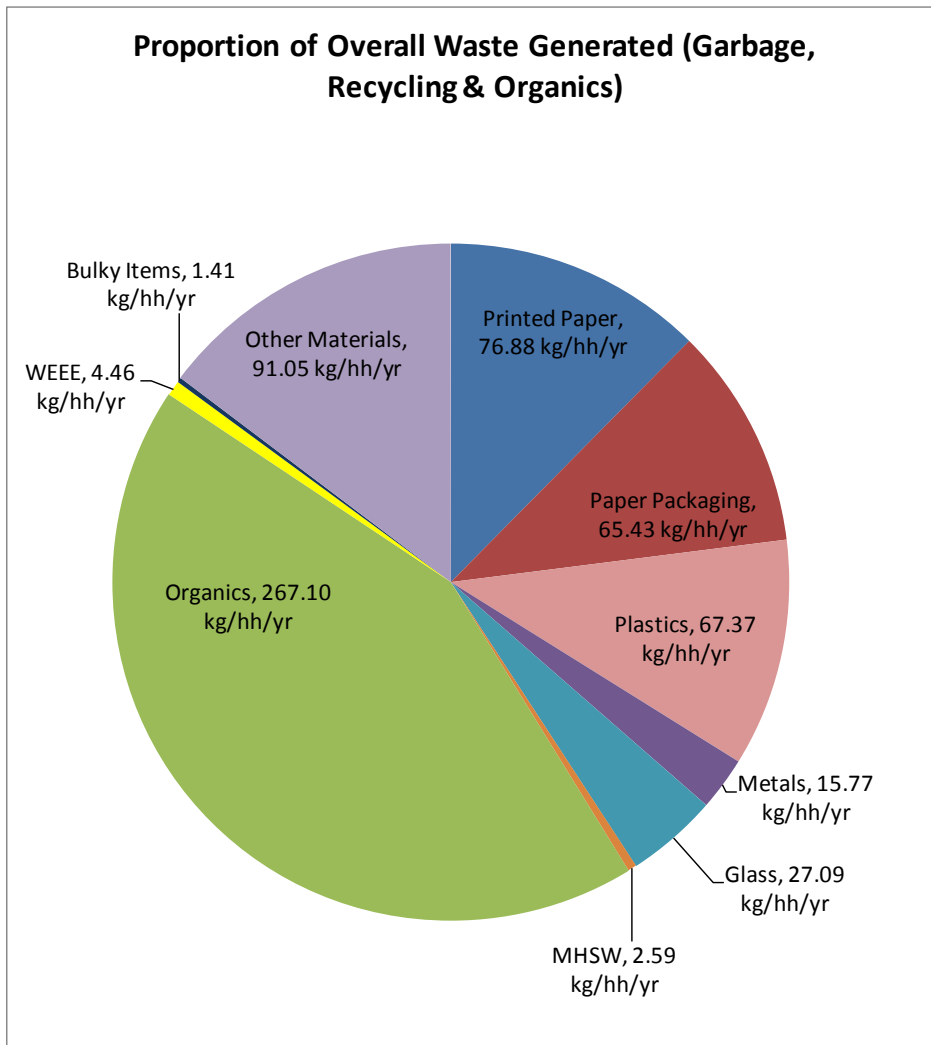
- Due to the nature of the material, gable top containers, spiral wound containers and aseptic containers are often placed in the Grey Box at the curbside.
- In addition, #6 Expanded Polystyrene (PS), otherwise known as Styrofoam, is often found inside the Grey Box recycling stream. This is a result of households not removing the material before it is placed at the curbside for collection.

**Table 3.5 Top 5 Cross-Contaminating Recyclable Materials**

Material	Accepted Recycling Stream	% in Correct Stream	% in Incorrect Stream
Flexible Film Plastic – LDPE & HDPE	Grey	63.91%	36.09%
Gable Top Containers	Blue	69.82%	30.18%
Spiral Wound Containers	Blue	83.76%	16.24%
Aseptic Containers (excluding alcoholic beverages)	Blue	84.94%	15.06%
#6 PS - Expanded Polystyrene	Blue	88.44%	11.56%

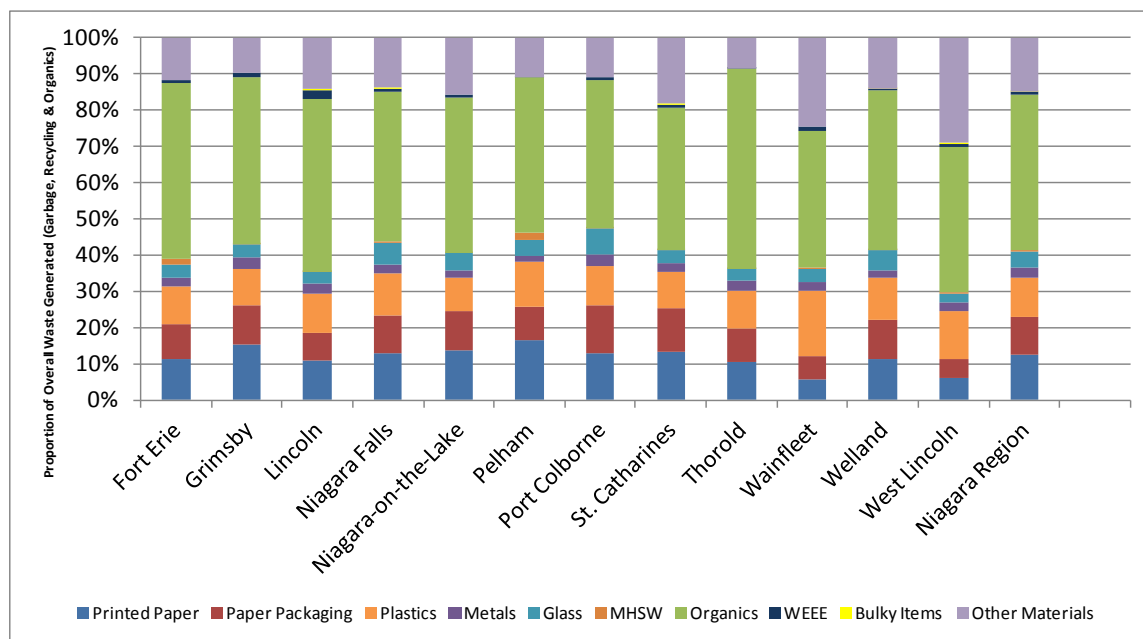
### 3.5 Overall Waste Generation Profile

Figure 3.8 illustrates the overall composition profile of low-density residential dwelling curbside waste being generated in the region, (% of total waste generated, by weight). The figure is a representation of total waste and, therefore, includes contributions from the garbage, organics, and recycling streams. It should be noted that bulky items, as presented here, only include items that were found within the regular garbage stream (e.g. roll of carpet found in garbage can), but do not include large bulky items set out for separate collection at the curb (e.g. large furniture).



**Figure 3.8 2015/2016 – Niagara Region Low-Density Residential Dwelling Curbside Waste Composition Profile (by weight)**

Figure 3.9 provides a breakdown of the waste composition profile for each of the 12 municipalities.

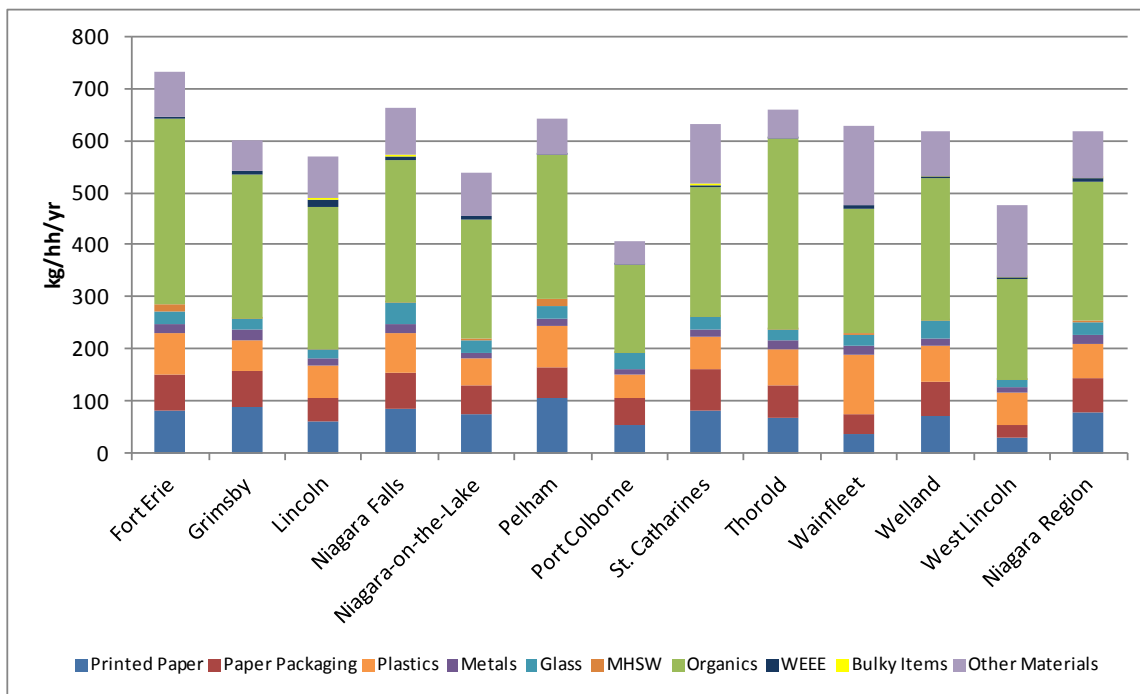


**Figure 3.9 Four-Season – Low-Density Residential Dwelling Curbside Waste Composition Profiles (by weight)**

Materials in Figure 3.8 and 3.9 have been grouped into 10 primary categories; Printed Paper, Paper Packaging, Plastics, Metals, Glass, MHSW, Organics, WEEE, Bulky Items and Other Materials. Please refer to Appendix A for the full breakdown of the sub-categories.

The largest contribution to the waste stream was Organic Materials, which represented an average 43.14% of the waste being generated by households in the Niagara region. This ranged from 37.88% in Wainfleet, to 55.32% in Thorold. Other Materials and Printed Paper also made up significant percentages of the overall waste generated in the Region, at 14.71% and 12.42% (22.99% when combined with Paper Packaging).

Figure 3.10 below illustrates the overall generation profile of low-density residential dwelling curbside waste being generated in the Niagara region, in terms of total kilograms generated per household per year (kg/hh/yr). The figure is a representation of total waste and, therefore, includes contributions from the garbage, organics, and recycling streams.



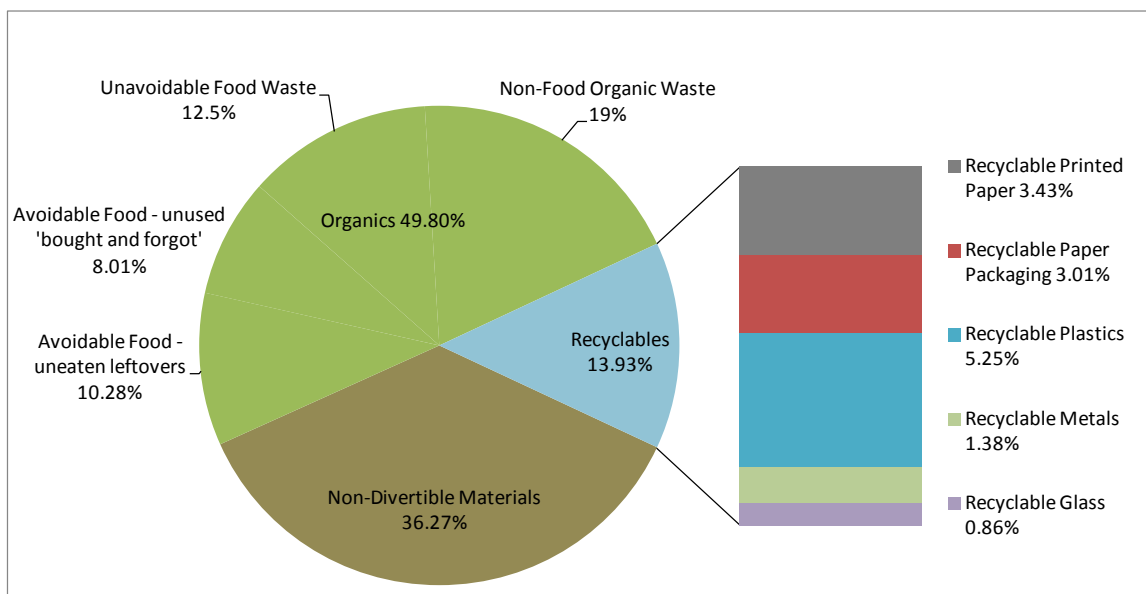
**Figure 3.10 4-Season – Low-Density Residential Dwelling Curbside Waste Generation Rates**

The overall average household curbside waste generation rate (garbage, recycling & organics streams) for the Niagara region was 619.16 kg/hh/yr. It should be noted that the calculation for determining Niagara region's overall generation rates took into account the relative proportion of households in each municipality (not simply a straight average across all municipalities).

Although the composition of material types was quite similar between municipalities (as shown in Figure 3.10), the overall generation rates were found to be rather varied, ranging from 406.89 kg/hh/yr (Port Colborne) to 732.33 kg/hh/wk (Fort Erie). The complete summary of results by material type and by municipality can be found in Appendix B. As previously noted, individual municipality's results should be analyzed with caution due to the relatively small number of households sampled in each area. The variability in waste generation rates here is more likely linked to the specific housing types audited in each sample area, rather than the municipality in which they are located. The Port Colborne sample area's low overall waste generation rate could be linked to the fact that it is a low-medium income area with relatively smaller houses, possibly resulting in lower overall household consumption and disposal of goods & packaging. Port Colborne had a similar low generation rate in the 2010-11 audit. The lower household consumption could directly correlate to a decrease in household occupants.

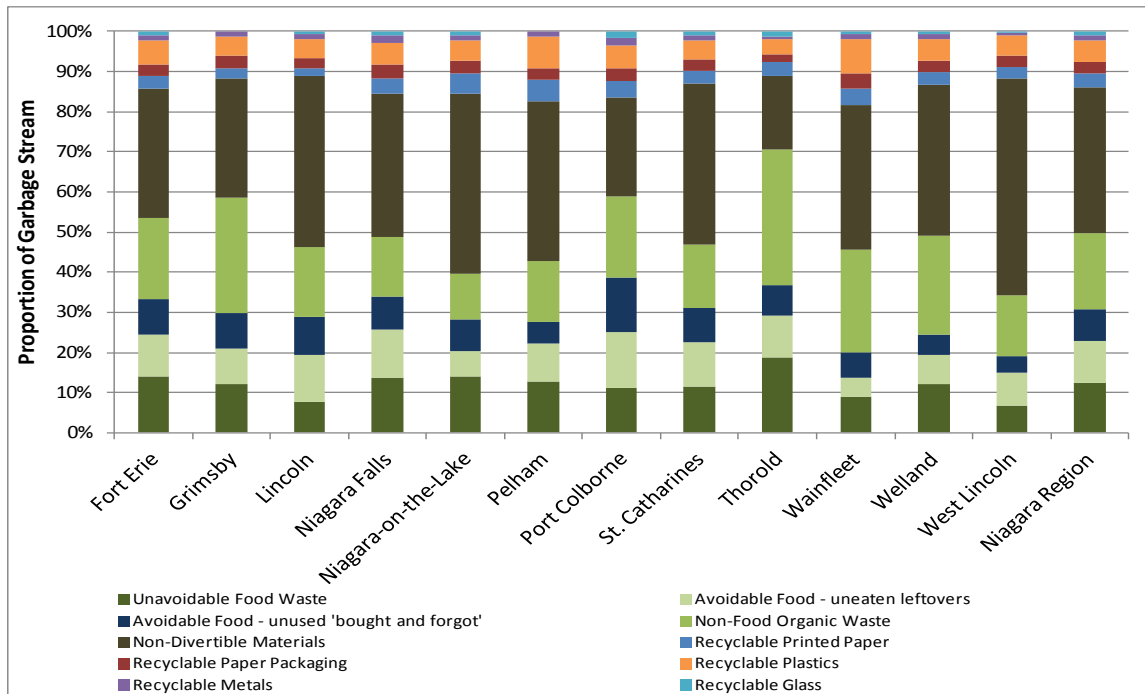
### 3.6 Garbage Stream Results

Figure 3.11 illustrates the composition of the garbage stream for the Niagara region. An average of 319.29 kg/hh/yr of garbage stream waste was generated. Of that, 13.93% was disposed recyclables (largely mixed fine paper, boxboard, flexible films, corrugated cardboard and #1 PET bottles & jars), 49.80% was organics (largely unavoidable food waste, pet waste and tissue/towelling), and 36.27% was non-divertible materials (largely sanitary waste, textiles, construction/renovation waste, plastic laminates and other film packaging and other waste).

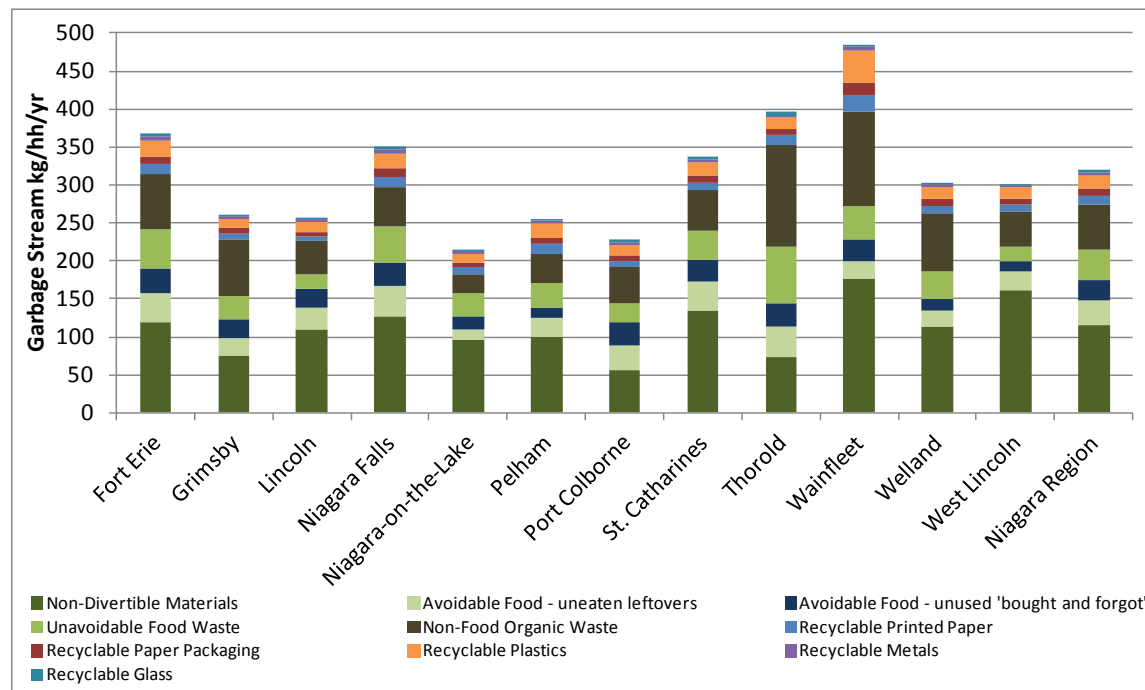


**Figure 3.11 Overall 2015/2016 Garbage Stream Composition**

Figure 3.12 illustrates the low-density residential dwelling curbside garbage stream composition (% of total garbage stream, by weight), highlighting the materials that could have been captured in the existing recycling and organics programs. Figure 3.13 illustrates the garbage stream generation rates for the same materials, in terms of kg/hh/yr.



**Figure 3.12 Low-Density Residential Dwelling Garbage Stream Composition Profiles (by weight)**



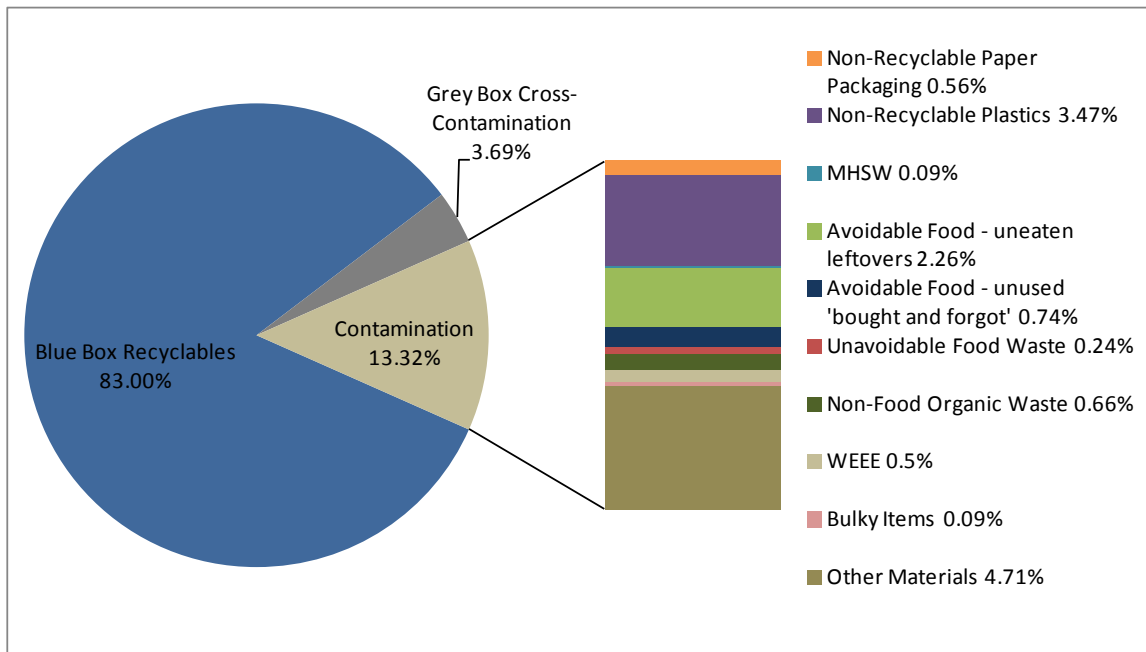
**Figure 3.13 Low-Density Residential Dwelling Garbage Stream Generation Rates**

The total average garbage stream generation rate across the Niagara region was approximately 319.29 kg/hh/yr, of which currently divertible materials comprised approximately 63.73% (203.47 kg/hh/yr). Organic materials was the largest category of divertible materials at 49.80% (60.68 kg/hh/yr non-food organic waste, 39.92 kg/hh/yr unavoidable food, 32.83 kg/hh/yr avoidable food - uneaten leftovers and 25.58 kg/hh/yr avoidable food – unused ‘bought and forgot’), followed by recyclable plastics, at 5.25% (16.75 kg/hh/yr). Recyclable printed paper and recyclable paper packaging accounted for 3.43% (10.94 kg/hh/yr) and 3.01% (9.62 kg/hh/yr) of the garbage stream. Recyclable metals and glass were relatively small components of the garbage stream at 1.38% (4.40 kg/hh/yr) and 0.86% (2.75 kg/hh/yr), respectively.

The proportional material composition of the garbage stream was similar between individual municipalities, however overall garbage generation rate per household per year varies significantly. The annual garbage stream generation rate ranges from 214.46 kg/hh/yr (Niagara-On-The-Lake) to 485.45 kg/hh/yr (Wainfleet). There are several factors which could contribute to the large variances in garbage generation between municipalities. Principally, it is important to recall that only 10 consecutive homes were audited in many of the individual municipalities audited, which cannot be considered a perfect representative sample of all households from within that municipality. The demographics of the specific sample areas selected are suspected to be the main factor for the waste generation profiles, rather than the municipality in which they are situated. Direct comparisons between individual municipalities would require sampling from households of similar demographics in each municipality. In addition, the high garbage generation rate in Wainfleet can be directly correlated to the low participation rates in the recycling and organics streams. This indicates that more households in the Wainfleet sample area aren’t participating in the diversion programs as much as other municipalities, therefore creating a heavier garbage stream.

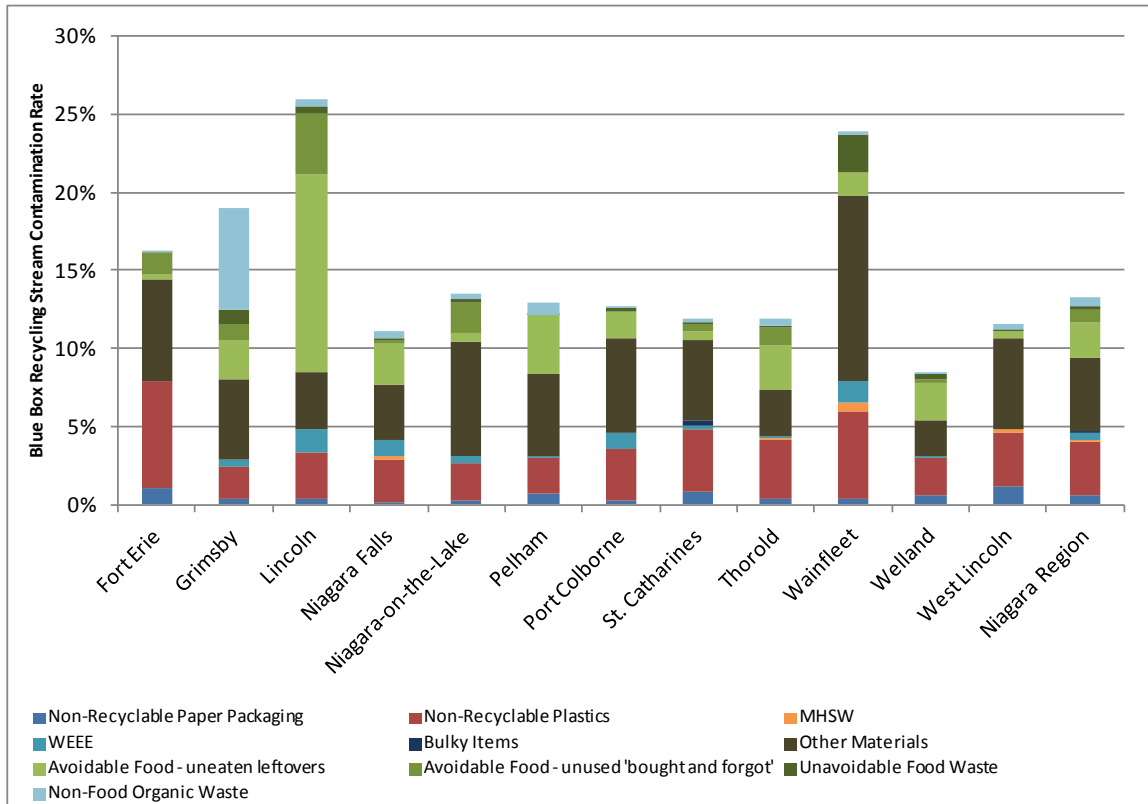
### 3.7 Blue Box Recycling Stream Results

Figure 3.14 illustrates the composition of the Blue Box recycling stream for Niagara region. An average of 76.09 kg/hh/yr of material was placed in the Blue Box. Of that, 83% was accepted Blue Box recyclables, 3.69% was Grey Box cross-contamination (largely flexible films, boxboard, corrugated cardboard and newsprint), and 13.32% was contamination. The most commonly contaminating materials were polycoat beverage cups, ice cream containers, garbage bags, plastic laminates and other film packaging, durable plastic products (VHS tapes & DVDs, storage containers, plastic cutlery, etc.), food waste (largely food and liquid contained in bottles), other glass (light bulbs, drinking glasses and candle holders), ceramics and other waste.

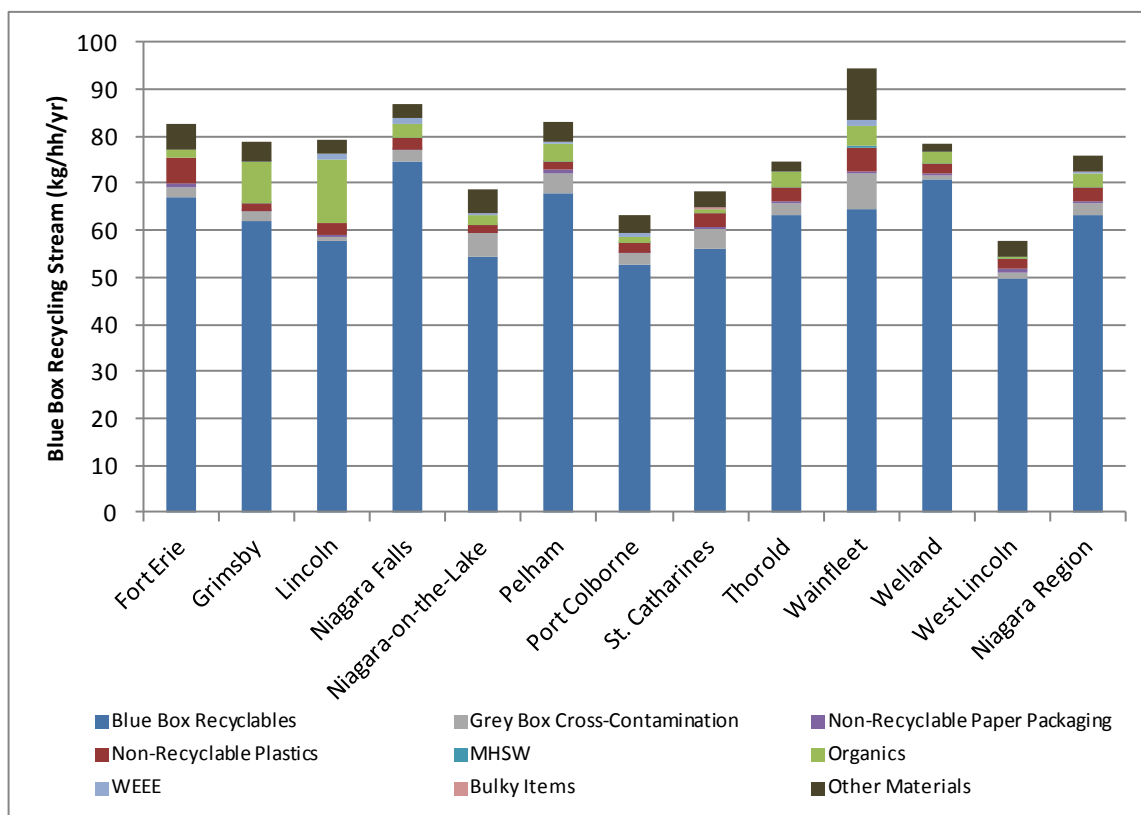


**Figure 3.14 Overall 2015/2016 Blue Box Composition**

Figure 3.15 illustrates the low-density residential dwelling curbside Blue Box contamination rate (% of total Blue Box, by weight), highlighting the non-recyclable materials that are not accepted in the existing program (contamination). Figure 3.16 illustrates the Blue Box generation rates, in terms of kg/hh/yr.



**Figure 3.15 Low-Density Residential Dwelling Blue Box Recycling Stream Contamination Rates (by weight)**



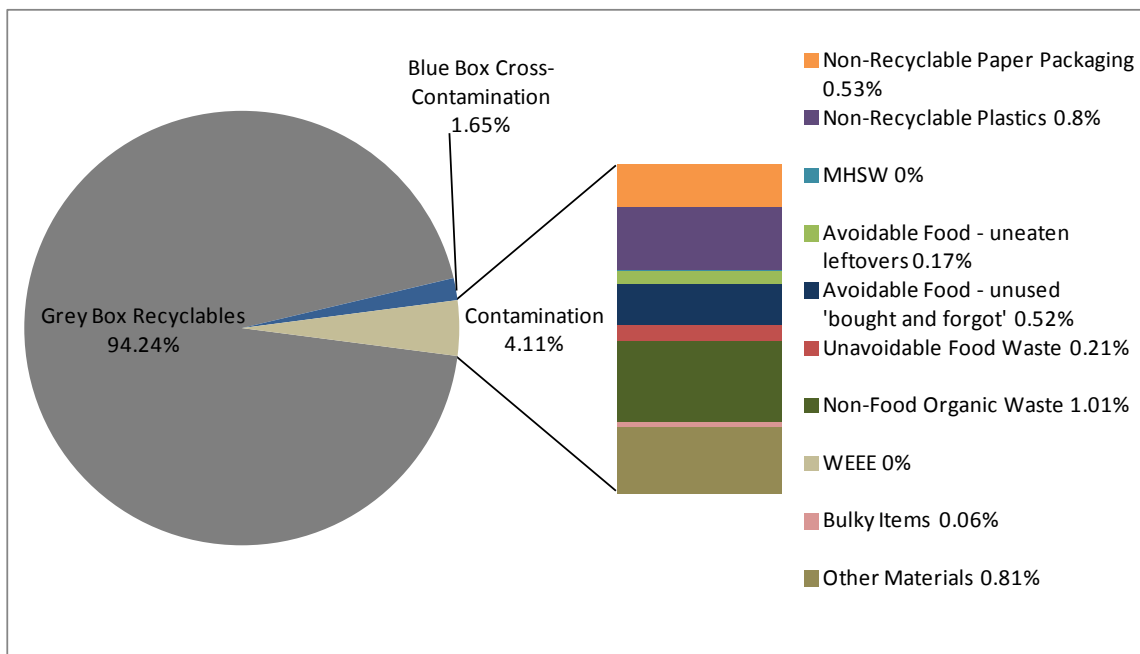
**Figure 3.16 Low-Density Residential Dwelling Blue Box Recycling Stream Generation Rates**

The total average Blue Box recycling stream generation rate across the Niagara Region was approximately 76.09 kg/hh/yr, of which non-recyclable materials (contamination) comprised approximately 13.32% (10.13 kg/hh/yr). Other materials (largely glassware, light bulbs, scrap metal, ceramics, meat tray liners, cigarette butts, candles) was the largest category of contamination at 4.17% (3.58 kg/hh/yr), followed by organics (largely avoidable food – uneaten leftovers), at 3.9% (2.97 kg/hh/yr) and non-recyclable plastics, at 3.47% (2.64 kg/hh/yr).

As with the garbage stream, the proportional material composition of the Blue Box recycling stream was similar between individual municipalities, however, overall recycling generation rates per household per year varied slightly. The annual Blue Box recycling stream generation rate ranged from 57.88 kg/hh/yr (West Lincoln) to 94.64 kg/hh/yr (Wainfleet). Contamination rates ranged from a low of 8.45% (Welland) to 25.95% (Lincoln). Lincoln had a high amount of food waste in the Blue Box recycling stream. In addition, other contaminating materials included durable plastic products, other electronics, ceramics, other glass and other waste. Since the sample size for Lincoln was 9 households (1 house opted out of the study), the results can be easily swayed by a large amount of contamination coming from one house.

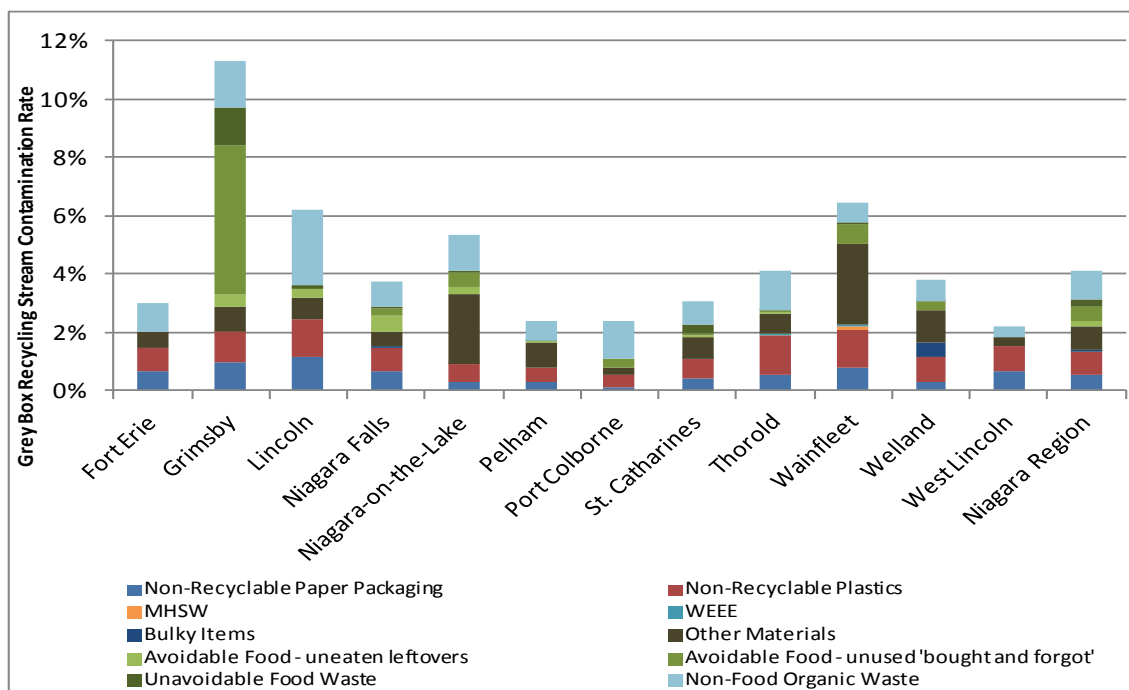
### 3.8 Grey Box Recycling Stream Results

Figure 3.17 illustrates the composition of the Grey Box recycling stream for Niagara region. An average of 119.63 kg/hh/yr of material was placed in the Grey Box. Of that, 94.24% was accepted Grey Box recyclables, 1.65% was Blue Box cross-contamination (largely gable top containers), and 4.11% was contamination. The most commonly contaminating materials were polycoat beverage cups, plastic laminates and other film packaging, food waste, molded pulp, tissue/towelling and other waste (largely wooden crates for oranges and furnace filters).

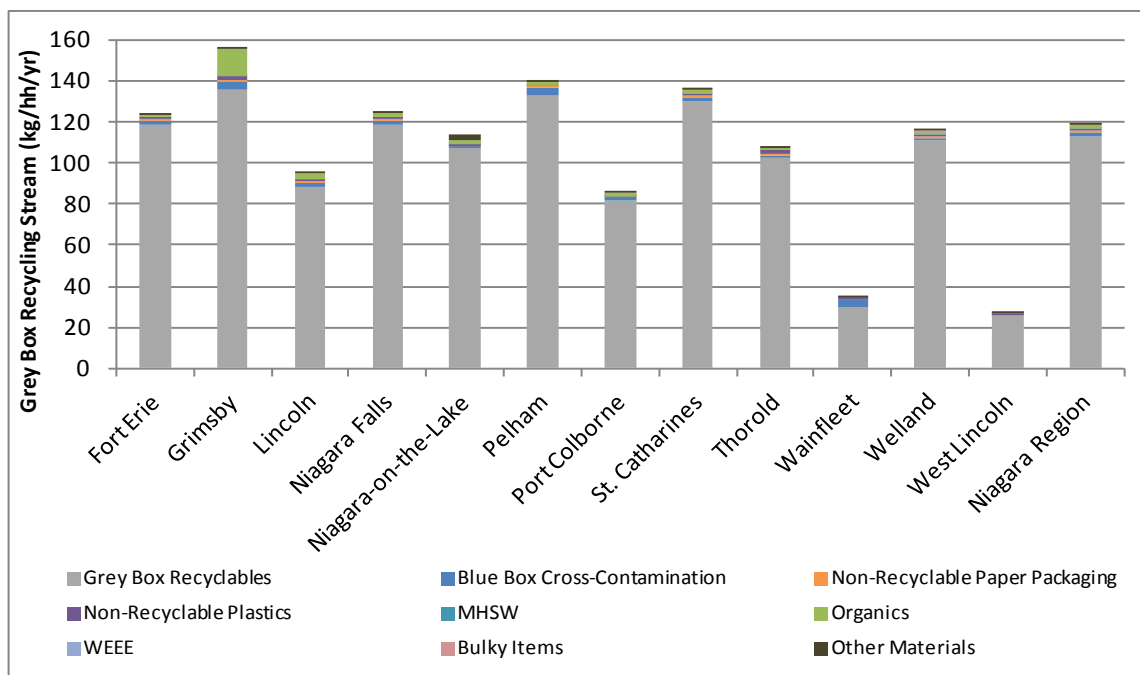


**Figure 3.17 Overall 2015/2016 Grey Box Composition**

Figure 3.18 illustrates the low-density residential dwelling curbside Grey Box recycling stream contamination rate (% of total recycling stream, by weight), highlighting the materials that are not accepted in the existing program (contamination). Figure 3.19 illustrates the overall recycling stream generation rates, in terms of kg/hh/yr.



**Figure 3.18 Low-Density Residential Dwelling Grey Box Recycling Stream Contamination Rates (by weight)**



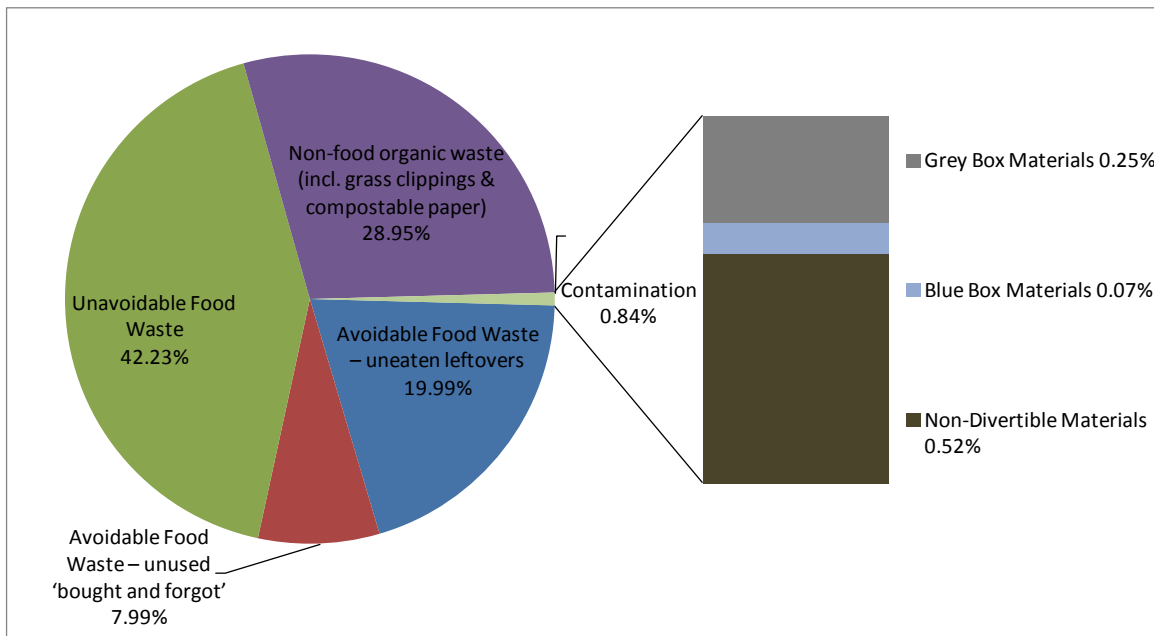
**Figure 3.19 Low-Density Residential Dwelling Grey Box Recycling Stream Generation Rates**

The total average Grey Box recycling stream generation rate across the Niagara region was approximately 119.63 kg/hh/yr, of which non-recyclable materials (contamination) comprised approximately 4.11% (4.92 kg/hh/yr). Organics was the largest category of contamination at 1.91% (2.29 kg/hh/yr), followed by non-recyclable plastics, at 0.80% (0.95 kg/hh/yr).

The proportional material composition of the recycling stream was similar between individual municipalities, however, overall generation rates per household per year varied notably. The annual Grey Box generation rate ranged from 26.66 kg/hh/yr (West Lincoln) to 156.60 kg/hh/yr (Grimsby). Contamination rates varied from 2.19% (West Lincoln) to 11.30% (Grimsby). The organic material found in the Grey Box recycling stream in Grimsby in particular was comprised of sealed boxes of untouched food products. When collecting the material at the curbside it was difficult to see the contamination because it was contained inside of boxes. The rural areas of Wainfleet and West Lincoln have much lower generation rates for Grey Box fibres.

### 3.9 Organics Stream Results

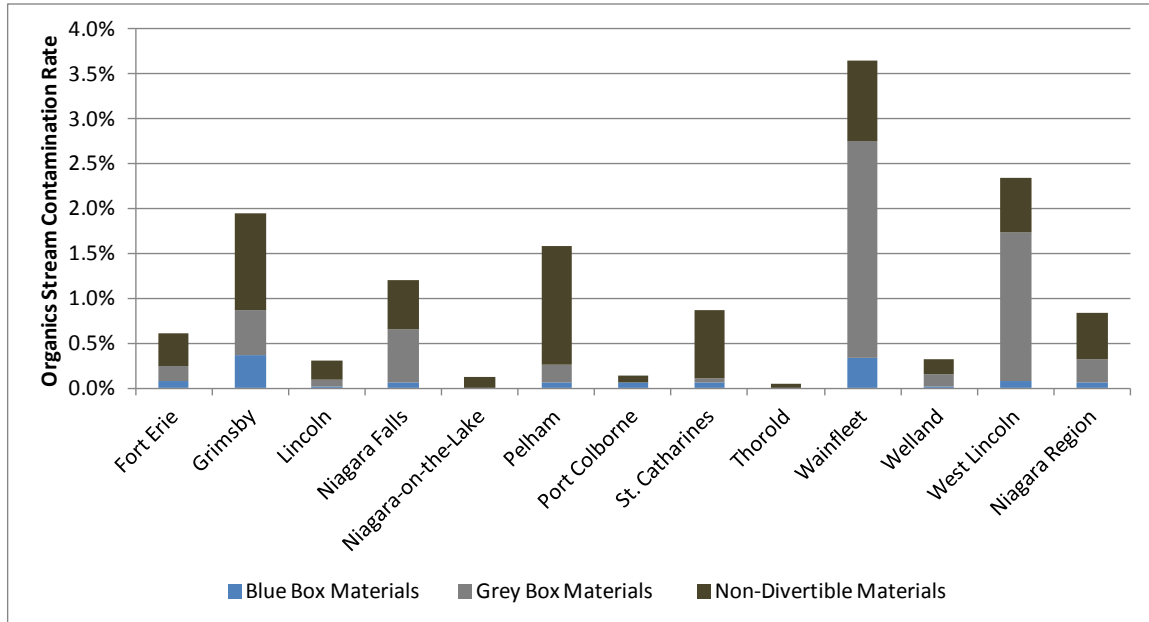
Figure 3.20 illustrates the composition of the organics stream for Niagara region. An average of 104.15 kg/hh/yr of material was placed in the Green Bin organics stream. Of that, 70.21% consisted of food waste, 28.95% consisted of non-food organic waste and 0.84% consisted of contamination. The most commonly contaminating materials were flexible films, polycoat beverage cups, and other waste.



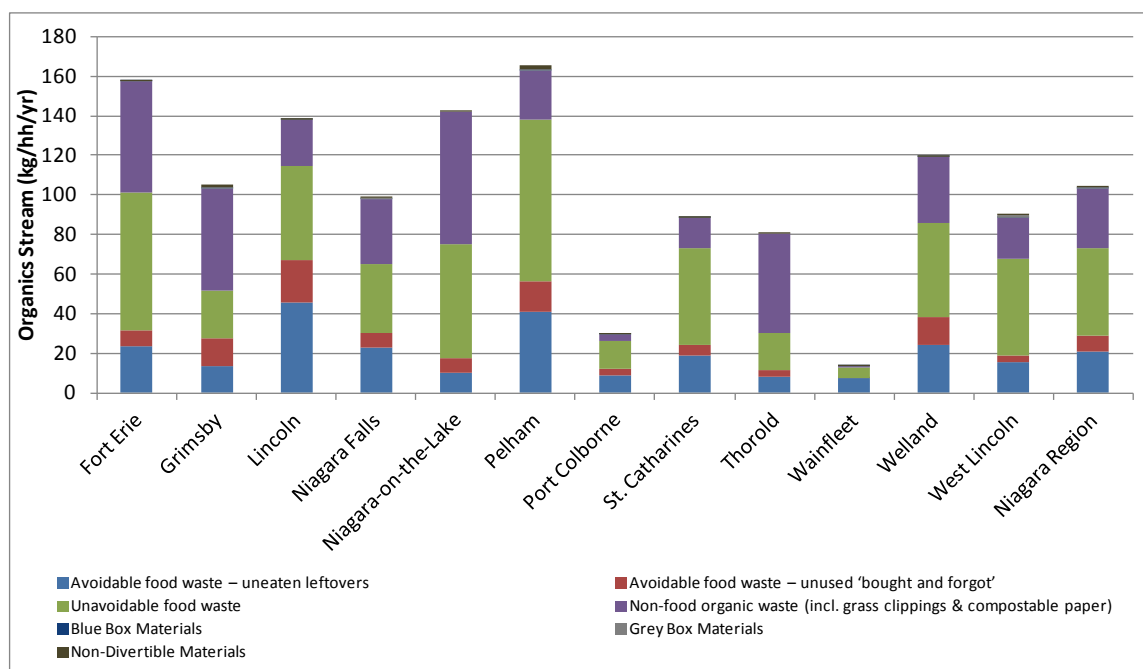
**Figure 3.20 Overall 2015/2016 Organics Stream Composition**

Figure 3.21 illustrates the low-density residential dwelling curbside organics stream contamination rate (% of total organics stream, by weight), highlighting the materials that are

not accepted in the existing program (contamination). Figure 3.22 illustrates the overall organics stream generation rates, in terms of kg/hh/yr. It must be noted that grass clippings are classified as non-food organic waste here (not contamination). Grass clippings accounted for a total of 0.92% of the Green Bin material.



**Figure 3.21 Low-Density Residential Dwelling Organics Stream Contamination Rates (by weight)**



**Figure 3.22 Low-Density Residential Dwelling Organics Stream Generation Rates**

The total average organics stream generation rate across the Niagara region was approximately 104.15 kg/hh/yr, of which non-accepted materials (contamination) comprised approximately 0.84% (0.88 kg/hh/yr).

As with the garbage and recycling stream, the proportional material composition of the organics stream was similar between individual municipalities' sample areas, however, overall average organics generation rates per household per year varied notably. The average annual organics stream generation rate ranged from a low of 13.70 kg/hh/yr (Wainfleet) to a high of 165.38 kg/hh/yr (Pelham). All areas in region have organics collection services year round, which is a change since the audit conducted in 2010/2011. Contamination rates were generally low and varied from 0.05% in Thorold to 3.65% in Wainfleet.

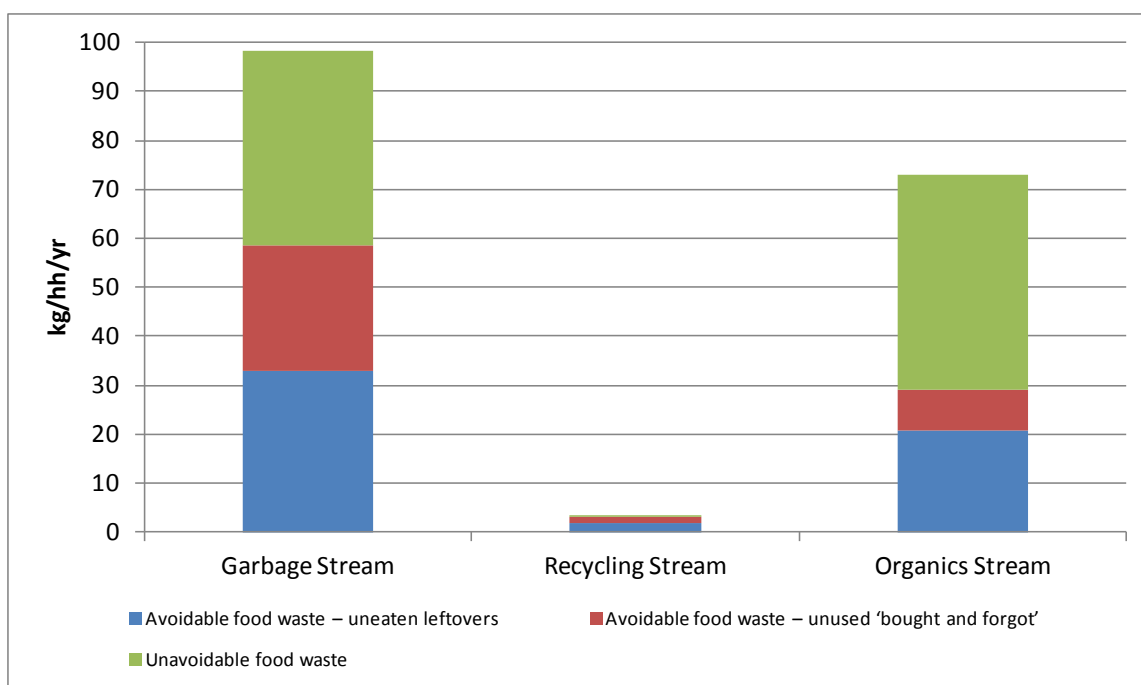
### 3.10 Food Waste

Figure 3.23 illustrates the proportion of food waste found in the various waste streams. An average of 175.00 kg/hh/yr of food waste was generated, of which 98.33 kg/hh/yr was placed in the garbage stream, 73.13 kg/hh/yr in the organics stream, and 3.54 kg/hh/yr in the recycling streams.

Of the food waste placed in the garbage stream, large portions of unavoidable and avoidable food waste were present. Most of the food waste found in the garbage was in some type of packaging, whether it be the products original package (e.g. expired yogurt in tub) or a bag (e.g. leftovers/uneaten food in zip-lock bags). Auditors remove all food waste from their containers

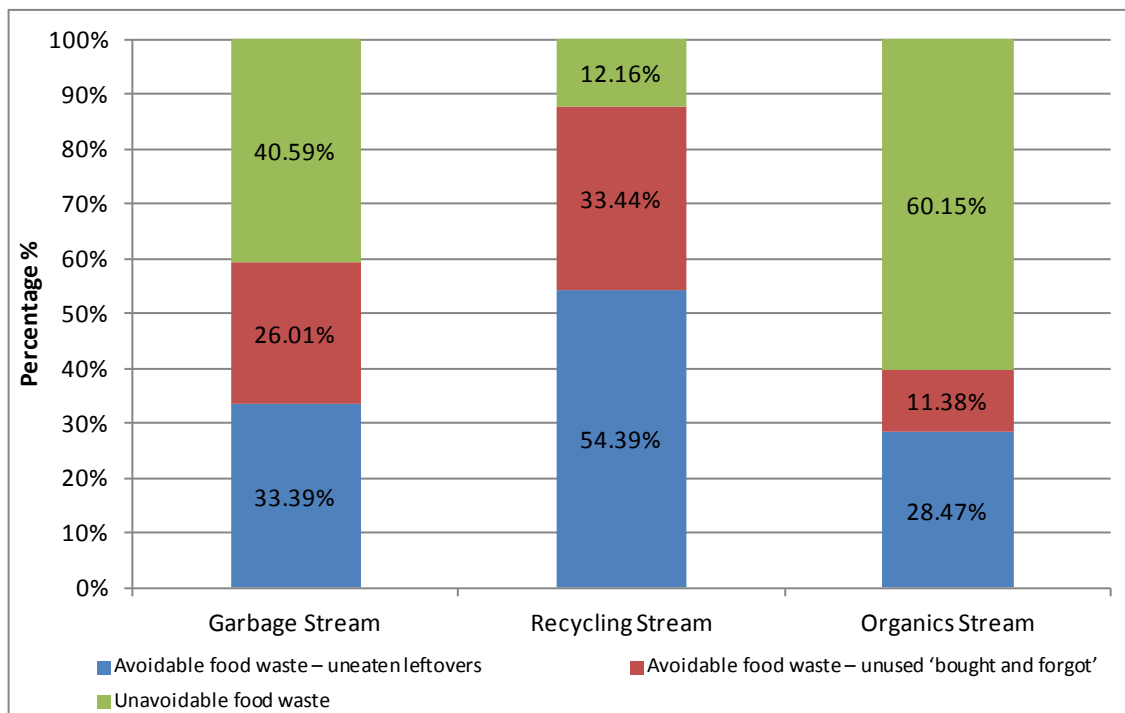
and bags while auditing. Other than food scraps, the food waste ending up in the garbage is leftover food that residents take directly out of their refrigerators and cupboards and throw directly into the garbage. The extra effort of removing the food from the packaging is not usually taken.

The food waste being placed in the Green Bin consists largely of unavoidable food scraps. The unused bought and forgot food waste is commonly contained in packaging and disposed of directly into the garbage. Looking in more detail at the individual food types, capture rates for untouched meat and fish, untouched dried food and untouched other food are very low, at 10.36%, 13.99% and 7.71%, respectively. The food waste found in the recycling stream is largely liquid or food left in bottles and jars.



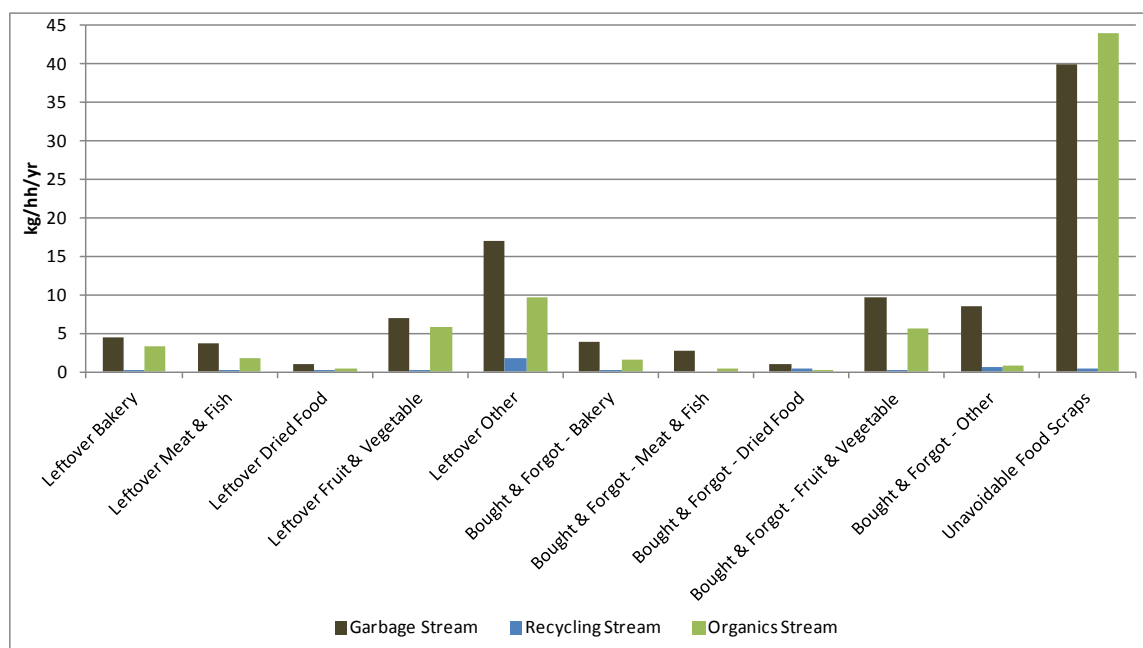
**Figure 3.23 Breakdown of Food Waste in Different Waste Streams**

Figure 3.24 illustrates the proportion of food waste (avoidable food – uneaten leftovers, avoidable food – unused 'bought and forgot' and unavoidable food waste) in each waste stream. All three types of food waste are present in each waste stream. The Green Bin program consists of 60.15% of unavoidable food waste (food scraps). Of the food waste in the recycling program, 54.39% is represented by avoidable food – uneaten leftovers. As mentioned previously in the report, this consists of liquids and food that have been left in containers. There is a fair divide of the different types of food waste ending up in the garbage stream, however unavoidable food waste was the greatest, at 40.59%, respectively.



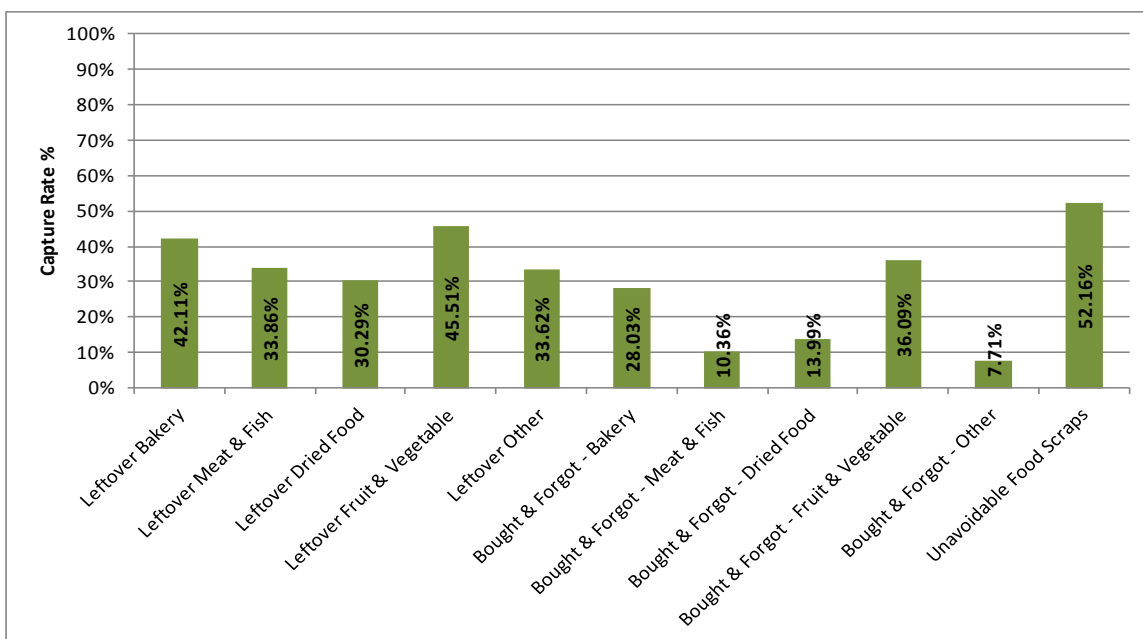
**Figure 3.24 Percentage of Different Types of Food Waste in Each Waste Stream**

Figure 3.25 illustrates the amount of the various food waste types found in each waste stream. This displays the top generated types of food, which includes unavoidable food scraps, leftover other and bought & forgot fruit & vegetable. For clarification, the 'other' category of food waste includes items that encompass multiple types of food and cannot be reasonably separated. This includes items such as cooked pastas covered in sauce, pizza, sandwiches, stir-fry's, water and drinkable liquids, etc.



**Figure 3.25 Breakdown of Food Waste in Different Streams by Material Type**

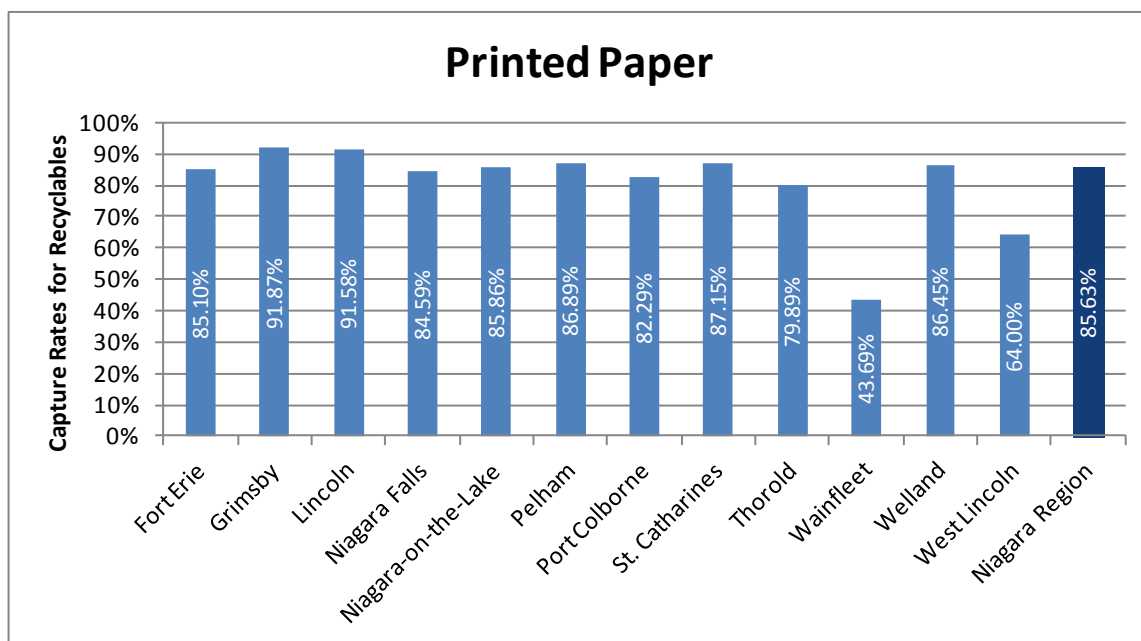
Figure 3.26 illustrates the capture rates for the individual food waste material types. Unavoidable food waste (food scraps) had the highest capture rate, at 52.16%. Bought and forgot – other had the lowest capture rate, at 7.71%.



**Figure 3.26 Capture Rates for Food Waste Material Types**

### 3.11 Capture Rates for Recyclables

The following section summarizes the capture rates for materials currently accepted in the Region's curbside recycling program (Blue & Grey Box). A chart for each primary recyclable material category (paper, paper packaging, plastic, metal, glass) is presented with a breakdown of capture rates by municipality and for Niagara Region. A detailed breakdown of recyclable capture rates for every material sub-category can be found in Appendix C. The capture rate represents the proportion of a divertible material that was captured in the recycling stream relative to the total amount of that material generated in all streams (garbage, organics, recycling). It should be noted that recyclable materials were considered to be captured if they ended up in either the blue or Grey Box streams (e.g. a newspaper was considered captured if it ended up in the Grey or Blue Box). In addition, recyclable fibre materials that are also compostable (newsprint, corrugated cardboard & boxboard) were also considered captured if they ended up in the Green Bin.



**Figure 3.27 Capture Rates for Recyclable Printed Paper Materials**

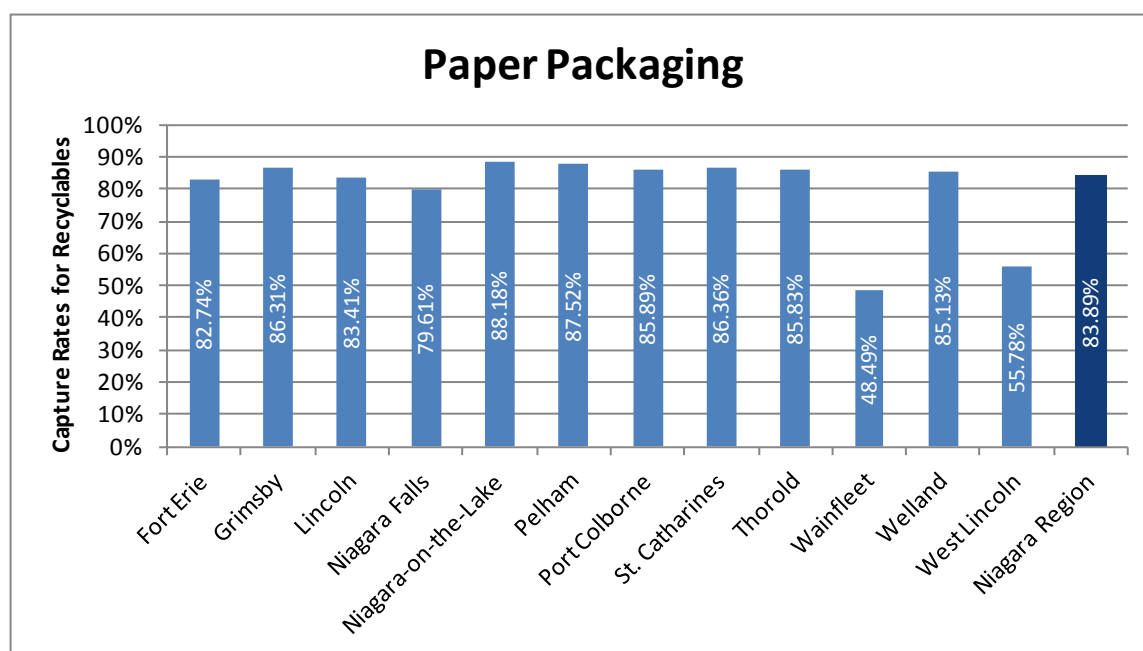
Recyclable printed paper materials include:

- Newspaper
- Books/magazines/directories
- Mixed Fine Paper

Niagara Region's overall recyclable printed paper generation rate was approximately 76.88 kg/hh/yr, of which 65.83 kg/hh/yr was placed in the recycling stream, resulting in a capture rate of 85.63%. The overall generation of printed paper has decreased from 2010/2011 to

2015/2016. The capture rates for the individual municipalities exceeded 80% for nine of the twelve municipalities. The remaining three municipalities (Wainfleet, West Lincoln and Thorold) showed lower capture rates, ranging from 43.69% to 79.89%.

Capture rates for newsprint, magazines/catalogues and telephone books was high (88%+), while capture rates for other printed paper was lower (59%). Other printed paper not captured in the recycling program was often observed to be in the form of receipts, mail and envelopes. It is possible that households place these types of paper in the garbage for security reasons (fear of identity theft). There is also the presence of receipts in grocery bags and take-out food bags. As discussed earlier, rural areas were observed to have generally less paper materials placed for disposal/recycling at the roadside, possibly due to burning in fireplaces or fire pits.



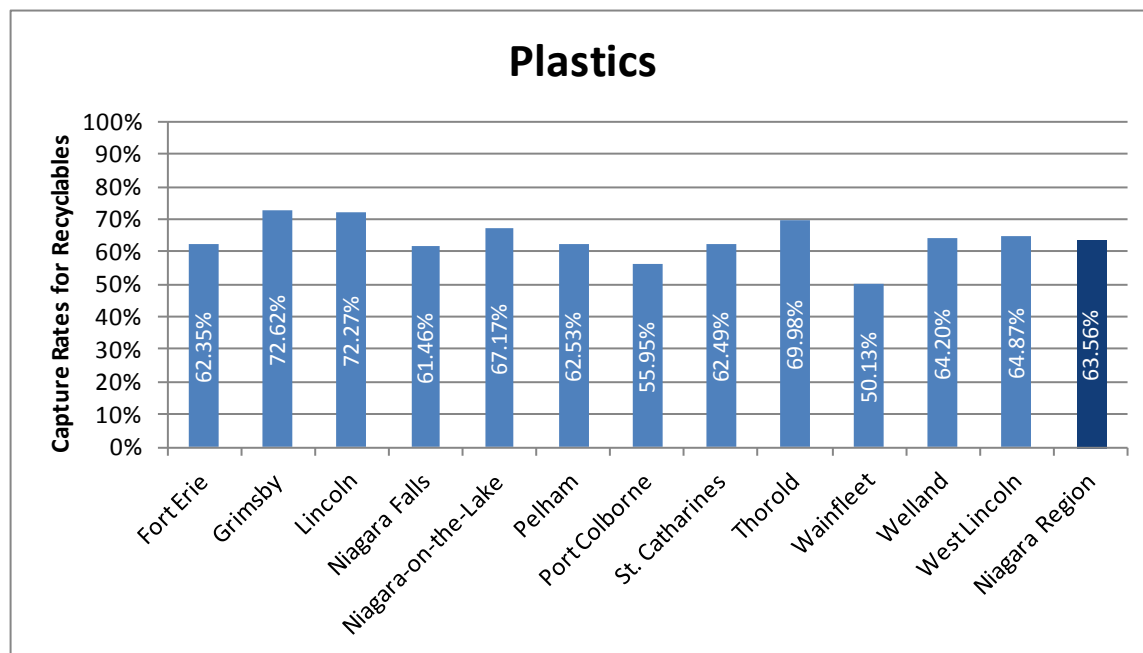
**Figure 3.28 Capture Rates for Recyclable Paper Packaging Materials**

Recyclable paper packaging materials include:

- Corrugated Cardboard
- Boxboard/Cores
- Composite Cans
- Gable Top Containers
- Aseptic Containers

Niagara Region's overall recyclable paper packaging generation rate was approximately 59.76 kg/hh/yr, of which 50.13 kg/hh/yr was placed in the recycling stream, resulting in a capture rate of 83.89%. Wainfleet, West Lincoln and Niagara Falls had the lowest capture rates at 48.49%, 55.78% and 79.61%, respectively. Niagara-on-the-Lake (88.18%), Pelham (87.52%) and St.

Catharines (86.36%) had the highest recyclable paper packaging capture rates. The capture rate for corrugated cardboard and gable top containers was high, at 91.23% and 85.11%, respectively. Both cores and aseptic containers showed lower capture rates, at 42.89% and 62.38%. As observed in the 2010/2011 audit, boxboard cores (toilet and paper towel rolls) are not being captured to their best potential. Households are not likely to have recycling receptacles in the bathroom where the empty rolls would be disposed.



**Figure 3.29 Capture Rates for Recyclable Plastic Materials**

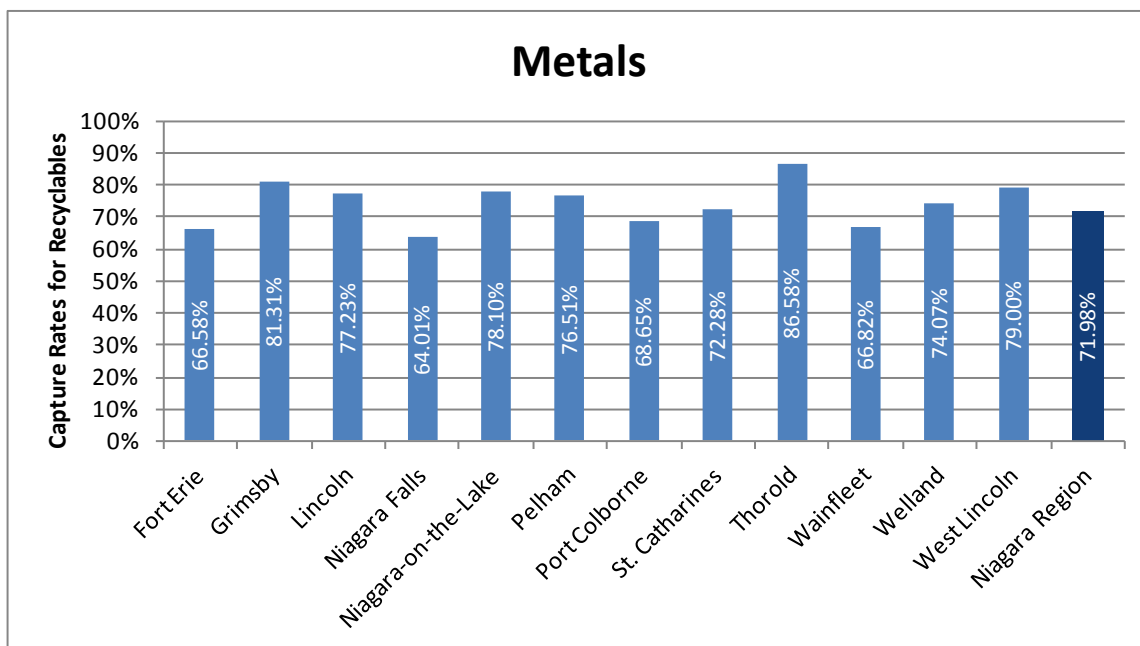
Recyclable plastic materials include:

- #1 PET Bottles/Jars & Packaging
- #2 HDPE Bottles/Jugs/Pails & Containers
- Wide Mouth Tubs & Lids
- #3 Polyvinyl Chloride (PVC) Plastic Containers
- #2 HDPE and #4 LDPE Flexible Film Plastic
- #5 Polypropylene (PP) Bottles/Jars/Jugs
- #6 Polystyrene (PS) Packaging
- #7 Other Rigid Plastic Containers

Niagara Region's overall recyclable plastics generation rate was approximately 46.51 kg/hh/yr, of which 29.57 kg/hh/yr was placed in the recycling stream, resulting in a capture rate of 63.56%. This ranged from a low of 50.13% in Wainfleet to a high of 72.62% in Grimsby. Capture rates for plastic containers (bottles/jars/jugs/tubs) was generally high, ranging from 73%-99%. The materials with the lowest capture rates included flexible film plastic, at 32.26%, large pails &

lids, at 41.91%, other rigid plastic packaging, at 43.19% and #6 polystyrene (non-expanded and expanded), at 52.17% and 54.21%, respectively.

It should be noted that acceptable bags & film includes only packaging materials (e.g. retail carry-out bags, bread bags, overwrap from cases of bottled water or packs of paper towels, etc.). This category does not include garbage bags or other non-packaging film (e.g. sandwich bags). A contributing factor to the lower capture rate for PE bags and film was observed to be resident's use of retail carry-out bags as small garbage can liners (e.g. in the bathroom or kitchen). PE bags are also often used for cat & dog waste.



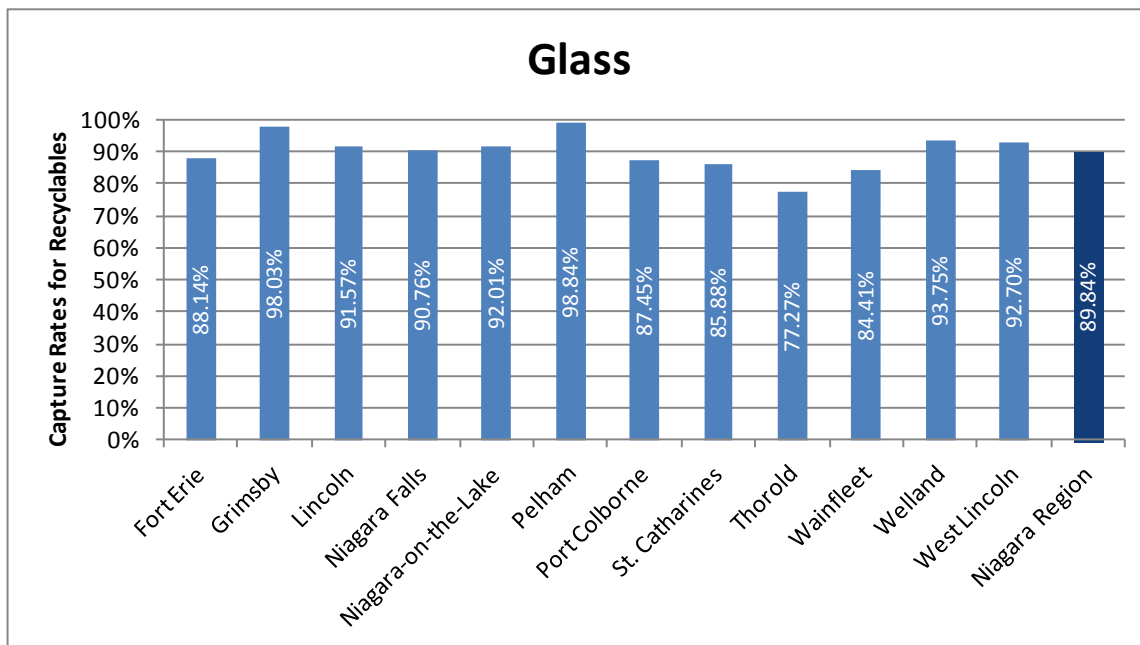
**Figure 3.30 Capture Rates for Recyclable Metal Materials**

Recyclable metal materials include:

- Aluminum Food & Beverage Cans
- Aluminum Foil & Trays
- Steel Food & Beverage Cans
- Aerosol Cans (empty)
- Steel Paint Cans (empty)

Niagara Region's overall recyclable metals generation rate was approximately 15.77 kg/hh/yr, of which 11.35 kg/hh/yr was placed in the recycling stream, resulting in a capture rate of 71.98%. This ranged from 64.01% in Niagara Falls to 86.58% in Thorold. Steel paint cans, aluminum foil & trays and aluminum aerosols had the lowest capture rates, at 17.75%, 26.43% and 35.58%, respectively. The focus should be put on targeting the capture of aluminum foil as it is more commonly found in the garbage stream. In many cases, the foil & trays observed in the garbage

contained leftover food that people did not separate before discarding. Foil may be a material not commonly recognized as recyclable by residents.

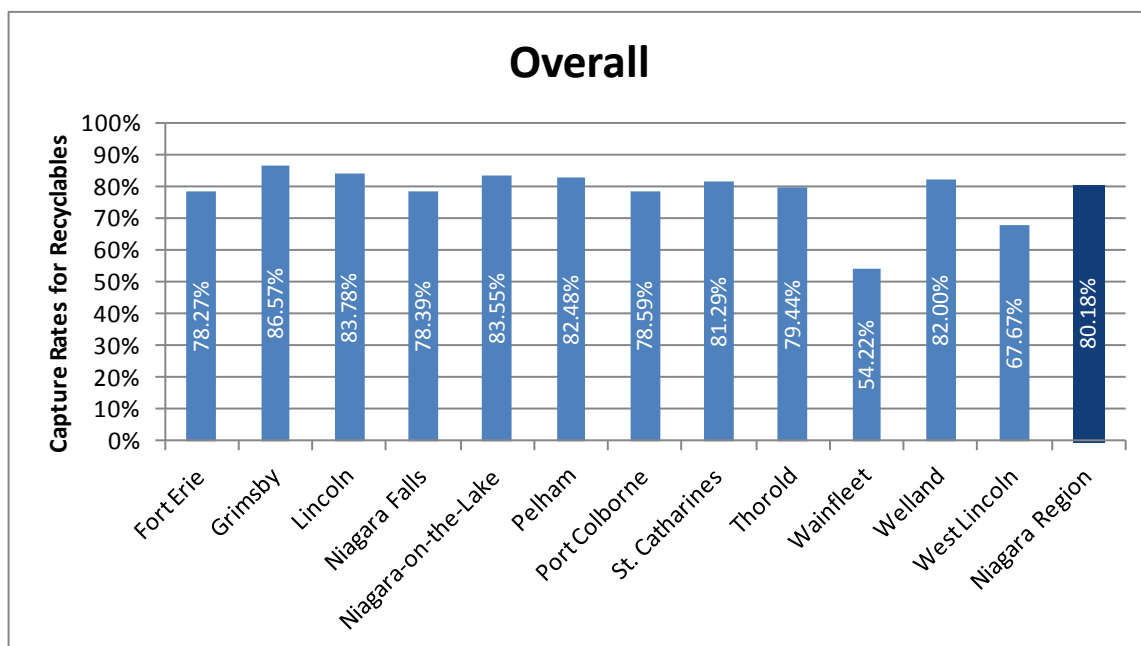


**Figure 3.31 Capture Rates for Recyclable Glass Materials**

Recyclable glass materials include:

- Clear Food & Beverage Bottles/Jars
- Coloured Food & Beverage Bottles/Jars

Niagara Region's overall recyclable glass generation rate was approximately 27.09 kg/hh/yr, of which 24.34 kg/hh/yr was placed in the recycling stream, resulting in a capture rate of 89.84%. This ranged from 77.27% (Thorold) to 98.84% (Pelham). Glass jars placed in the garbage typically contain food and the homeowner has not taken the extra effort to empty out the jar and place it into the correct stream.

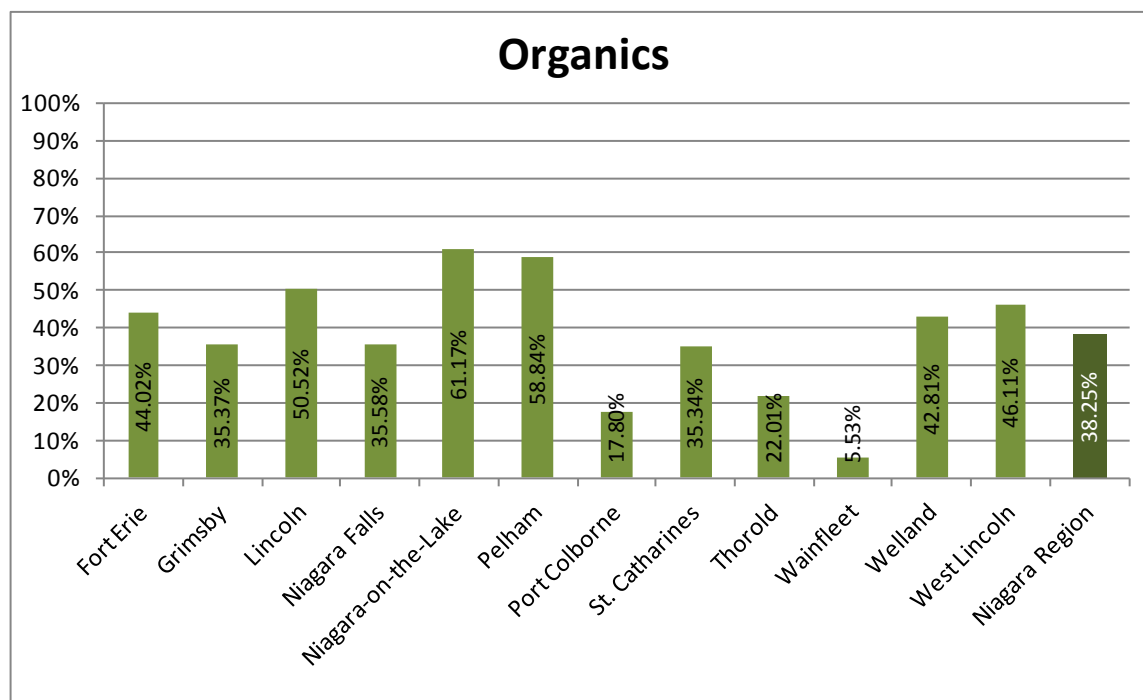


**Figure 3.32 Overall Capture Rates for Recycling Stream Materials**

Niagara Region's overall recyclable material generation rate (combining all recyclable paper, paper packaging, plastic, metal and glass materials) is approximately 226.02 kg/hh/yr, of which 181.22 kg/hh/yr was placed in the recycling stream, resulting in an overall capture rate of 80.18%. Rural areas including Wainfleet (54.22%) and West Lincoln (67.67%) had the lowest overall capture rates, while Grimsby (86.57%), Lincoln (83.78%) and Niagara-on-the-Lake (83.55%) had the highest overall capture rates. As previously discussed, rural areas' lower overall capture rates may attribute to less paper and paper packaging materials generated, which account for significant weights overall.

### 3.12 Capture Rates for Organics

The following section summarizes the capture rates for materials currently accepted in the Region's curbside organics program (Green Bin). A detailed breakdown of capture rates for every material category can be found in Appendix C. The capture rate represents the proportion of a divertible material that was captured in the organics stream relative to the total amount of that material generated in all streams (garbage, organics, recycling).



**Figure 3.33 Overall Capture Rates for Organics Stream Materials**

Accepted organics stream materials include:

- Food Waste (avoidable and unavoidable)
- Pet Waste
- Yard Waste (excluding grass clippings)
- Molded Pulp (e.g. egg cartons)
- Non-laminated Paper Packaging
- Tissue/Towelling
- Compostable Plastic & Paper Bags

Niagara Region's overall organics material generation rate is approximately 266.02 kg/hh/yr, of which 101.76 kg/hh/yr was placed in the organics stream, resulting in an overall capture rate of 38.25%. Wainfleet had the lowest organics capture rate of the municipalities (5.53%) over the four 2015/2016 seasonal audits. This directly correlates to the low participation rate of 7.5% in the Green Bin program for Wainfleet. Niagara-on-the-Lake had the highest capture rate for organics, at 61.17%.

Organics (largely food waste and pet waste) are very heavy and can negatively affect the capture rates for an individual municipality when placed in the incorrect stream. The pet waste placed in the organics stream was commonly from an indoor pet waste collection bin (litter box or cage shavings). Pet waste observed in the garbage stream was most often bagged in non-compostable bags, which would be a barrier for capturing this material in the organics stream.

### 3.13 Curbside Waste Diversion Rates

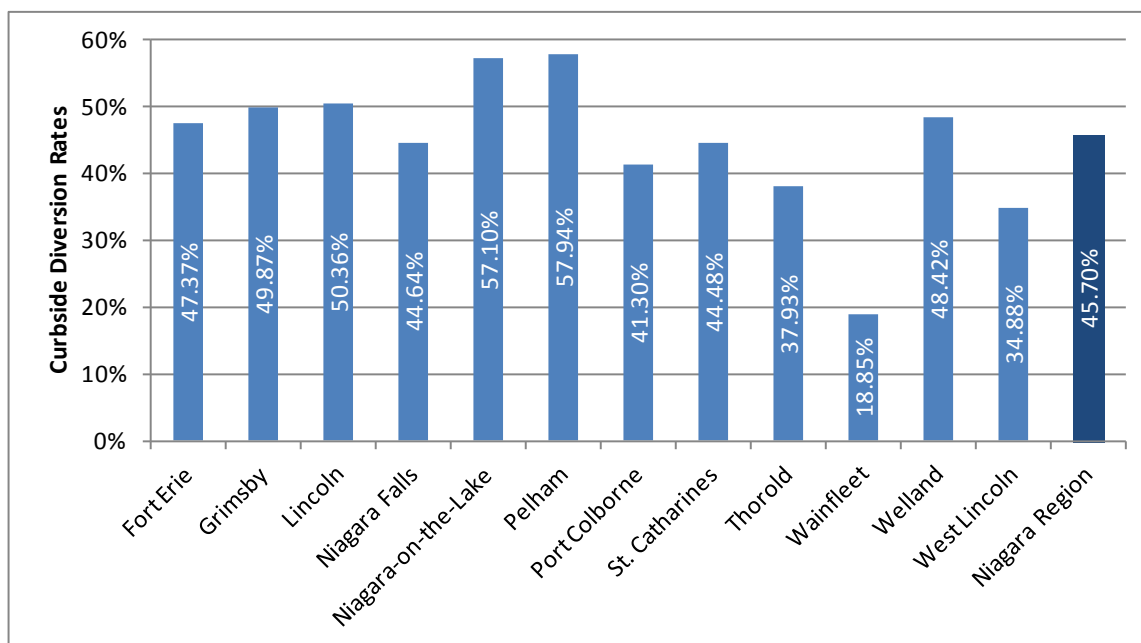
Based on the results of the four seasonal 2015/2016 waste composition audits, the average household sampled generated approximately 619.16 kg per year of curbside waste (garbage, Grey/Blue recycling & Green Bin organics stream). Of that amount, 282.98 kg/hh/yr is diverted through the recycling and organics programs, 209.05 kg/hh/yr consisted of landfilled material that could have been diverted under the current diversion programs, and the remaining 127.13 kg/hh/yr consisted of landfilled non-divertible material. This gives an overall diversion rate of 45.70%. It should be noted that contamination found in the recycling and organics streams was considered landfilled waste. In addition, leaf & yard waste and bulky items placed at the curbside was not incorporated into the waste composition results unless it was inside of a garbage can/bag, Blue/Grey box or Green Bin. Table 3.6 outlines the amount of curbside-collected materials diverted by the Region in more detail and by material category. Figure 3.34 illustrates the breakdown of diversion rates by municipality.

**Table 3.6 Curbside Collected Waste Diversion for Low-Density Residential Dwellings in Niagara Region**

Material Category	Material Diverted (kg/hh/yr)	Landfilled Divertible Materials (kg/hh/yr)	Landfilled Non-Divertible Materials (kg/hh/yr)	Total (kg/hh/yr)	% Diverted
Printed Paper	65.83	11.05	N/A	<b>76.88</b>	85.63%
Paper Packaging	50.13	9.63	5.67	<b>65.43</b>	76.62%
Plastics	29.57	16.95	20.86	<b>67.37</b>	43.88%
Metals	11.35	4.42	N/A	<b>15.77</b>	71.98%
Glass	24.34	2.75	N/A	<b>27.09</b>	89.84%
MHSW	N/A	N/A	2.59	<b>2.59</b>	N/A
Organics	101.76	164.26	1.08	<b>267.10</b>	38.10%
WEEE	N/A	N/A	4.46	<b>4.46</b>	N/A
Bulky Items	N/A	N/A	1.41	<b>1.41</b>	N/A
Other Materials	N/A	N/A	91.05	<b>91.05</b>	N/A
Total (kg/hh/yr)	<b>282.98</b>	<b>209.05</b>	<b>127.13</b>	<b>619.16</b>	<b>45.70%</b>

\*Note: Bulky items displayed above only include items that were directly placed into a garbage can/container.

A detailed list of the Other Materials can be found in Appendix A, Material Categories List, however, it is largely comprised of other waste (furnace filters, vacuum bags, candles, wooden fruit baskets, multi-material items, etc.), diapers and sanitary products, construction/renovation materials, textiles, non-recyclable metal and glass, ceramics and coffee pods.



**Figure 3.34 Curbside Diversion Rates**

Looking at individual municipality's curbside diversion rates, they ranged from 18.85% (Wainfleet) and 34.88% (West Lincoln) on the low end, to 57.94% (Pelham) and 57.10% (Niagara-on-the-Lake) on the high end. Wainfleet and West Lincoln are both rural areas and have a higher bag/container limit due to the fact that they have farms. The overall generation of garbage in Wainfleet was much higher than other municipalities. In addition, there is a higher possibility that some farms might house migrant workers. This may add another obstacle when it comes to participation in the diversion programs. Higher diversion rates may attribute to the higher income level in sample areas, more awareness and understanding of the programs and importance of diversion in general, and perhaps more consumption and disposal of divertible materials overall (e.g. newspapers, magazines, fresh produce, etc.).

Table 3.7 provides an overview of the diversion rates for each sample area in each municipality as well as a maximum possible diversion rate that could have been achieved if all divertible material was captured properly. Overall, Niagara Region could achieve a maximum diversion rate of 79.47%, if 100% of currently divertible materials were captured.

**Table 3.7 Overview of Diversion Rates & Maximum Possible Diversion Rates**

Sample Area & Municipality	4-Season Diversion Rate	Maximum Possible Diversion Rate
Coral Ave. - Fort Erie	47.37%	81.77%
Brierwood Ave. - Grimsby	49.87%	84.10%
Victoria Ave - Lincoln	50.36%	79.10%
Crowland Ave, Briarwood Ave & Preakness - Niagara Falls	44.64%	79.52%
Queenston Rd - Niagara-on-the-Lake	57.10%	79.74%
Blackwood Place - Pelham	57.94%	82.53%
Neff St. - Port Colborne	41.30%	84.28%
Oriole Dr, Stoney Brook Cres & Greenbriar Place - St. Catharines	44.48%	76.97%
Welland St. S - Thorold	37.93%	87.74%
Feeder Rd - Wainfleet	18.85%	68.78%
Forks Rd & Clifford Ave. - Welland	48.42%	79.71%
Young St. - West Lincoln	34.88%	64.41%
<b>Niagara Region</b>	<b>45.70%</b>	<b>79.47%</b>

### 3.14 Audit Results Participants vs. Non-Participants in Diversion Programs

As a result of auditing each household individually, it allowed those households, which participated in the seasonal audits, to be classified as participant types. The number of participant types classified in each season is outlined in Table 3.8. In addition, an average number of participant types are displayed for the overall four-season analysis.

**Table 3.8 Participant Types**

Participant Type	Summer 2015	Fall 2015	Winter 2016	Spring 2016	4-Season Average
	# of Household Participants	# of Household Participants	# of Household Participants	# of Household Participants	# of Household Participants
Recycling, Garbage & Organics Participant	71	73	70	78	73
Recycling & Garbage Participant	56	55	57	54	56
Garbage Participant	13	20	14	10	14
Recycling Participant	5	2	6	3	4
Recycling & Organics Participant	5	2	3	3	3
Garbage & Organics Participant	2	2	1	3	2
Organics Participant	0	0	0	2	1
Non-Participant	14	11	14	12	13
<b>Total</b>	<b>166</b>	<b>165</b>	<b>165</b>	<b>165</b>	<b>165</b>

It is important to take into account the overall sample size for the different participant types. Of the households sampled, 44.24% of households participated in the garbage, recycling and organics streams. Discussion on participant types is focused on the following participants:

- Recycling, Garbage & Organics Participant
- Recycling & Garbage Participant
- Garbage Participant

All other participant types have a very low sample size and do not qualify as being a representative sample.

Table 3.9 provides an overview of the overall waste profile for the different participant types. This includes results gathered from all waste streams (Garbage, Blue Box, Grey Box and Green Bin organics). The main focus should be put in the Recycling & Garbage Participants, Recycling, Garbage & Organics Participant and Garbage Participant, as they have a higher number of households that qualified as this participant type. The other participant types are represented by such a small number of households that composition results should not be considered representative for these participant types (Recycling, Recycling & Organics, Garbage & Organics, and Organics).

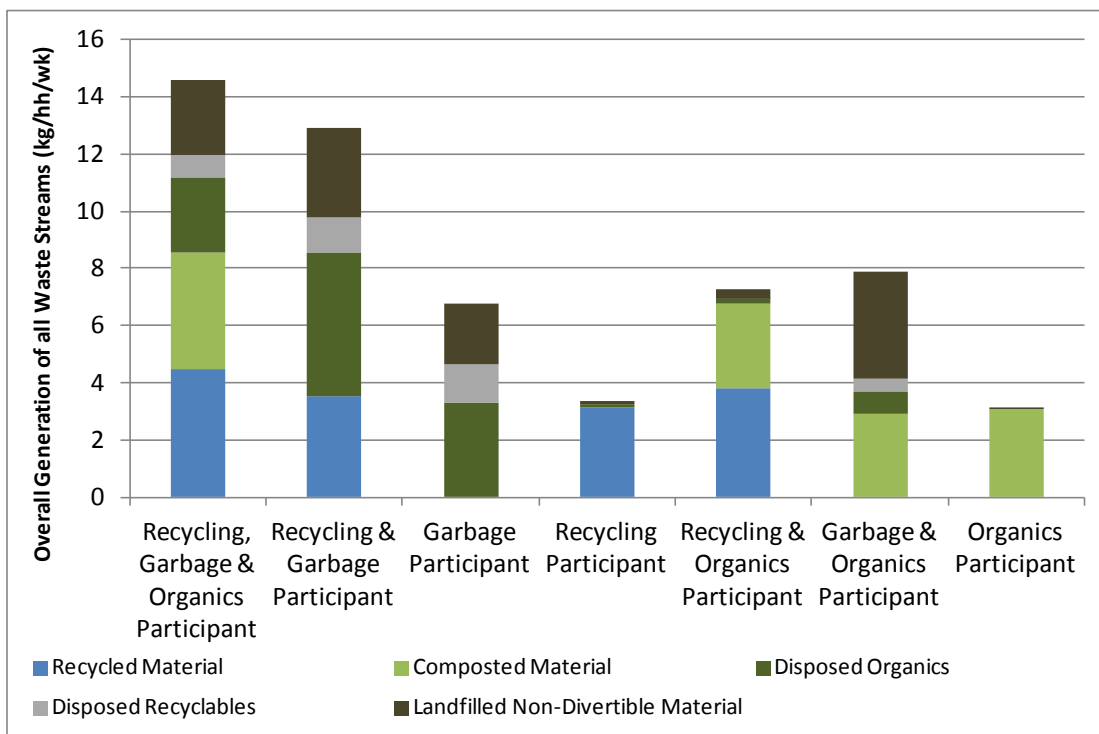
**Table 3.9 Overall Waste Profile (all streams) for Participant Types**

	Recycling, Garbage & Organics Participant	Recycling & Garbage Participant	Garbage Participant	Recycling Participant	Recycling & Organics Participant	Garbage & Organics Participant	Organics Participant
	kg/hh/wk	kg/hh/wk	kg/hh/wk	kg/hh/wk	kg/hh/wk	kg/hh/wk	kg/hh/wk
Recycled Material	4.49	3.53	0.00	3.14	3.80	0.00	0.00
Composted Material	4.05	0.00	0.00	0.00	2.99	2.94	3.10
Disposed Organics	2.65	5.02	3.28	0.10	0.13	0.74	0.00
Disposed Recyclables	0.78	1.22	1.38	0.00	0.01	0.48	0.00
Landfilled Non-Divertible Material	2.60	3.15	2.09	0.15	0.33	3.72	0.01
<b>Total</b>	<b>14.57</b>	<b>12.92</b>	<b>6.76</b>	<b>3.39</b>	<b>7.26</b>	<b>7.88</b>	<b>3.11</b>
Diversion Rate (%)	58.62%	27.33%	0.00%	92.62%	93.51%	37.35%	99.84%

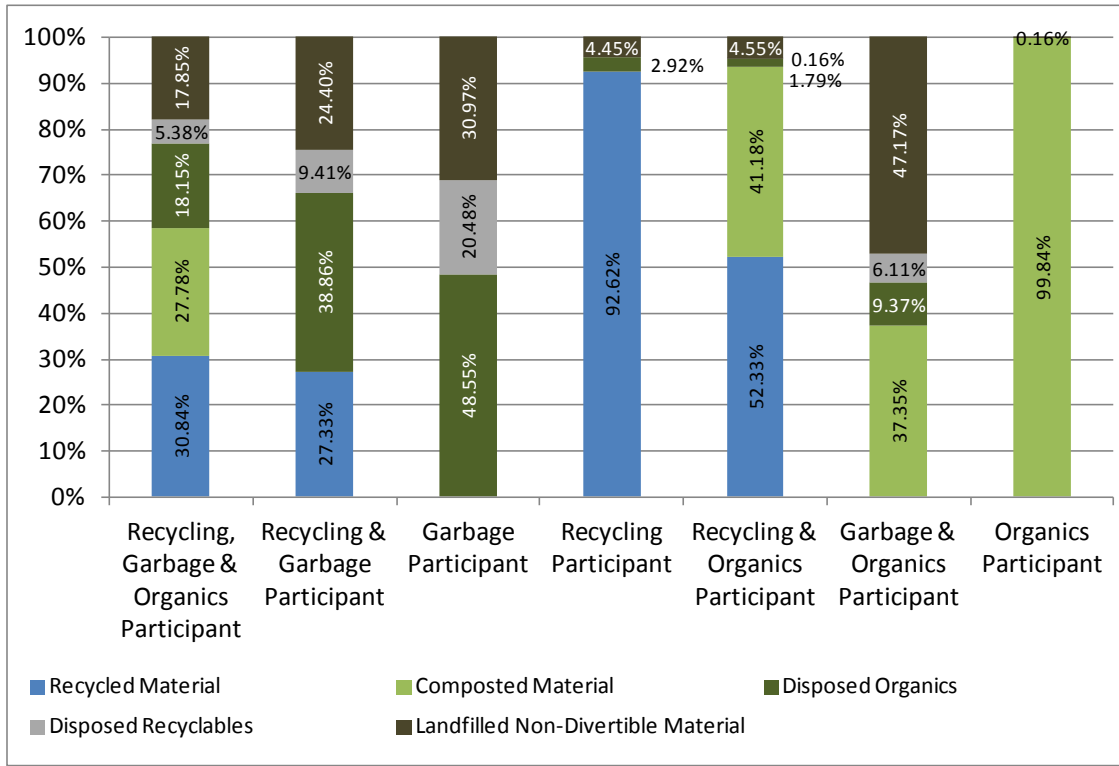
Figure 3.35 and 3.36 illustrate the overall generation and composition by participant type. The Recycling, Garbage & Organics Participants generated the highest amount of waste, at 14.57 kg/hh/wk. Of this, they diverted a total of 8.54 kg/hh/wk through recycling and composting. This resulted in an overall diversion rate of 58.62%. If all streams were diverted properly (i.e. there was no disposed organics or disposed recyclables), a maximum diversion rate of 82.15% could be achieved.

The Recycling & Garbage Participants generated a total of 12.92 kg/hh/wk, of which 3.53 kg/hh/wk was diverted through the recycling programs. This resulted in an overall diversion rate of 27.33%. If all streams were diverted properly (i.e. there was no disposed organics or disposed recyclables), a maximum diversion rate of 75.60% could be achieved.

The Garbage Only Participants generate a total of 6.76 kg/hh/wk. If these participants chose to participate in the recycling and organics programs, they could achieve a maximum diversion rate of 69.03%.



**Figure 3.35 Overall Waste Generation Profile (all streams) by Participant Type**



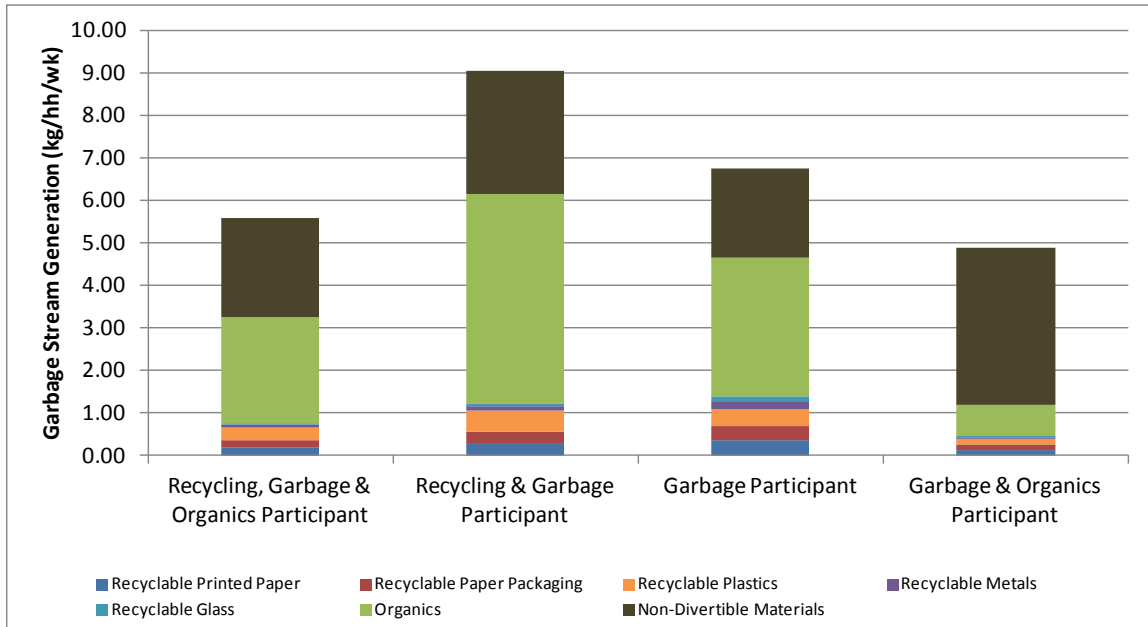
**Figure 3.36 Overall Waste Composition (all streams) by Participant Type**

Figures 3.37 and 3.38 display the garbage stream composition by participant type. It is important to focus on the composition by kg/hh/wk when comparing the participant types due to the differentiating waste generation rates.

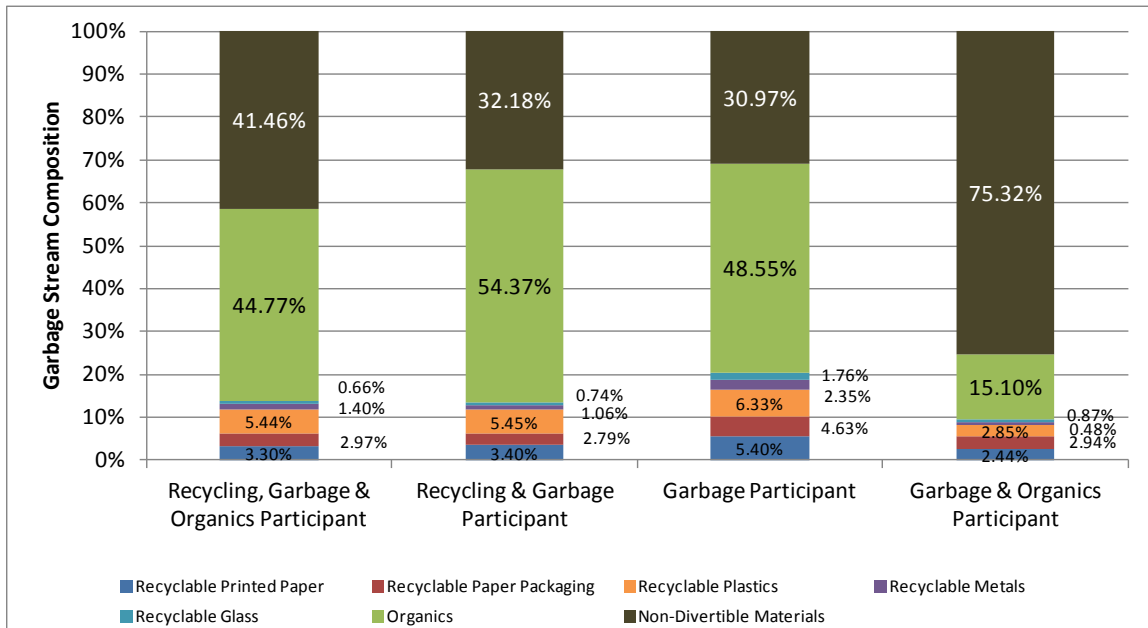
The Recycling, Garbage & Organics Participants had a lower garbage generation rate of 5.58 kg/hh/wk. Of this, organics accounted for a total of 44.77% or 2.50 kg/hh/wk, and recyclable materials accounted for 13.78% or 0.77 kg/hh/wk.

Recycling and Garbage Participants produced the largest amount of garbage, at 9.04 kg/hh/wk. They had the highest amount of organics (54.37% or 4.92 kg/hh/wk) contained within their garbage and a total of 13.45% or 1.22 kg/hh/wk of recycling.

The Garbage Only Participant had an overall garbage generation rate of 6.76 kg/hh/wk. Of this, 48.55% or 3.28 kg/hh/wk was organics, 20.48% or 1.38 kg/hh/wk was recyclables.

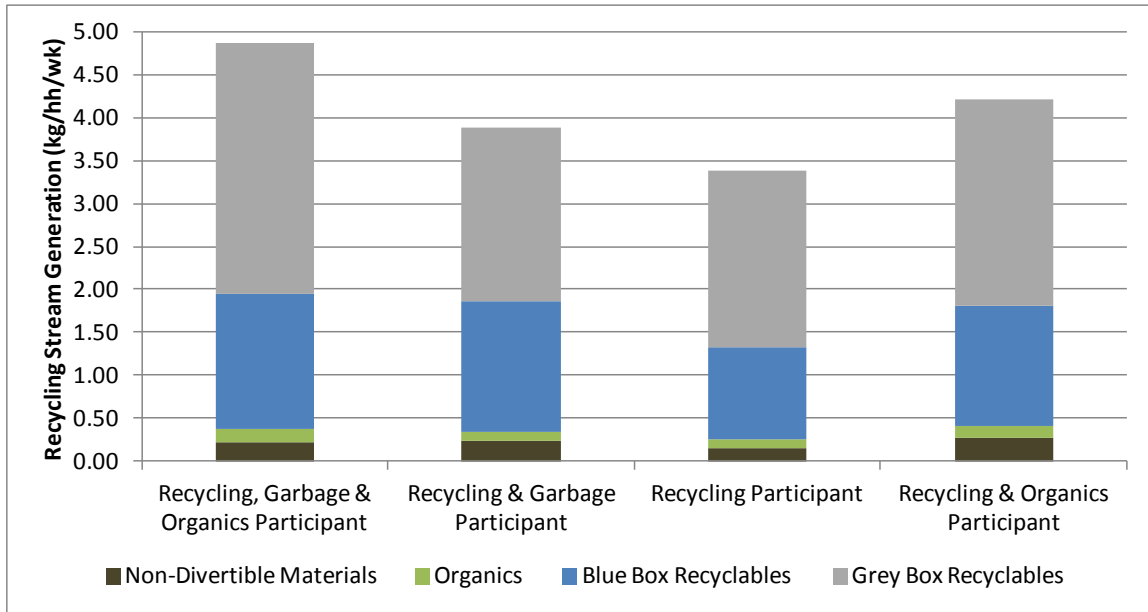


**Figure 3.37 Garbage Stream Generation by Participant Type**

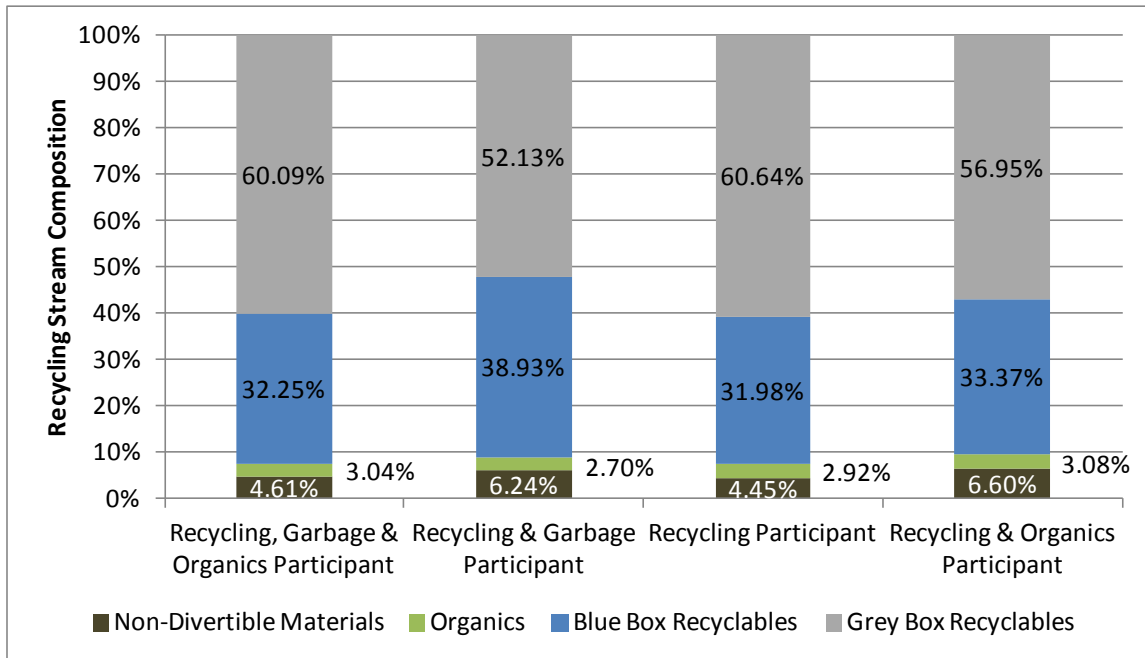


**Figure 3.38 Garbage Stream Composition by Participant Type**

Figures 3.39 and 3.40 illustrate the recycling stream composition by participant type. The overall generation of recycling was highest for Recycling, Garbage & Organics Participants, at 4.87 kg/hh/wk. All four types of participants had similar contamination rates, ranging from 7.38% (Recycling Only Participant) to 9.68% (Recycling & Organics Participant).

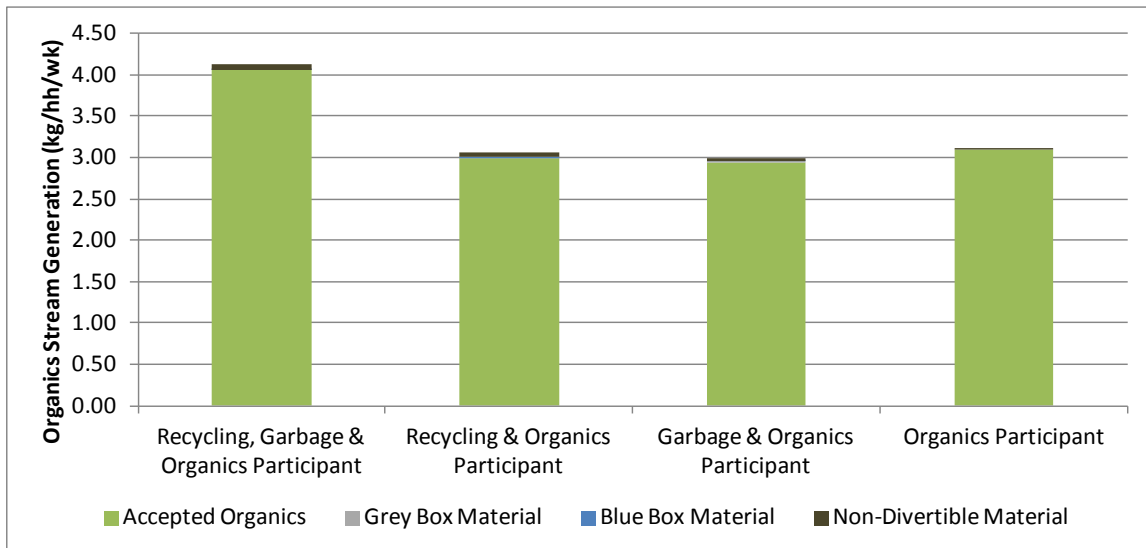


**Figure 3.39 Recycling Stream Generation by Participant Type**

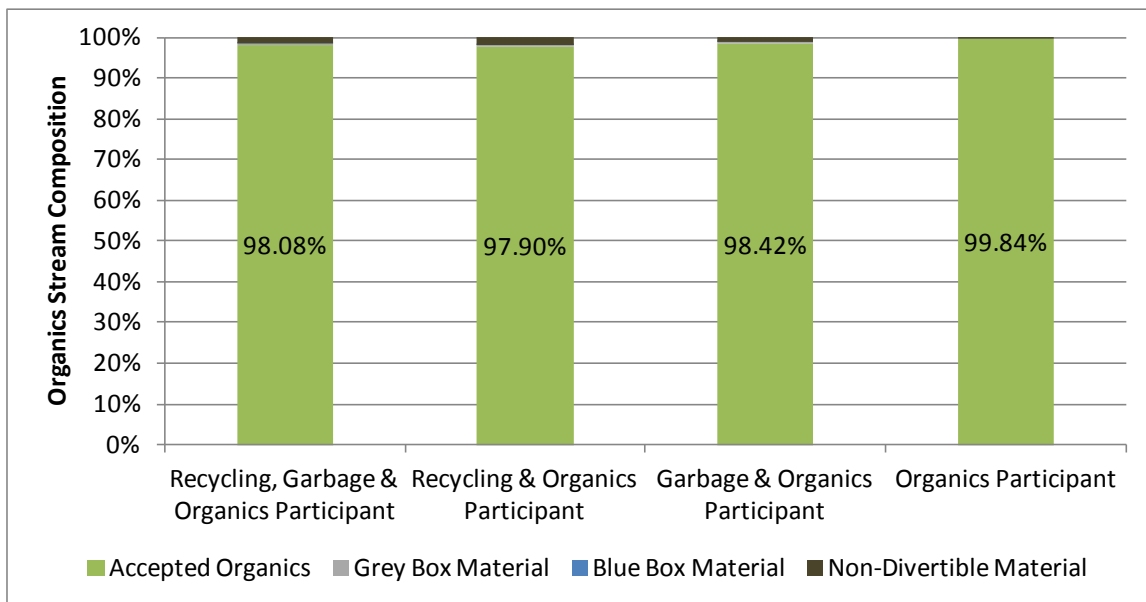


**Figure 3.40 Recycling Stream Composition by Participant Type**

Figures 3.41 and 3.42 illustrate the organics stream composition by participant type. The overall generation of organics was highest for Recycling, Garbage & Organics Participants, at 4.13 kg/hh/wk. All four types of participants had low contamination rates, ranging from 0.16% (Organics Only Participant) to 2.10% (Recycling & Organics Participant).



**Figure 3.41 Organics Stream Generation by Participant Type**



**Figure 3.42 Organics Stream Composition by Participant Type**

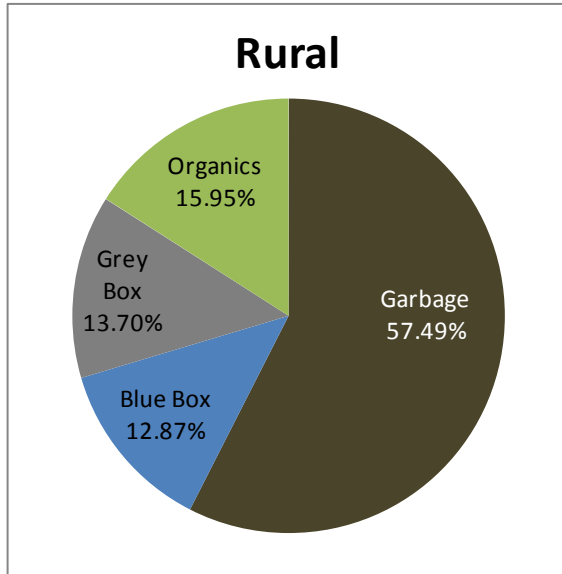
### 3.15 Rural vs. Urban Waste Composition

There are differences in waste composition among different areas of the Region. In particular, focus was placed on assessing the waste composition of rural versus urban areas. Table 3.10 provides a list of the sample areas and how they were classified.

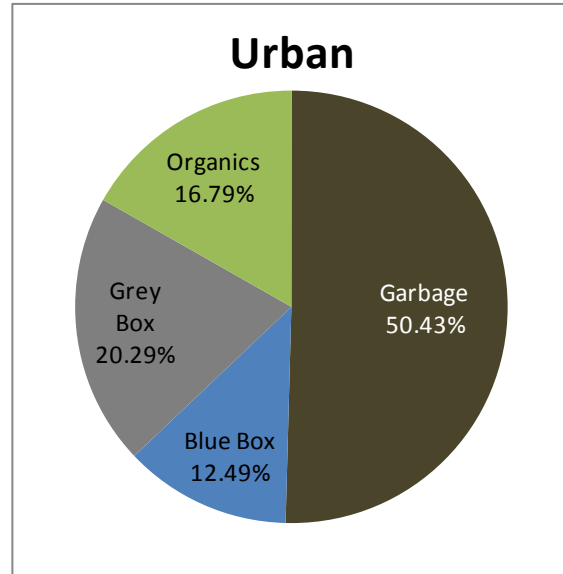
**Table 3.10 Sample Area Rural vs. Urban Classification**

Sample Area	Municipality	Land Type
Forks Rd.	Welland	Rural
Feeder Rd. West	Wainfleet	Rural
Crowland Ave.	Niagara Falls	Rural
Queenston Rd.	Niagara-on-the-Lake	Rural
Young St.	West Lincoln	Rural
Clifford Ave.	Welland	Urban
Coral Ave.	Fort Erie	Urban
Neff St.	Port Colborne	Urban
Oriole Dr.	St.Catharines	Urban
Briarwood Ave.	Niagara Falls	Urban
Preakness	Niagara Falls	Urban
Brierwood Ave.	Grimsby	Urban
Blackwood Place	Pelham	Urban
Victoria Ave.	Lincoln	Urban
Stoney Brook Cres.	St.Catharines	Urban
Greenbriar Place	St.Catharines	Urban
Welland St. S.	Thorold	Urban

Figure 3.43 and 3.44 illustrate the proportion of waste set out (all streams by weight) at the curbside for Rural vs. Urban low-density residential dwellings. Rural households set out more garbage than urban households. This factor could directly correlate to rural areas having farms and having a higher garbage set-out limit for their increased size. They also set out less Grey Box material compared to urban households.

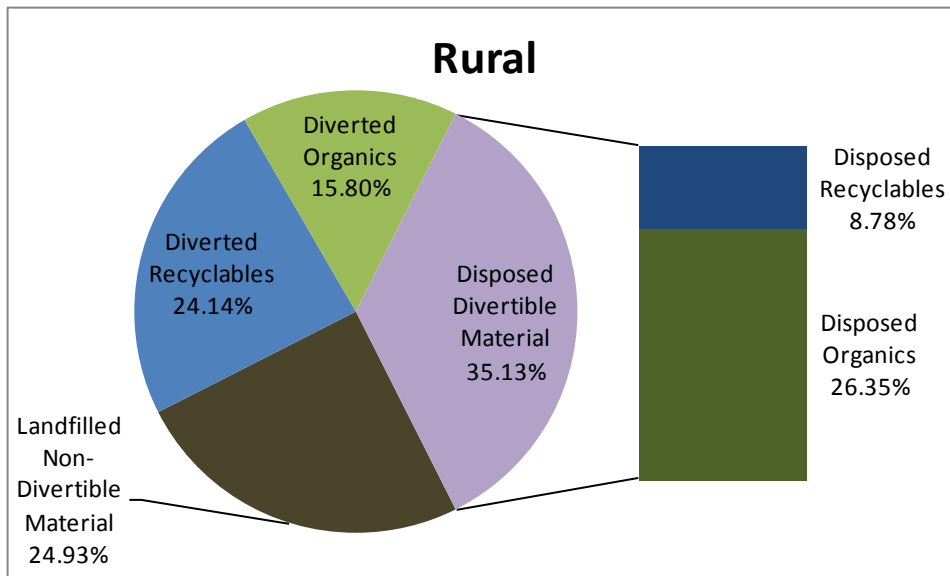


**Figure 3.43 Rural Waste Set-Out Profile**

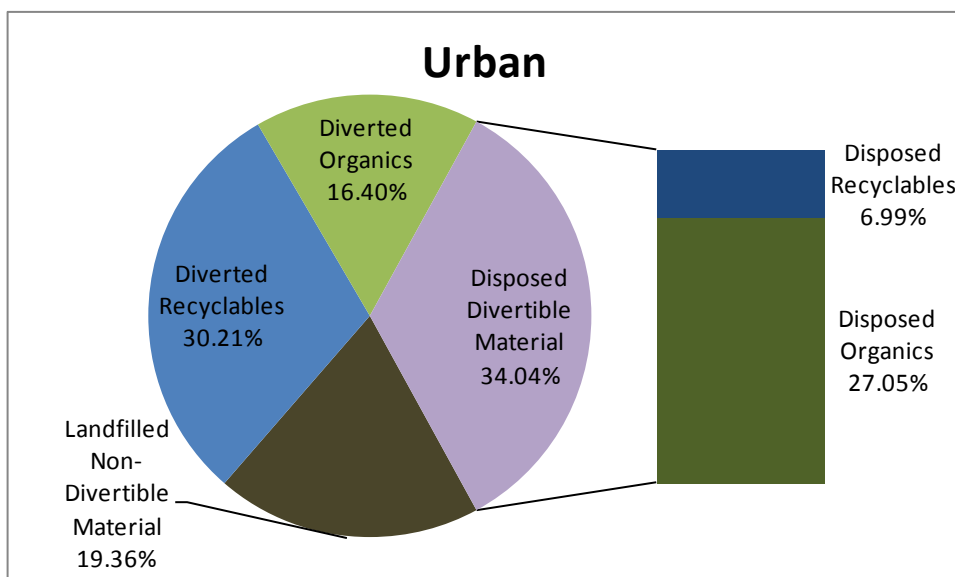


**Figure 3.44 Urban Waste Set-Out Profile**

Figures 3.45 and 3.46 illustrate the overall proportion of rural and urban low-density residential dwellings waste that was diverted and disposed. The percentages of diverted organics and disposed divertible material are very similar. Rural households generated more non-divertible material than urban households. In addition, urban households recycle more material than rural households.



**Figure 3.45 Overall Waste Composition of Rural Low-Density Residential Dwellings**



**Figure 3.46 Overall Waste Composition of Urban Low-Density Residential Dwellings**

Table 3.11 provides an overview of the key performance measures for rural vs. urban low-density residential dwellings in the Niagara region. The overall diversion and capture rates are slightly higher for urban areas. These increases are stronger for the diversion of recyclable materials.

**Table 3.11 Performance Measures for Rural vs. Urban Low-Density Residential Dwellings**

Performance Measures	Rural	Urban
Diversion Rate	39.94%	46.61%
Capture Rate for Recyclables	73.34%	81.21%
Capture Rate for Organics	37.48%	37.74%

### 3.16 Resource Productivity and Recovery Authority (RPRA, formerly WDO) Datacall's Best Practice Performance Metric

Resource Productivity and Recovery Authority (RPRA, formerly WDO) datacall requires municipalities to report on the tonnage of recyclable materials that are received and processed by the Blue Box and Grey Box recycling program. A calculation is used by taking the Region's Marketed Tonnes, converted into kilograms, divided by the total number of households. A markup is applied to calculate the projected kg/hh recovered of recyclable material. Based on the waste composition results, the Niagara Region projected kg/hh recovered is 181.83 for low-density residential dwellings, as displayed in Table 3.12. This excludes any sources from high density residential and drop off depots. It must be noted that the total marketed tonnes does not include contamination in the recycling streams. Audit results for low-density residential

dwelling are very precise. Auditor's empty, separate and scrape contents into their specific material categories during the audit process. Auditing ensures that no contamination (i.e. water from a bottle, food from a jar) is included into the recyclable Blue and Grey Box materials.

The Recycling Centre's equipment is not capable of separating contamination to the same degree as the detailed waste auditor's, therefore some of the contamination will end up as part of the marketed tonnage reported by the Region.

**Table 3.12 Projected kg/hh Recovered**

	2015 Actual from Single Family Waste Composition Results	2016 Projection for Single Family Households
<b>Marketed Tonnes</b>	29,615.59	30,015.40
<b>Households</b>	163,930	165,078
<b>kg/HH Recovered</b>	180.66	181.83

## 4.0 TRENDS & ANALYSIS

The following sections provide a high level overview of trends observed in Niagara region over time, based on previous audit results. A more detailed discussion of the trends can be found in a supplementary Technical Memo accompanying this report.

### 4.1 Diversion Performance Changes from 2010/2011 to 2015/2016

Niagara Region's residential waste collection services changed on February 28, 2011. This took place in the middle of the 2010/2011 audits. That particular audit was able to experience the immediate changes after the implementation of the collection service changes. The 2015/2016 audits allow the Region to assess the overall waste profile after the service changes have been in place for a period of five years. Residents have become accustomed to the weekly collection of all waste streams and the 1 bag/container garbage limit. An overview of the service changes is outlined below.

Before Service Change:

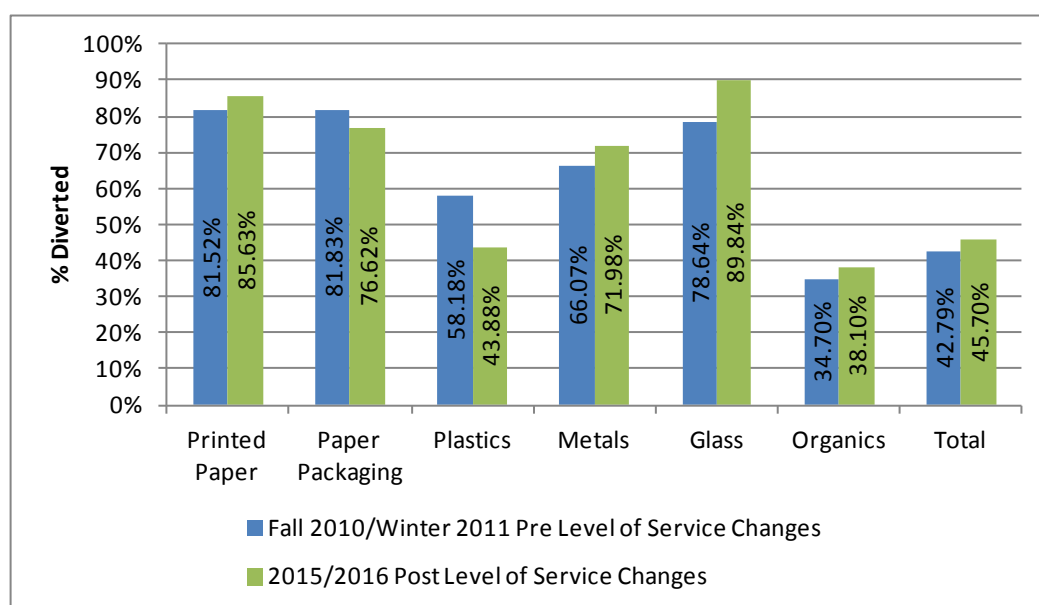
- Alternating weekly collection of Blue Box & Grey Box streams (10 of 12 municipalities). Wainfleet and West Lincoln received bi-weekly Blue and Grey Box collection.
- Weekly collection of organics (food & yard waste) streams (10 of 12 municipalities). No Green Bin organics program in Wainfleet or West Lincoln.
- Weekly garbage collection in all 12 municipalities (2 item limit/week). Additional items required tag.

After Service Change:

- Weekly Blue & Grey Box collection all 12 municipalities

- Weekly organics (food & yard waste) collection all 12 municipalities
- Weekly garbage collection in all 12 municipalities (1 item limit/week). Additional items require tag. Farms are able to gain exemption from the 1 item limit/week if they register with the Region. In this case, these addresses are permitted a 4 item limit/week.

Figure 4.1 below illustrates the average curbside diversion rates before vs. after service changes (by primary material category and overall for the Region). The diversion rate refers to the proportion of all waste that was diverted from the garbage stream into the recycling or organics. It should be noted that contamination found in the recycling and organics streams is not counted as diverted material. In addition, the diversion rates for the pre-level of service changes are based off of two seasons of results (Fall 2010 and Winter 2011) where the 5 year post level of service changes are based off of four seasons of results during 2015/2016.



**Figure 4.1 Diversion Performance Before LOS Changes vs. 5 Years After February 28, 2011 Service Changes**

An overall increase in diversion rates for printed paper, metals, glass and organics was seen, while a decrease in diversion rates for paper packaging and plastics occurred. The overall diversion rate increased from 42.79% to 45.70% after the service level changes have been implemented. It must be noted that the overall generation of all waste streams has decreased since the 2010/2011 audits.

Table 4.1 provides an overview of the key performance measures calculated for the 2010/2011 audits and the 2015/2016 audits. The overall waste (garbage, recycling and organics) generated by low-density residential dwellings in Niagara region has decreased from 13.49 kg/hh/wk to 11.91 kg/hh/wk. This decrease took place across all waste streams. This trend demonstrates the

overall decrease in consumption and disposal of materials (by weight). The amount of divertible materials in the garbage stream has decreased. Due to the decrease in waste generation, the overall diversion rate has decreased slightly from 47.48% in 2010-11 to 45.70% in 2015-16. More importantly, capture rates have remained fairly constant but shown a slight decrease.

Participation rates have increased, however they have been calculated differently for the 2015-16 audits therefore caution should be used when comparing participation rates. The total number of items set out per household per week has increased for recycling and slightly decreased for organics and garbage. Residents across the region are able to set out their recycling each week where the collection services were bi-weekly prior to the level of service changes. Weekly collection of recyclables encourages households to utilize the recycling and organics program services and reduce the amount of garbage being disposed.

The overall full container equivalent has increased for recycling; however the generation weight has decreased. This indicates that the materials being placed in the recycling stream are taking up more volume and weighing less. A prime example of this would be the increase in plastic packaging items such as #1 PET thermoform packaging. This material type is very lightweight and is used to package a variety of product types.

**Table 4.1 Performance Measures Comparison Chart for 2010/2011 vs. 2015/2016**

Performance Measures	2010-11 Niagara Audits (4 Season Average)	2015-16 Niagara Audits (4 Season Average)	% Change 2010-11 vs. 2015-16 Audits
<b>Overall Waste Generation (kg/hh/wk):</b>	13.49	11.91	-11.73%
Garbage Generation (kg/hh/wk)	6.57	6.14	-6.54%
Recycling Generation (kg/hh/wk)	4.47	3.76	-15.80%
Organics (kg/hh/wk)	2.45	2.00	-18.25%
<b>Divertible Material in the Garbage Stream:</b>			
Recyclable Material in the Garbage Stream (kg/hh/wk):	0.91	0.86	-6.04%
Organic Material in the Garbage Stream (kg/hh/wk):	3.33	3.06	-8.17%
<b>Contamination Rates (%):</b>			
Recycling Stream	10.57%	7.69%	-27.23%
Organics Stream	1.63%	0.84%	-48.39%
<b>Capture Rate of Divertible Materials:</b>			
Recycling Stream	81.22%	80.18%	-1.28%
Organics Stream	41.02%	38.25%	-6.75%
<b>Diversion Rate:</b>	47.48%	45.70%	-3.74%
<b>Participation Rates<sup>1</sup>:</b>			
Recycling Stream	72.76%	82.15%	12.90%
Organics Stream	41.73%	47.58%	14.01%
Garbage Stream	75.89%	87.47%	15.25%
<b>Set-Out Rate (# items/hh/wk):</b>			
Recycling Stream	1.30	1.45	11.48%
Organics Stream	0.46	0.42	-9.36%
Garbage Stream	0.98	0.86	-11.79%
<b>Set-Out Rate (# full container equiv./set-out):</b>			
Recycling Stream	1.67	1.82	9.08%
Organics Stream	0.59	0.51	-13.13%
Garbage Stream	1.07	0.99	-7.24%

A full breakdown of capture rates by individual material category can be found in Appendix C. Direct comparisons could not be made to specific material types as the material categories have changed between the two audits.

#### 4.1.1 Set-out Rates

Table 4.2 compares the average set-out results for the before vs. after February 28, 2011 service changes and the 4-season 2015/2016 study. It must be noted that participation rates were not included as a comparison as they were calculated differently for both studies.

**Table 4.2 Comparison of Set-out Rates for Pre-Level of Service Changes, Post Level of Service Changes and 2015/2016 Audits**

Season	Combined Recycling		Blue Box		Grey Box		Organics		Garbage	
	Avg.# items/hh/wk	Avg. # full container equiv./hh/wk	Avg.# items/hh/wk	Avg. # full container equiv./hh/wk	Avg.# items/hh/wk	Avg. # full container equiv./hh/wk	Avg.# items/hh/wk	Avg. # full container equiv./hh/wk	Avg.# items/hh/wk	Avg. # full container equiv./hh/wk
Fall 2010/Winter 2011	1.02	1.01	1.02	0.99	0.94	0.96	0.42	0.20	1.07	0.87
Spring/Summer 2011	1.57	1.41	0.83	0.75	0.73	0.65	0.50	0.29	0.89	0.74
4-Season 2010/2011	1.30	1.22	0.89	0.84	0.80	0.75	0.46	0.25	0.98	0.81
4-Season 2015/2016	1.45	1.26	0.73	0.65	0.71	0.60	0.42	0.21	0.86	0.75

(Note that Recycling eligibility was bi-weekly for Wainfleet and weekly alternating streams for other municipalities in Fall 2010/Winter 2011, and weekly in all other seasons).

The average number of recycling items (both Grey and Blue Box) set out per household per week increased from 1.02 to 1.57 in 2010/2011 and decreased slightly in 2015/2016 to 1.45. This equalled an overall increase in recycling set outs from 1.30 items/hh/wk in 2010/2011 to 1.45 items/hh/wk in 2015/2016. The average number of full container equivalents set out per household per week showed similar trends by increasing from 1.01 to 1.41 and back down to 1.26. An immediate increase in the performance measures took place after the service changes were implemented. However, after the first 5 years with the new service changes in place, the numbers have decreased slightly. The weekly collection of all materials changes the way people set out their material. It was noted that during the audit, a couple of residents stated that they only set out their material every other week. This commonly took place in rural areas, where the households were a farther distance from the curbside. This was also demonstrated by households that have elderly residents; this could be a result of a lower waste generation from less residents living in the household and the effort needed to carry four waste bins to the curbside.

The average number of garbage stream items set out per household per week dropped from 1.07 to 0.89 to 0.86, while the average full container equivalent set out per household per week also dropped from 0.87 to 0.74 and then remained constant at 0.75. It should be noted that set-out averages are calculated across all households (not just those that had material set out). In addition, some households (farms max. 4 bags/containers, duplexes max. 2 bags/containers and triplexes max. 3 bags/containers) are permitted to set additional garbage per week. A total of 12 registered farms were included in the study. The farms were located in Wainfleet and West Lincoln. In many cases, these households set out less than the maximum 4 bag/container limit.

## 4.2 Trends

Several waste composition audit studies have been conducted in the Niagara region in the past. This section compares the most recent audits (Summer 2015, Fall 2015, Winter 2016, Spring 2016) to the previously conducted audits to identify trends in program performance over time. The previously conducted audits were as follows:

Audit Date(s)	Auditor(s)	Households Audited
Fall 2004 & Summer 2005	Jacques Whitford	St. Catharines: 50 hhlds Port Colborne: 50 hhlds Welland: 40 hhlds
Spring, Summer, Fall 2006 & Winter 2007	Stewardship Ontario	Niagara Falls: 30 hhlds St. Catharines: 30 hhlds Niagara-On-The-Lake: 10 hhlds Thorold: 10 hhlds Welland: 20 hhlds
Fall 2007	DFA Infrastructure	West Lincoln: 50 hhlds Wainfleet: 60 hhlds
Fall 2010, Winter, Spring & Summer 2011	AET Group Inc.	Niagara Falls: 30 hhlds St. Catharines: 30 hhlds Niagara-On-The-Lake: 10 hhlds Thorold: 10 hhlds Welland: 20 hhlds West Lincoln: 10 hhlds Wainfleet: 10 hhlds Thorold: 10 hhlds Lincoln: 10 hhlds Grimsby: 10 hhlds Port Colborne: 10 hhlds Fort Erie: 10 hhlds
Summer 2015, Fall, Winter 2016 & Spring	AET Group Inc.	Niagara Falls: 30 hhlds St. Catharines: 30 hhlds Niagara-On-The-Lake: 10 hhlds Thorold: 10 hhlds Welland: 20 hhlds West Lincoln: 10 hhlds Wainfleet: 10 hhlds Thorold: 10 hhlds Lincoln: 10 hhlds Grimsby: 10 hhlds Port Colborne: 10 hhlds Fort Erie: 10 hhlds

As seen in the table above, the number of households and sample areas audited are not consistent over the previous studies. The most recent 2015/2016 series of audits provides the most comprehensive selection of households from across the region, mirroring the households audited in the 2010/2011 audits. Caution should be exercised when comparing results to the Fall 2007 audit results, as the selected households for that audit were limited to Wainfleet and West Lincoln (no organics program in mostly rural areas). Analysis of the results revealed that the Fall 2007 audit was consistently an outlier relative to the other audits; therefore, it will be

presented in the comparative tables below, but not graphically plotted on the charts. It should be noted that previously reported data<sup>1</sup> (with the exception of the 2010/2011 audit data) is unaudited by AET Consultants and assumed to be accurate as presented.

#### 4.2.1 Overall Waste Generation Trends

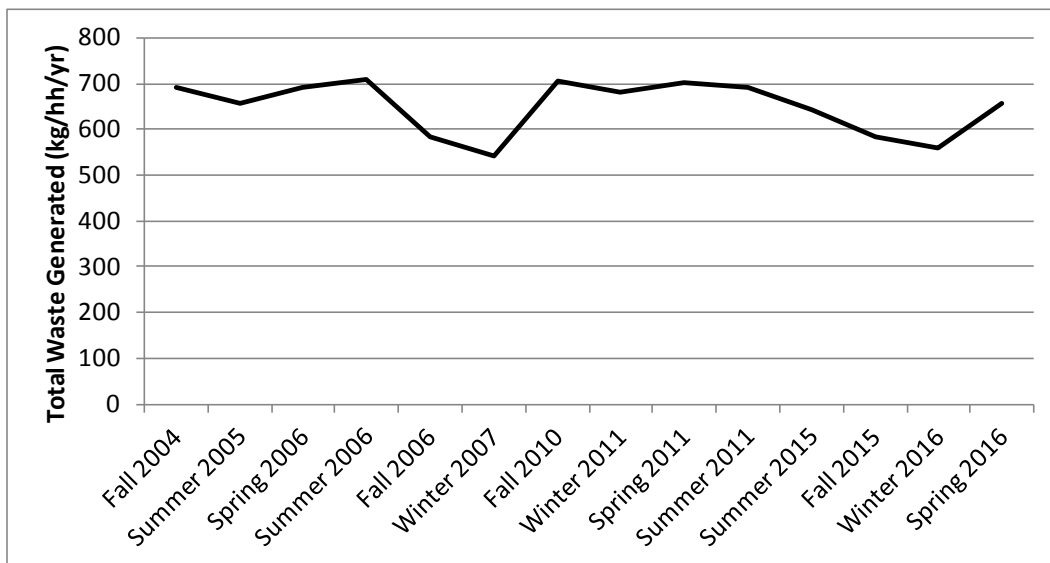
Table 4.3 and Figure 4.2 summarize the total curbside waste generation trend over time in kilograms/household/year. This represents the combined weight of garbage, recycling and organics stream material set at the curb by low density residential households.

**Table 4.3 Comparison of Total Waste Generation Rate Over Time**

Audit Period	Quantities Generated in Each Stream			
	Garbage	Recycling	Organics	Total
	kg/hh/yr	kg/hh/yr	kg/hh/yr	kg/hh/yr
Fall 2004	439.6	206.1	45.1	690.8
Summer 2005	385.1	201.4	68.7	655.2
Spring 2006	399.0	216.7	75.9	691.6
Summer 2006	413.2	212.4	83.7	709.2
Fall 2006	336.6	184.5	63.5	584.6
Fall 2007	706.3	194.7	N/A*	900.9
Winter 2007	344.2	161.4	36.2	541.8
Fall 2010	391.2	202.0	112.3	705.5
Winter 2011	361.9	221.0	96.7	679.6
Spring 2011	315.0	233.9	152.9	701.8
Summer 2011	320.9	229.2	140.6	690.6
Summer 2015	339.4	206.1	98.2	643.8
Fall 2015	316.5	168.2	99.1	583.8
Winter 2016	291.8	179.4	86.8	558.0
Spring 2016	335.2	202.6	119.9	657.7

\*Audits completed in the Fall of 2007 had no organics collection available in study area. Study area included low-density residential dwellings in West Lincoln and Wainfleet.

<sup>1</sup> Previously reported data obtained from: *Niagara Region Waste Audit Summary Report – Final Report*, DFA Infrastructure International Inc., November 20, 2008.



**Figure 4.2 Total Waste Generation Rate Over Time**

The total waste generation for 2015/2016 has shown a decrease from the audits conducted in 2010/2011. The overall trend of waste generation has decreased from the 2010/2011 audits to the 2015/2016 audits. The fluctuations have gone from a high of 702 kg/hh/yr in the Spring of 2011 to a low of 558 kg/hh/yr in the Winter of 2016. This equates to an overall decrease of 20.5%. The sections below will detail the variances in the composition and distribution of waste across the streams over time.

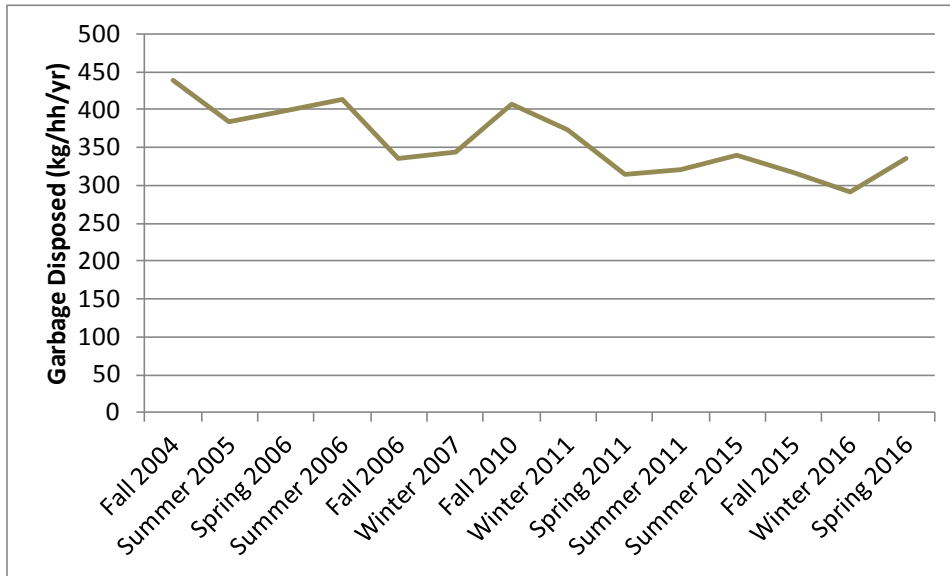
#### 4.2.2 Garbage Stream Trends

Table 4.4 and Figure 4.3 summarize the total curbside garbage generation trend over time in kilograms/household/year. This represents only the weight of garbage stream material set at the curb by low-density residential dwellings.

**Table 4.4 Comparison of Garbage Stream Generation Rate Over Time**

<b>Waste Disposed Over Time (Fall 2004 - Spring 2016)</b>	
<b>Waste Audit</b>	<b>Garbage Disposed (kg/hh/yr)</b>
Fall 2004	439.57
Summer 2005	385.13
Spring 2006	398.95
Summer 2006	413.18
Fall 2006	336.63
Winter 2007	344.16
Fall 2007	706.26
Fall 2010	407.98
Winter 2011	374.08
Spring 2011	315.02
Summer 2011	320.86
Summer 2015	339.45
Fall 2015	316.52
Winter 2016	291.76
Spring 2016	335.22
<b>Average</b>	<b>381.65</b>

In general, the amount of material being generated in the garbage stream appears to be experiencing a subtle decline over time. Excluding the Fall 2007 waste audit where only rural households were included and the Green Bin program was not in place yet, the highest garbage stream generation was noticed back in the Fall 2004 audit, at a total of 439.6 kg/hh/yr. The lowest amount of material generated in the garbage stream was noticed during the Winter season of the most recent waste audit in 2016. The Winter 2016 waste audit showed the lowest garbage stream generation, at 291.76 kg/hh/yr. The reason for the decline in garbage stream generation could be due to a number of factors. Residents may have adjusted their habits to participate more in the recycling and organics programs since the garbage set-out limit was decreased in 2011. Packaging trends may have decreased in weight as an overall trend.



**Figure 4.3 Garbage Stream Generation Rate Over Time**

#### **4.2.3 Recycling Stream Trends**

Table 4.5 and Figure 4.4 summarize the total curbside recycling generation trend over time in kilograms/household/year. This represents the combined weight of recyclable material set out at the curb by low-density residential dwellings in the Grey Box and Blue Box streams.

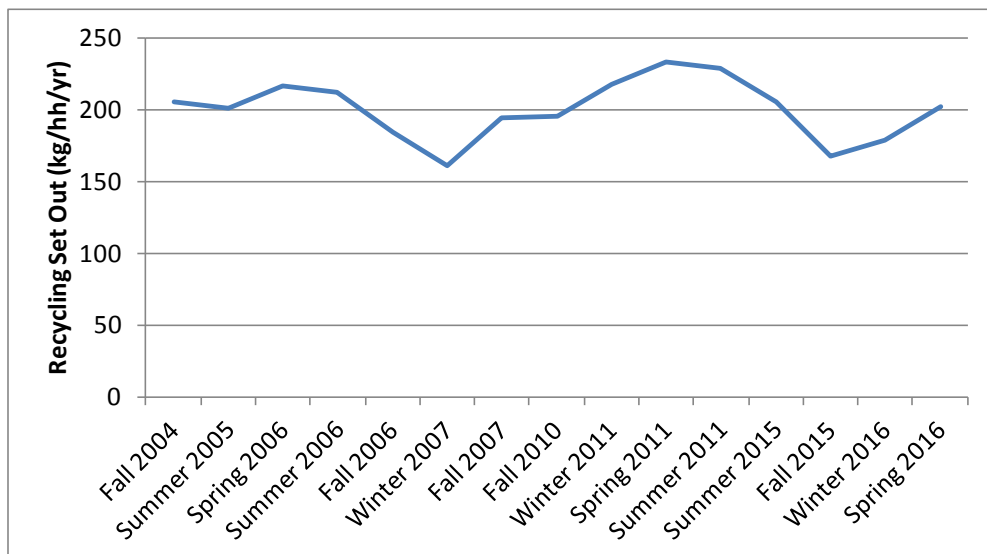
**Table 4.5 Comparison of Recycling Stream Generation Rates Over Time**

<b>Audit Period</b>	<b>Total Quantity of Recyclables Set Out (kg/hh/yr)</b>
Fall 2004	206.1
Summer 2005	201.4
Spring 2006	216.7
Summer 2006	212.4
Fall 2006	184.5
Winter 2007	161.4
Fall 2007	194.7
Fall 2010	195.6
Winter 2011	218.2
Spring 2011	233.9
Summer 2011	229.2
Summer 2015	206.1
Fall 2015	168.2
Winter 2016	179.4
Spring 2016	202.6
<b>Average</b>	<b>200.7</b>

As shown in Table 4.4, the total amount of recyclables being set out experienced an increase in 2010/2011, however it has shown a decrease in the 2015/2016 audits. The lowest amount of recyclable material being set out in the region was noticed during the Winter 2007 waste audit at 161.4 kg/hh/yr. The Fall 2015 waste audit showed a low generation of 168.2 kg/hh/yr. The highest amounts were noticed after the Region made changes to their curbside collection services at the end of February 2011.

After the spike in recycling generation rates in the Spring and Summer of 2011, the rates declined. The 2015/2016 audits experienced a lower recycling generation rate in the Fall and Winter seasons and a high generation rate in the Spring and Summer seasons. The Spring and Summer seasons cause the consumption of materials, such as refreshments to spike due to the warmer weather. In addition, children are not in school during the Summer, therefore they are consuming and disposing of more goods in their dwellings. In addition, auditors note more cleanouts and purging events taking place in the Spring. As displayed in Figure 4.6, the overall ratio of Blue Box to Grey Box material has changed.

Looking at the total weight of all recycling, the percentage of Blue Box materials have increased over the years. Packaging trends have shown a transition from higher weighted fibre based materials to light-weight plastics. Blue Box materials are accounting for a greater percentage of the recycling stream. This material is much lighter than Grey Box material and would explain the overall reduction in generation.



**Figure 4.4 Recycling Stream Generation Rate Over Time**

Looking closer at the composition of the recycling stream over time; Table 4.6 and Figure 4.5 show the percent of fibres, containers and other materials (contamination from organic material and non-recyclable material), over the period of the Fall 2004 waste audit to the most recent Spring 2016 waste audit. It must be noted that the fibres and containers composition from previous studies (Fall 2004 to Winter 2007) included recyclable and non-recyclable material. For example, the percent of fibres from previous studies would have included recyclable Grey Box material but also non-recyclable paper such as tissue and laminated paper packaging. The AET audits however, (Fall 2010 to Spring 2016) will show only the percent of recyclable fibres and recyclable containers accepted in Niagara’s program, with the “other” column representing all non-recyclable material. This will explain why the percent of other materials in Table 4.5 increase significantly after the Winter 2007 audit. Keeping in mind that there were differences in the way composition was calculated across all the waste audits, the proportion the recycling stream comprised of fibres has shown a gradual decrease over the years.

The overall proportion of Grey Box material is decreasing. In contrast, the proportion of Blue Box material has shown a gradual increase over the years. This can be attributable to the increase in plastic packaging production. The overall contamination rates (shown under the ‘Other’) column have decreased from the 2010/2011 audits. This is a very positive change because it means that households are not purposely placing garbage in the recycling streams to meet the post-LOS garbage limits.

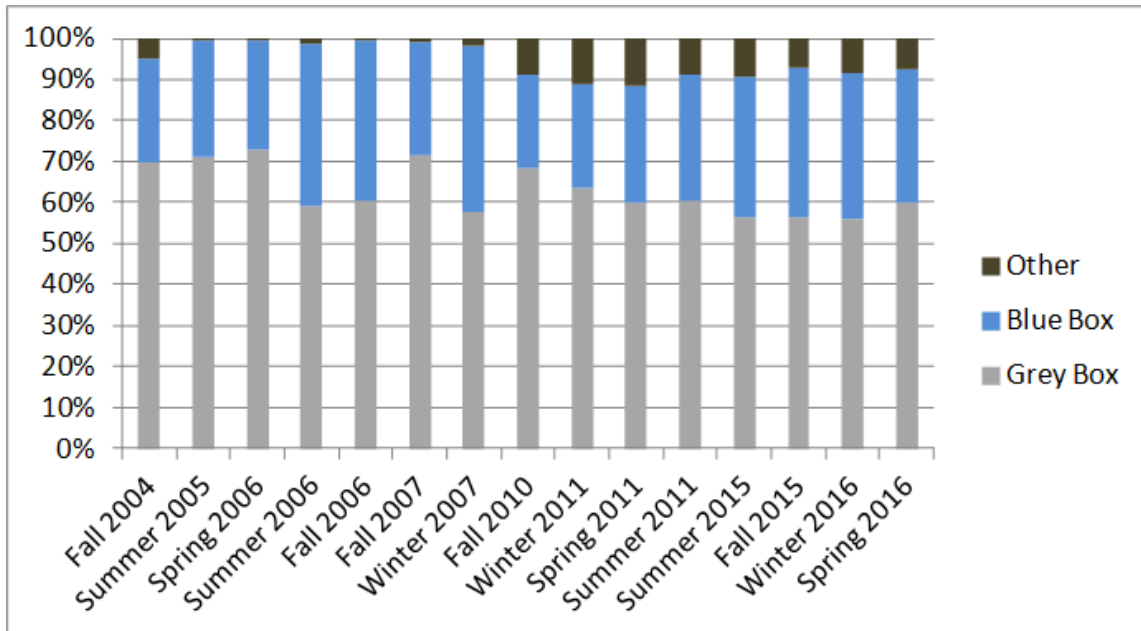
Trends in Blue Box composition are following the same trends mentioned in the 2010/2011 waste composition report. This includes the reduction in packaging weight. The changes in packaging can be attributable to the increase in lighter weight plastic based packaging products.

There is an increased presence of ready-made meals that reduce the amount of food waste (food scraps) being generated and are sold in lightweight packaging (i.e. #1 PET trays/clamshells).

The grocery industry has been continuing the transition to more use of this type of packaging over time. In the earlier audit periods, PET packaging encountered in the Blue Box would have been limited primarily to items such as some egg cartons and berry boxes. Recent audits find this packaging used for many other products, including ready-made salads, peach baskets, baked goods, drink cups, fruit trays, etc. Thermoform packaging is relatively light, therefore may not show up as a significant component by weight of the recycling stream, however, they are high volume items, which take up more space in the Blue Boxes.

**Table 4.6 Recycling Stream Composition Over Time**

Audit Period	Grey Box		Blue Box		Other	
	kg/hh/yr	% of Total	kg/hh/yr	% of Total	kg/hh/yr	% of Total
Fall 2004	143.5	69.6%	52.8	25.6%	9.8	4.8%
Summer 2005	142.9	70.9%	57.7	28.6%	0.8	0.4%
Spring 2006	158.0	72.9%	57.4	26.5%	1.3	0.6%
Summer 2006	125.2	58.9%	84.4	39.8%	2.7	1.3%
Fall 2006	111.5	60.5%	71.9	39.0%	1.0	0.5%
Fall 2007	138.9	71.4%	54.2	27.8%	1.6	0.8%
Winter 2007	93.5	57.9%	64.7	40.1%	3.2	2.0%
Fall 2010	138.6	68.6%	45.9	22.7%	17.6	8.7%
Winter 2011	140.7	63.7%	55.6	25.2%	24.6	11.1%
Spring 2011	140.2	59.9%	66.8	28.5%	27.0	11.5%
Summer 2011	138.7	60.5%	69.9	30.5%	20.5	9.0%
Summer 2015	115.9	56.4%	70.1	34.1%	19.6	9.5%
Fall 2015	94.7	56.4%	61.0	36.3%	12.1	7.2%
Winter 2016	100.2	56.0%	63.9	35.7%	14.9	8.3%
Spring 2016	121.0	59.9%	66.0	32.7%	15.1	7.5%
<b>Average</b>	<b>126.9</b>	<b>63.1%</b>	<b>62.8</b>	<b>31.2%</b>	<b>11.4</b>	<b>5.7%</b>



**Figure 4.5 Recycling Stream Composition Over Time**

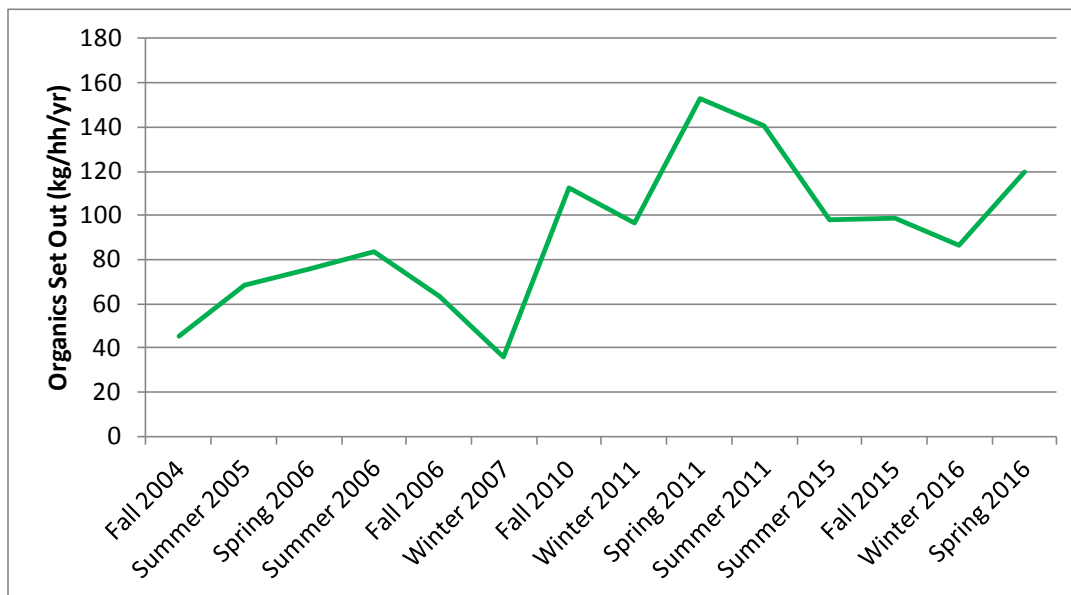
#### 4.2.4 Organics Stream Trends

Table 4.7 and Figure 4.6 summarize the total curbside organic material generation trend over time in kilograms/household/year. This represents only material placed in the Green Bin and set out at the curb by low-density residential dwellings. Note that this includes any yard waste placed inside the Green Bins, but not yard waste set out separately at the curb (e.g. bags of leaves, brush).

**Table 4.7 Comparison of Organics Stream Generation Rate Over Time**

<b>Audit Period</b>	<b>Total Quantity of Organics Set Out (kg/hh/yr)</b>
Fall 2004	45.1
Summer 2005	68.7
Spring 2006	75.9
Summer 2006	83.7
Fall 2006	63.5
Winter 2007	36.2
Fall 2010	112.3
Winter 2011	96.7
Spring 2011	152.9
Summer 2011	140.6
Summer 2015	98.2
Fall 2015	99.1
Winter 2016	86.8
Spring 2016	119.9
<b>Average</b>	<b>91.4</b>

The amount of material being generated in the organics stream has shown a decrease during the 2015/2016 audits. The overall generation spiked after the level of service changes in February of 2011 when the Green Bin program was rolled out to include weekly collection of organics throughout the region. The lowest quantity of organic material generated took place in the Winter of 2007. The highest amount of Green Bin material was generated immediately after the level of service changes in the Spring of 2011. The overall generation of organics in 2015/2016 showed a season high of 119.9 kg/hh/yr in the Spring and a low of 86.8 kg/hh/yr in the Winter. These seasonal fluctuations are normal trends as some seasons can pose challenges to participation rates (material freezing in bins in the Winter) and some seasons can be boosted by excess amounts of yard waste and fresh produce (Spring and Summer).



**Figure 4.6 Organic Stream Generation Rate Over Time**

Looking closer at the composition of the organic stream over time; Table 4.8 and Figure 4.7 show the percent of food waste, yard waste, pet waste and other materials (contamination) over the period of the Fall 2004 waste audit to the most recent Spring 2016 waste audit. Note that the Fall 2007 audit is not included since it focused on rural municipalities where no organics collection occurred.

It is difficult to note any trends over the entire span of the Region's waste audits since it is clear that the level of detail at which the organics stream was audited was not consistent over time. This is clear in Table 4.8 where the contamination from other materials is 0% until the first AET audit in the Fall of 2010. It is unlikely that there was no contamination in the organics stream during past audits, but instead it is more likely an indication of the level of detail at which the organics stream was sorted during these audits. As a result, the following comments regarding trends in the organics stream composition will refer only to the 2010/2011 and 2015/2016 waste audits. It can be said that the trend in contamination of the organics stream from other non-acceptable materials did decline over the course of the 2010/2011 waste audits from 3.6% in the Fall 2010 audit, to 1.0% during the Summer 2011 audit. It experienced a greater decline in 2015/2016.

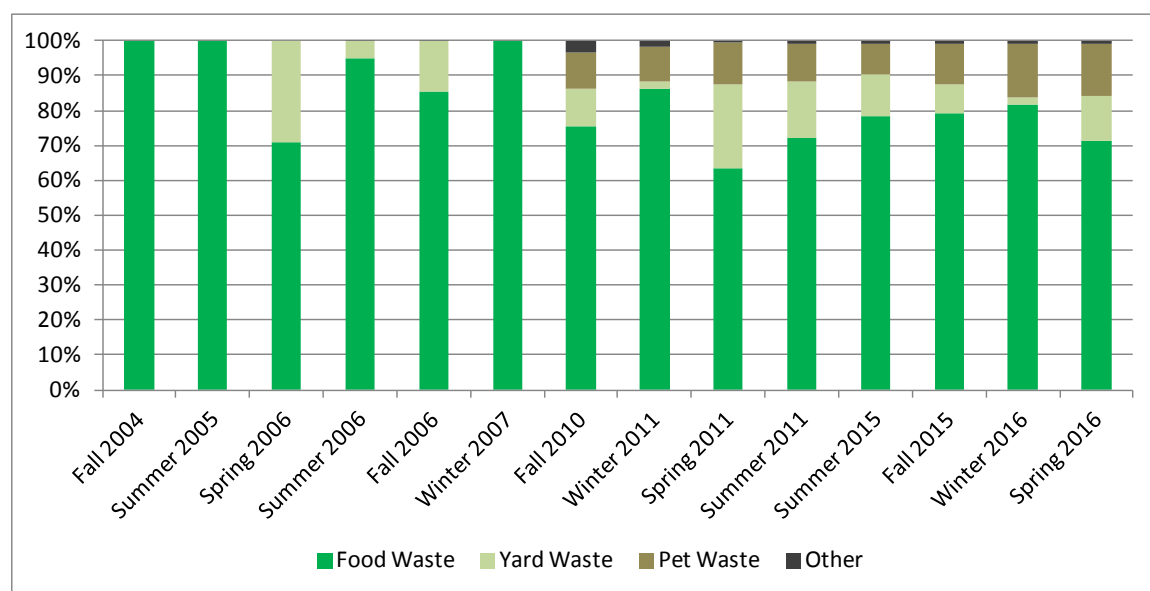
The effectiveness of a program is not only judged by the capture of materials but the overall contamination in that particular stream. The organics program has minimal contamination. The proportion of pet waste in the organics stream is slightly increasing, demonstrating that households are expanding their Green Bin usage to all types of compostable materials.

**Table 4.8 Organics Stream Composition Over Time**

Audit Period	Food Waste and Compostable Paper <sup>1</sup>		Yard Waste and Grass Clippings		Pet Waste and Other Acceptable Organics <sup>2</sup>		Other	
	kg/hh/yr	% of Total	kg/hh/yr	% of Total	kg/hh/yr	% of Total	kg/hh/yr	% of Total
Fall 2004	45.1	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Summer 2005	68.7	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Spring 2006	53.8	70.9%	22.1	29.1%	0.0	0.0%	0.0	0.0%
Summer 2006	79.3	94.8%	4.3	5.1%	0.0	0.0%	0.0	0.1%
Fall 2006	54.4	85.6%	9.1	14.4%	0.0	0.0%	0.0	0.0%
Winter 2007	36.2	100.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%
Fall 2010	84.6	75.4%	12.27	10.9%	11.34	10.1%	4.05	3.6%
Winter 2011	83.4	86.3%	1.99	2.1%	9.65	10.0%	1.65	1.7%
Spring 2011	96.9	63.3%	36.62	24.0%	18.43	12.1%	0.99	0.6%
Summer 2011	101.2	72.0%	22.77	16.2%	15.28	10.9%	1.35	1.0%
Summer 2015	76.8	78.2%	12.18	12.4%	8.51	8.7%	0.78	0.8%
Fall 2015	78.6	79.3%	8.23	8.3%	11.45	11.6%	0.82	0.8%
Winter 2016	70.7	81.5%	1.94	2.2%	13.18	15.2%	0.95	1.1%
Spring 2016	85.6	71.4%	15.36	12.8%	17.72	14.8%	1.18	1.0%
Average	72.5	79.3%	10.5	11.5%	7.5	8.2%	0.8	0.9%

<sup>1</sup>Includes compostable bags and liners

<sup>2</sup>Includes contributions from fireplace ashes, dryer lint, hair clippings, sawdust and wood shavings



**Figure 4.7 Organics Stream Composition Over Time**

#### 4.2.5 Capture Rate Trends

The following section summarizes the capture rate trend for the recycling stream and organics stream for the waste audits completed during the period spanning from the Fall 2004 audit to

the Spring 2016 audit. Capture rate calculations from previous audits come directly from previous audit reports. Table 4.9 and Figure 4.8 summarize the capture rate trend over time for the organics and recycling stream. Note that the recyclable capture rate referred to below is a combined recycling stream capture rate that includes Blue Box and Grey Box materials.

**Table 4.9 Capture Rate Trend Over Time**

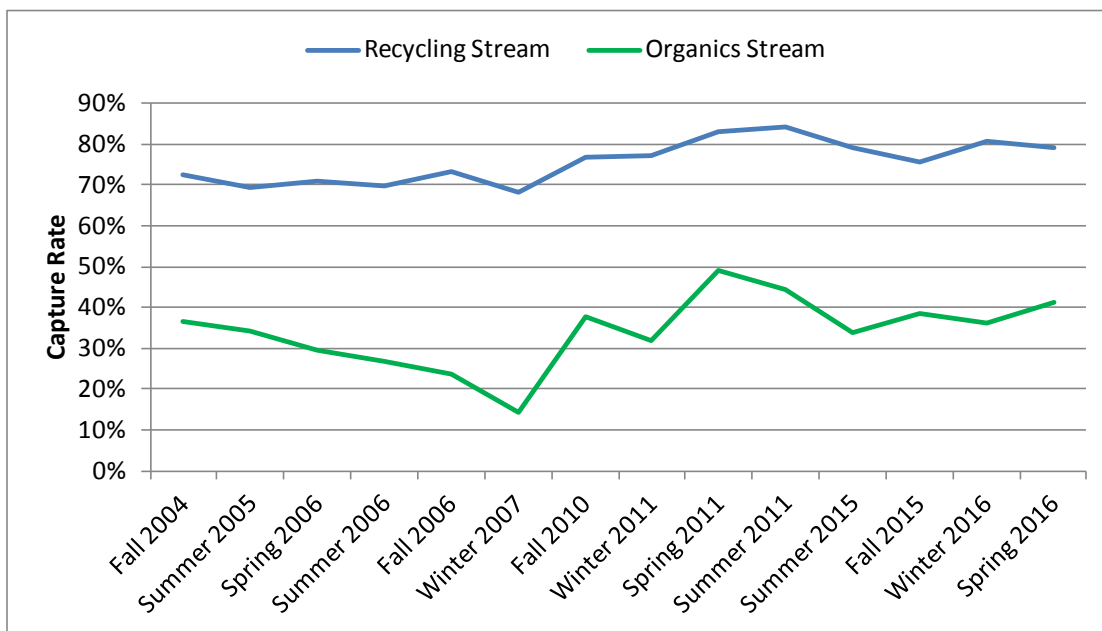
<b>Audit</b>	<b>Recyclable Capture Rate (%)</b>	<b>Organics Capture Rate (%)</b>
Fall 2004	72.44%	36.41%
Summer 2005	69.51%	34.17%
Spring 2006	71.07%	29.49%
Summer 2006	69.88%	26.82%
Fall 2006	73.17%	23.75%
Fall 2007	57.29%	N/A <sup>1</sup>
Winter 2007	68.11%	14.38%
Fall 2010	76.87%	37.89%
Winter 2011	76.99%	31.97%
Spring 2011	83.10%	48.92%
Summer 2011	84.06%	44.54%
Summer 2015	79.09%	33.92%
Fall 2015	75.40%	38.65%
Winter 2016	80.61%	36.06%
Spring 2016	79.07%	41.37%
<b>Average</b>	<b>74.44%</b>	<b>34.17%</b>

<sup>1</sup> Organics collection program not offered in audit study areas

With regards to the recycling stream, the capture rate is shown to be slowly increasing over time. The recyclable capture rate has shown a slight decrease since the level of service changes in February 2011, however the rates remain high. The lowest capture rate was seen in the Fall 2007 audit at 57.29%. Since that time, the capture rate for recyclables accepted in the region has been steadily increasing with a high in the Summer of 2011 of 84.06%. A large increase in the recyclable capture rate also occurred right after the service changes that were implemented in the region at the end of February 2011. Part of the service change being a change from bi-weekly Grey Box and Blue Box collection to weekly Grey and Blue Box collection. It was already noted that the quantity of recyclables being generated increased during this same period, which supports the result that more recyclables were being captured. The most recent audit showed high capture rates but a lower overall generation of recyclables.

Looking at the organics stream, the capture rate is seen to fluctuate a number of times over the period spanning from the Fall 2004 audit to the Summer 2011 audit. After reaching its lowest point of 14.38% during the Winter 2007 audit, the organics capture rate has steadily increased

up to the Summer 2011 audit. A notable increase in organics capture rate can also be seen after the service changes that were implemented at the end of February 2011. However, the capture rates leveled off during the 2015/2016 audits.



**Figure 4.8 Capture Rate Trend Over Time**

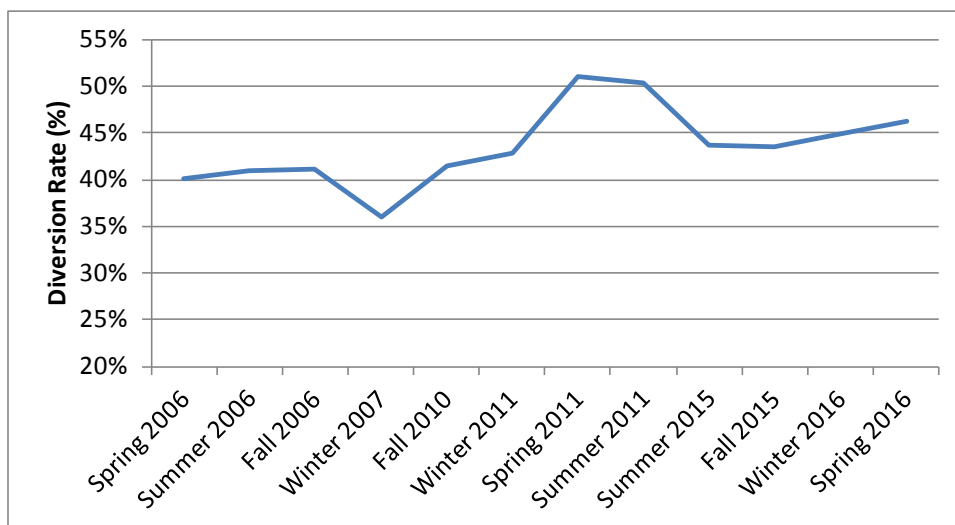
#### 4.2.6 Curbside Waste Diversion Trends

The diversion rate for the region during each of the previous waste audits was calculated to determine if there were any significant trends to note. For some of the past waste audits conducted in the region it was not possible to calculate diversion rates due to a lack of access to the raw data. This is the main reason why diversion rates for the Fall 2004 and Summer 2005 audits are not reported on. In addition, the diversion rate for the Fall 2007 audit was not included in the trend analysis due to the fact that the audit focused on areas without access to the Green Bin program. Table 4.10 and Figure 4.9 summarize the diversion rates for the remaining waste audits over time.

**Table 4.10 Diversion Rate Trend Over Time**

Audit Period	Total Generated (kg/hh/yr)	Total Diverted (kg/hh/yr)	Diversion Rate
Spring 2006	662.41	265.36	40.06%
Summer 2006	679.54	278.63	41.00%
Fall 2006	558.83	229.64	41.09%
Winter 2007	510.83	184.03	36.03%
Fall 2010	705.52	291.91	41.38%
Winter 2011	679.55	290.73	42.78%
Spring 2011	701.80	357.70	50.97%
Summer 2011	690.60	347.21	50.28%
Summer 2015	642.01	280.93	43.76%
Fall 2015	582.23	253.61	43.56%
Winter 2016	556.44	249.65	44.87%
Spring 2016	655.90	303.54	46.28%

Note: Raw data was not available to calculate diversion rates for the Fall 2004 and Summer 2005 waste Audits. In addition, the diversion rate for the Fall 2007 audit was omitted since it focused on areas with no Green Bin program in place.



**Figure 4.9 Diversion Rate Trend Over Time**

Aside from a decrease in the diversion rate during the Winter 2007 audit; the diversion rate remained fairly constant (around 40%) from the Spring 2006 audit to the Winter 2011 audit. Following the Winter 2011 audit, the diversion rate increased significantly from 42.78% in the Winter, to 50.97% in the Spring, an increase of 19.14%. One explanation for the increase would be the services changes the Region implemented at this time that included more areas in the Green Bin collection, as well as Grey and Blue Box collection shifting to a weekly collection. This initial increase levelled off to 44-47% in 2015/2016. Areas that did not have organics collection

prior to the level of service changes may have decided to try using their new Green Bin and ultimately reverted back to their original habits as they were able to meet the new garbage set-out limits. The changing nature of materials has affected the diversion rate over time. There are less printed paper products being generated. Since these products are heavier in nature it boosts the diversion rate. However, the Region still has room to grow with the overall diversion rate.

#### 4.2.7 Overall Participation and Set-out Trends

The following section discusses the trend in participation rates with respect to the garbage, recycling (combined Blue and Grey Box) and organics streams. Also discussed is the trend in set-out behaviour for each of these waste streams. Table 4.11 summarizes the participation rates for all waste streams over the time from the Fall 2004 audit to the Spring 2016 audit.

**Table 4.11 Participation Rate Trend Over Time**

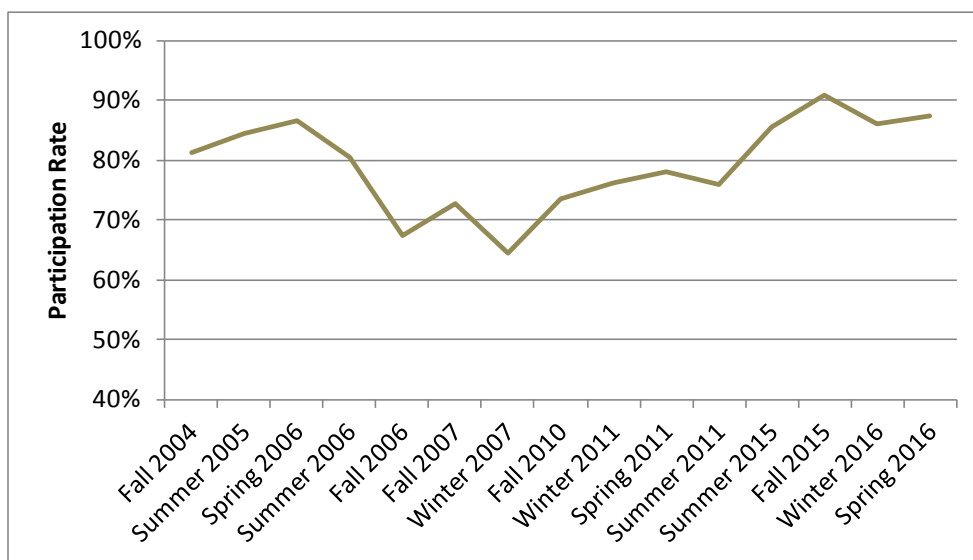
<b>Audit</b>	<b>Garbage Participation Rate (%)</b>	<b>Recycling Participation Rate (%)</b>	<b>Organics Participation Rate (%)</b>
Fall 2004	81.33%	66.00%	25.33%
Summer 2005	84.33%	70.67%	30.00%
Spring 2006	86.50%	65.50%	24.00%
Summer 2006	80.50%	59.50%	30.00%
Fall 2006	67.50%	57.00%	21.00%
Fall 2007	72.67%	59.33%	N/A <sup>1</sup>
Winter 2007	64.50%	44.00%	16.00%
Fall 2010	73.53%	71.24%	38.00%
Winter 2011	76.26%	71.47%	39.06%
Spring 2011	77.91%	72.15%	44.48%
Summer 2011	75.95%	75.89%	44.94%
Summer 2015 <sup>2</sup>	85.54%	82.53%	46.99%
Fall 2015 <sup>2</sup>	90.91%	80.00%	46.67%
Winter 2016 <sup>2</sup>	86.06%	82.42%	44.85%
Spring 2016 <sup>2</sup>	87.35%	83.64%	51.81%
<b>Average</b>	<b>79.39%</b>	<b>69.42%</b>	<b>35.94%</b>

<sup>1</sup> Organics program not available in audit study area

<sup>2</sup>Per Region's request, participation rates were calculated on a two week cycle for the 2015/2016 audits. If a resident set out their material once during the two week period it would be considered 100% participation.

The overall participation rates for garbage, recycling and organics has shown an increase from the 2010/2011 audits. Based on a review of the data from previous year's audits, it appears as though the number of full container equivalents was not always estimated with accuracy to the nearest 1/4, as prescribed by Stewardship Ontario. Audits conducted in 2004/2005 and 2007 estimated the fullness of containers to the nearest tenth of a container. However, the 2010/2011 and 2015/2016 audits did estimate fullness to the nearest 1/4. The result of this difference in methodology is that the estimated fullness in previous year's audits will appear higher than the 2010/2011 audits. The overall focus should be placed on the results from 2010/2011 and 2015/2016 as the same methodology was used when recording set-out data at the curbside.

Figure 4.10 shows the trend in garbage stream participation over time. The participation rates calculated for 2015/2016 were assessed on a two week cycle. They cannot be directly compared to previous participation rates. However, it can be seen that the participation rates for garbage are ranging from 85% to 90%. Residents are utilizing the weekly garbage collection.



**Figure 4.10 Garbage Stream Participation Rate Trend**

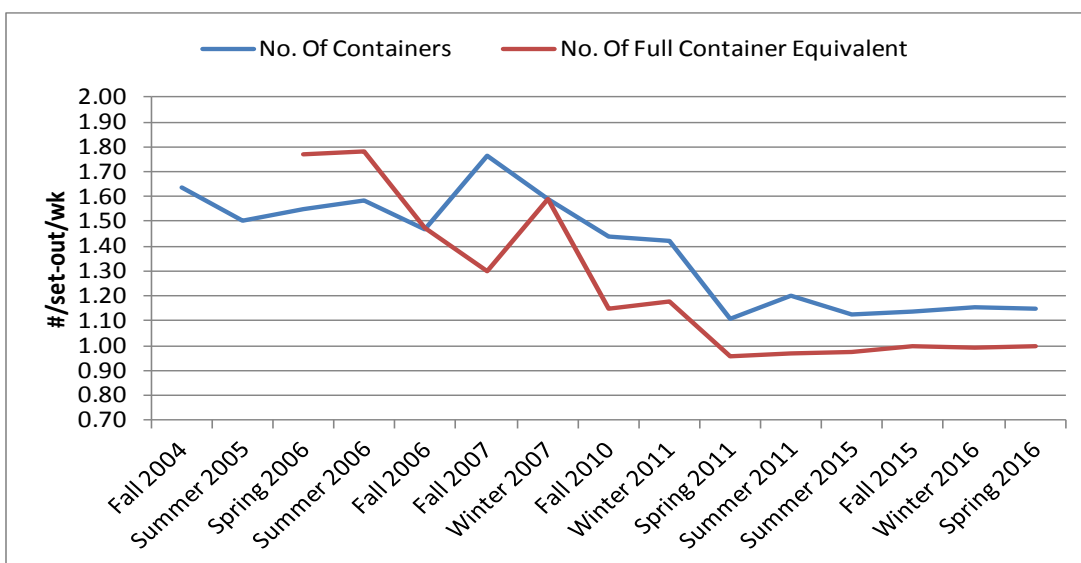
Table 4.12 and Figure 4.11 summarize the trend in garbage stream set-outs over time. This is summarized in terms of number of items per set-out, per week (average across only households with a set-out), and also in number of full container equivalents per set-out, per week. Both the number of garbage items and number of full garbage container equivalents set out by low-density residential dwellings have decreased over time and is now remaining very constant. This indicates that households in general are setting out fewer garbage items now than in previous years, coinciding with the increases in capture and diversion rates. This is largely caused by the change in garbage set-out limits. Residents are complying with the set-out limits in most cases. Auditors were instructed to reject over the limit garbage set-outs when residents did not

purchase additional garbage tags. It was noted that auditors only had to reject material a couple of times each season in 2015/2016.

**Table 4.12 Garbage Stream Set-out Trend Over Time**

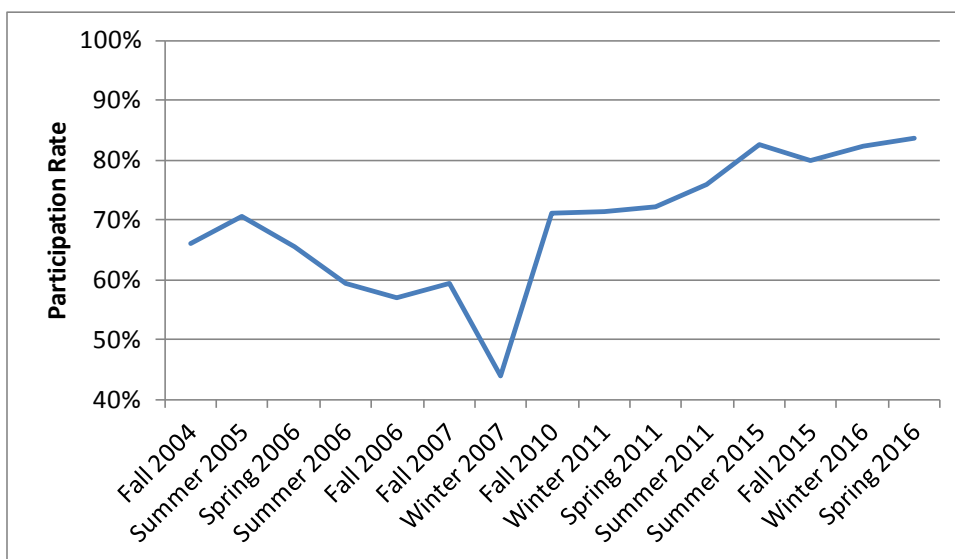
Audit Period	No. of Containers Per Set-Out Per Week	No. of Equivalent Full Containers Per Set-out Per Week
Fall 2004	1.63	N/A <sup>1</sup>
Summer 2005	1.50	N/A <sup>1</sup>
Spring 2006	1.55	1.77
Summer 2006	1.58	1.78
Fall 2006	1.47	1.47
Fall 2007	1.77	1.30
Winter 2007	1.59	1.59
Fall 2010	1.44	1.15
Winter 2011	1.42	1.18
Spring 2011	1.11	0.96
Summer 2011	1.20	0.97
Summer 2015	1.12	0.97
Fall 2015	1.14	1.00
Winter 2016	1.16	0.99
Spring 2016	1.15	1.00

<sup>1</sup> No. of equivalent full containers data was not collected as part of Fall 2004 & Summer 2005 waste audits.



**Figure 4.11 Garbage Stream Set-out Trend Over Time**

Figure 4.12 shows the trend in recycling stream participation over time. Similar to the garbage stream, the participation rates were calculated on a two week cycle for the 2015/2016 audits. Overall, the participation in the recycling stream is high. The new level of service changes with weekly recycling collection allow residents to participate in the recycling programs more often. It provides more flexibility to divert their recyclable materials. The Region also has a comprehensive social marketing and outreach strategy, which encourages increased participation rates that will increase capture of recyclables. It educates residents on waste management practices, to improve the quality of materials received at the Recycling Centre, reduce the processing residue rate, improve collection and processing efficiencies. It will also decrease operational issues at the Recycling Centre due to contaminating materials.



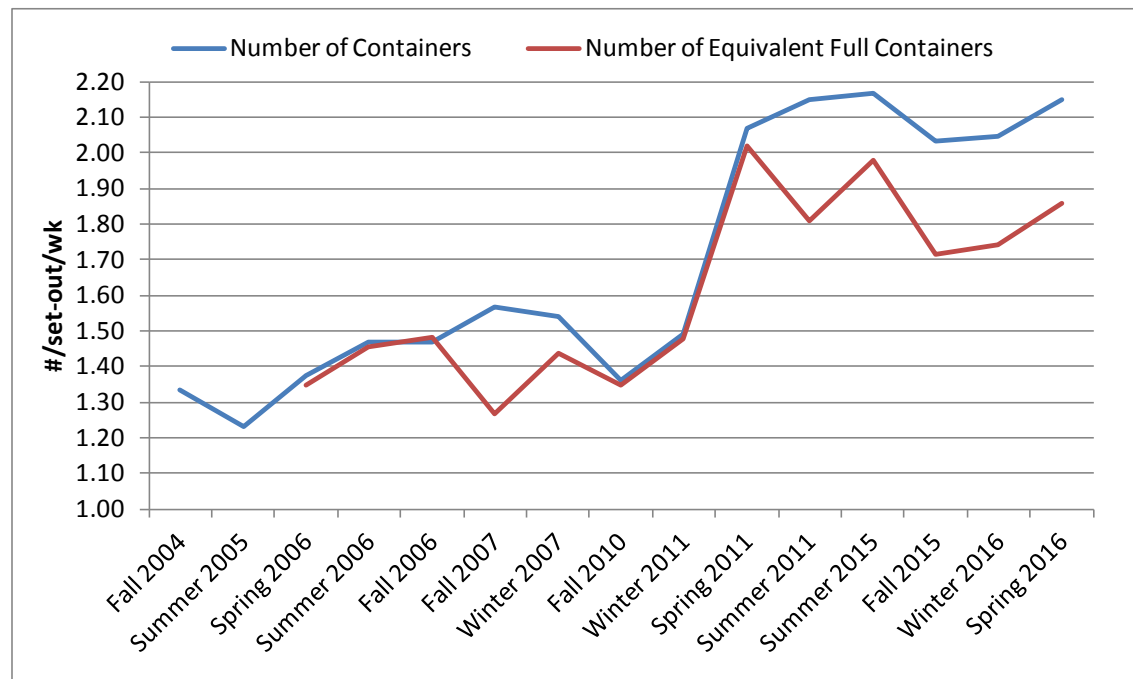
**Figure 4.12 Recycling Stream Participation Rate Trend Over Time**

Table 4.13 and Figure 4.13 summarize the trend in recycling stream set-outs over time. This is summarized in terms of number of items per set-out, per week; and also in number of full container equivalents per set-out, per week. Both the number of recycling items and number of full recycling container equivalents set out by low-density residential dwellings stayed relatively constant from the period of time between the Fall 2004 audit and the Winter 2011 audit, aside from small seasonal fluctuations. After the service changes that took place in February of 2011, the number of items set out per week exceeded 2. This trend has remained constant with the most recent audits conducted in 2015/2016.

**Table 4.13 Recycling Stream Set-out Trend Over Time**

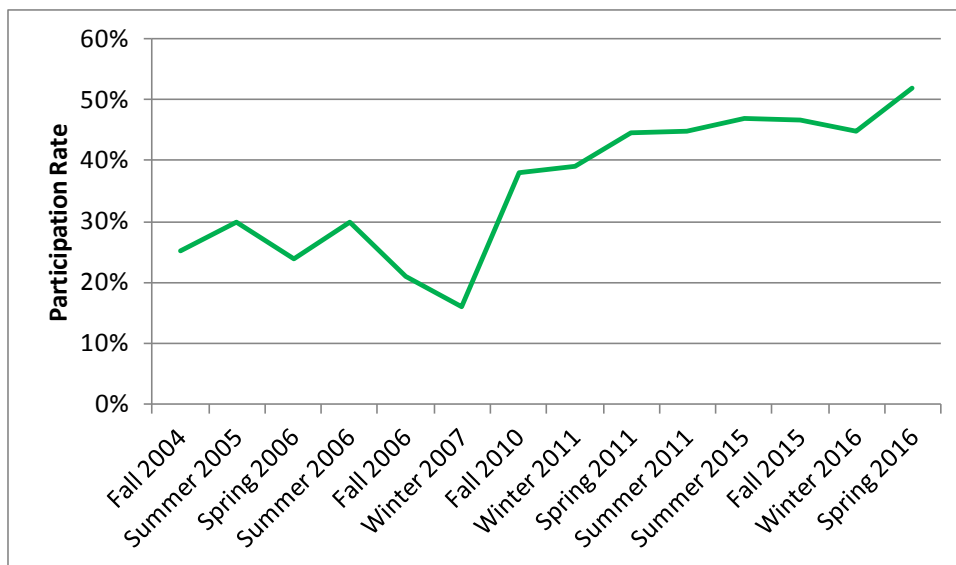
Audit Period	No. of Containers Per Set-Out Per Week	No. of Equivalent Full Containers Per Set-out Per Week
Fall 2004	1.33	N/A <sup>1</sup>
Summer 2005	1.23	N/A <sup>1</sup>
Spring 2006	1.37	1.35
Summer 2006	1.47	1.45
Fall 2006	1.47	1.48
Fall 2007	1.57	1.27
Winter 2007	1.54	1.44
Fall 2010	1.36	1.35
Winter 2011	1.49	1.48
Spring 2011	2.07	2.02
Summer 2011	2.15	1.81
Summer 2015	2.17	1.98
Fall 2015	2.03	1.72
Winter 2016	2.05	1.74
Spring 2016	2.15	1.86

<sup>1</sup> No. of equivalent full containers data was not collected as part of Fall 2004 & Summer 2005 waste audits.



**Figure 4.13 Recycling Stream Set-out Trend Over Time**

Figure 4.14 shows the trend in organics stream participation over time. The participation rates for 2015/2016 were calculated on a two week cycle. This designates a household as a participant if they set-out a Green Bin on either week of the 2 week study period. The overall trend in Green Bin organics participation is increasing. This does not include leaf & yard waste that is set out separately from the Green Bin for curbside collection.



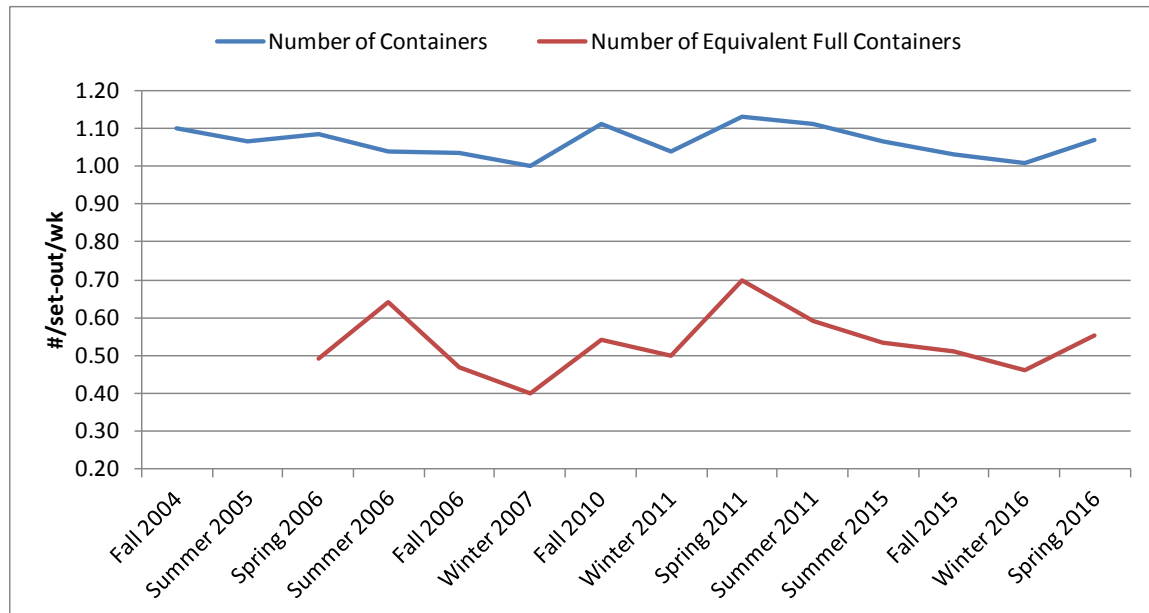
**Figure 4.14 Green Bin Organics Stream Participation Rate Trend**

Table 4.14 and Figure 4.15 summarize the trend in Green Bin organics stream set-outs over time. This is summarized in terms of number of items set out per household sampled per week, and also in number of full container equivalents (FCE) set out, per household sampled, per week. Both the number of organic stream items and number of full container equivalents set out by low-density residential dwellings stayed relatively constant over the period of time between the Fall 2004 audit and the Summer 2011 audit, with very little fluctuation. A spike in organics container fullness was experienced during the Spring of 2011, however the trend lowered back down to remain constant after that time. Before the Spring 2011 audit, the FCE average for organics was 0.51 containers. The Spring 2011 audit results showed the spike for FCE, at 0.70 containers. For the remaining audits conducted after the Spring 2011 audit, the FCE average was 0.53 containers. This shows a small overall average increase from 0.51 (pre-LOS) to 0.53 (five year post-LOS). On average, participants in the organics program are setting out one Green Bin each week that is half full. This means that there is more space available in the Green Bins for households to divert more organic material, if needed.

**Table 4.14 Organics Stream Set-out Trend Over Time**

Audit Period	No. of Containers Per Set-Out Per Week	No. of Equivalent Full Containers Per Set-out Per Week
Fall 2004	1.10	N/A <sup>1</sup>
Summer 2005	1.07	N/A <sup>1</sup>
Spring 2006	1.08	0.49
Summer 2006	1.04	0.64
Fall 2006	1.04	0.47
Winter 2007	1.00	0.40
Fall 2010	1.11	0.54
Winter 2011	1.04	0.50
Spring 2011	1.13	0.70
Summer 2011	1.11	0.59
Summer 2015	1.07	0.53
Fall 2015	1.03	0.51
Winter 2016	1.01	0.46
Spring 2016	1.07	0.55

<sup>1</sup> No. of equivalent full containers data was not collected as part of Fall 2004 & Summer 2005 waste audits.



**Figure 4.15 Organics Stream Set-out Trend Over Time**

### 4.3 Opportunities

Looking specifically at Niagara Region's most recent audit results, the following summarizes the materials which are currently in the garbage stream and have potential opportunity for improved recovery/capture rates.

**Top 5 currently divertible materials in the garbage stream by weight (kilograms/household/yr):**

1. Food Waste: 98.33 kg/hh/yr
2. Pet Waste: 33.91 kg/hh/yr
3. Tissue/Towelling: 19.15 kg/hh/yr
4. Flexible Film Plastic – LDPE & HDPE: 7.42 kg/hh/yr
5. Yard Waste: 5.35 kg/hh/yr

By weight, 4 of the top 5 currently divertible materials in the garbage stream are compostable organics. Food waste is by far the largest component here, contributing approximately 98.33 kg/hh/yr to the garbage stream. The largest proportions of food waste included unavoidable food waste and leftover food waste. As noted in the 2010/2011 audit report, there is a lot more contained/package food waste found in the garbage. It is less likely for residents to make the extra effort to remove food from its packaging.

When looking at the different participant types, the households who participate in all three diversion programs dispose of the highest percentage of unavoidable food waste, avoidable food waste (leftover other) and avoidable food waste (untouched other) in the garbage. This means that the households that already participate in all three diversion programs have to target these specific food types to capture the maximum potential. This includes items such as food scraps, bones, eggshells, leftover stir fry and pasta dishes, leftover and uneaten sandwiches and burgers, yogurt, sour cream, condiments and liquid (water, pop, juice). This might suggest that people may be less likely to use the Green Bin if it means inconveniencing themselves to empty out food waste from containers/bottles/jars, etc.

Pet waste is the second highest component of divertible waste in the garbage stream. Most pet waste found in the garbage was bagged in non-compostable plastic bags. This is likely a barrier for placing this type of material in the Green Bin. It is recommended that the Region continue to encourage residents to utilize kraft paper bags, newsprint or compostable bags to collect and dispose of their pet waste into the Green Bin.

Tissue/towelling is another common, potentially divertible material in the garbage stream. This material was observed to often originate from bathroom garbage bags, where residents are unlikely to have a separate collection bin for compostable material. The only recyclable material appearing in the top 5 is Flexible Film Plastic (e.g. retail carry-out bags, bread bags, etc.). The quantity of recyclable plastic bags has remained very constant from the 2010/2011 audits. The overall generation of all material has decreased but the amount of flexible plastic

bags in the garbage stream has remained constant. More retailers are charging a fee for retail carry-out bags. Since this change has occurred, the bags have been manufactured to be stronger and therefore slightly heavier. Many of the bags found in the garbage were observed be used for garbage bags (e.g. small bathroom, kitchen garbage can liner or pet waste bag), however, many were also empty or near empty, which could have been captured in the recycling stream.

**Top 5 currently divertible materials with the lowest capture rates:**

**Blue Box**

1. Steel Paint Cans 17.75%
2. Aluminum Foil & Foil Trays 26.43%
3. Aluminum Aerosols 35.58%
4. Large HDPE & PP Pails & Lids 41.91%
5. Other Rigid Plastic Packaging 43.19%

**Grey Box**

1. Flexible Film Plastic – LDPE & HDPE 32.26%
2. Cores 42.89%
3. Other Printed Paper (Obligated) 59.10%
4. Other Printed Paper (Non-Obligated) 59.45%
5. Boxboard 77.48%

**Green Bin**

1. Non-laminated Paper/Packaging 12.45%
2. Tissue/Towelling 21.51%
3. Pet Waste 27.17%
4. Molded Pulp Packaging 29.08%
5. Food Waste 41.79%

Lowest capture rates for specific types of food waste include:

- Avoidable Food Waste (untouched other) – 7.71%
- Avoidable Food Waste (untouched meat & fish) – 10.36%
- Avoidable Food Waste (untouched dried food) – 13.99%

The top 5 divertible Blue Box materials with the lowest capture rates are not large contributors to the waste stream, however, should still be targeted for capture. These materials can be targeted through the recycling promotional information pamphlet sent to households throughout the region each year. Other rigid plastic packaging is commonly unmarked plastic containers or packaging. This material can be targeted by encouraging residents to recycle plastic packaging including unmarked plastics, plant pots and trays and pails. This material was not accepted in the Region's Blue Box recycling program in 2010/2011 but it is now accepted to be processed at the Region's Recycling Centre.

The top 5 divertible Grey Box materials with the lowest capture rates include flexible films, which are commonly used to bag waste. However, there is a lot of room for improvement in capturing flexible films as many bags and overwrap are disposed of in the garbage stream. Cores are commonly found in bathroom garbage bags. While this material does not contribute a

significant weight, it is commonly found in many households' garbage. Other printed paper (otherwise known as mixed fine paper) is disposed of in grocery bags, kraft paper take-out bags, shopping bags and loose bills and notes that residents throw out for privacy reasons.

Organic material has the greatest potential for improvement when it comes to the overall capture. The types of non-laminated paper/packaging commonly found includes traditional popcorn bags, paper plates. The paper plates are typically used at parties or gatherings where a lot of materials are thrown into the garbage. Promotional material can be altered to accentuate items such as popcorn bags, paper plates and molded pulp drink trays and egg cartons. Tissue/towelling, pet waste and food waste are the largest contributors to the overall disposed waste in the Niagara region.

#### **4.4 Impacts of LOS Changes and Improvements/Initiatives included in the Region's 2011-2015 Blue Box Recycling Plan**

Following the LOS changes that took place on February 28, 2011, the collection frequency for Blue Box and Grey Box recyclables changed to weekly collection of both streams and garbage limits reduced from a 2 bag/container limit to 1 bag/container for residential households in the region. Prior to the LOS changes and following the LOS changes, the Region conducted studies that included focus groups, a public open house and telephone surveys to assess the public views on potential service changes. The collection results indicate that residents in the Niagara region have adjusted to the new waste set-out criteria and are following the new guidelines. Auditors did have to reject over the limit set-outs on the rare occasion but it is not a common practice.

The 2011-2015 Blue Box Recycling Plan outlined diversion targets and how the Region plans to achieve these targets. The Region has improved the collection procedures to expand to organics collection region-wide and a weekly service for all recyclables. The Region aimed to add permanent facilities for reuse centres and Household Hazardous Waste (HHW) drop-off depots. While AET was conducting the audit at the Humberstone Landfill in Welland, the Region was building a permanent household hazardous waste drop-off depot. This is an example of the Region's commitment to achieving diversion targets and ensuring the proper disposal of hazardous materials. One of the diversion targets that had not yet been implemented included "providing incentives to improve participation in diversion through waste collection every other week with a two container limit."<sup>2</sup> The final initiative included improvements to the public education/awareness campaigns as well as enforcement activities. The Region has launched social marketing campaigns to target recyclable materials ("The Odd Couple" plastic bag recycling campaign) in addition to their regular waste guide that is sent out in the mail each year. In addition, by-law enforcement officers are available to obtain compliance and educate residents that are not adhering to the solid waste management by-law.

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<sup>2</sup> 2011-2015 Niagara Region Blue Box Program Plan

Short term opportunities were also outlined in the 2011-2015 Niagara Region Blue Box Program Plan. This included the Region providing, free of charge, Blue and Grey Boxes to new homeowners and replacements to residents with broken containers. Weekly collection of both recycling streams has given residents additional capacity for recyclables. Blue and Grey Boxes also have a larger capacity. This will ensure that overflow of recyclables are not disposed of in the garbage stream. Residents are also given the option to bag their recyclables for curbside collection.

Medium and long term opportunities outlined in the 2011-2015 Niagara Region Blue Box Program Plan included continual review of collection contract and the collection fleet requirements. The changing composition and quality of inbound Blue Box material has a direct effect on the processes at the Recycling Centre and the value of the marketable tonnage.

The Region completes an annual RPRA (formerly WDO) datacall, which is outlined in Section 3.16 of this report. This compiles data including tonnage, operational/capital costs, details about the Blue Box diversion program and policy details. The datacall allows the Region to establish targets and projections.

The 2011-2015 Niagara Region Blue Box Program Plan provides an overview on key performance measures. All of these parameters (including participation rates, set-out rates, generation rates, capture rates and diversion rates) are outlined in Table 4.1. Following the LOS changes, the Region experienced a spike in generation of divertible material. The 2015/2016 audits reveal that generation of all materials, including Blue Box and Grey Box materials, has decreased. There has been a decrease in overall weight of material. Capture rates have remained constant and set-out rates reveal that households are placing fuller bins of recycling at the curbside for collection.

## 5.0 OBSERVATIONS & LESSONS LEARNED

### 5.1 Observations

The following observations were made during the 2015/2016 audits. These factors outline the pros and cons of the region's current waste collection program. It was noted by auditors that there were small inconsistencies in the rejection of non-accepted materials by the waste and recycling collection contractor. For example, collection contractor staff have been spotted rejecting entire Blue/Grey Boxes at the curbside, as well as removing contaminating materials, collecting accepted materials and placing the contamination back into the households' boxes. Both of the practices mentioned above are not necessarily incorrect. This all depends on the material being collected and the degree of contamination.

In addition, AET's audit supervisors were approached on a couple of occasions by residents looking for clarification on where they should dispose of an item. The Region has an excellent search engine on their website where residents can type in materials and it identifies what stream it should be placed in; however many residents do not know about this service or do not have access to a computer. This would be represented in the aging population that is not as educated on advancements in technology.

Another observation would be certain households consistently setting out over the bag limit garbage. This was observed primarily on rural roads. This is an indication that the collection contractor regularly collects the over the limit garbage set-out. AET's auditors had lists that indicated which households were permitted higher set-out limits (i.e. farms, duplexes and triplexes). In many cases, households in an area with surrounding farms may have a falsified understanding that they are permitted to set-out more garbage due to their neighbors with farms having a higher set-out limit.

The observations noted about the collection contractor are not necessarily a flaw in the system. The focus must be on the collection procedures across the entire region being consistent.

### 5.2 Lessons Learned

One of the objectives was to assess the composition of the waste streams based on participant types. However, auditing material on an individual household level creates challenges in the entire audit process when it comes to the collection of materials, physically sorting and weighing the materials and analyzing the data. The scales being used to measure the weight of materials during the audit are very precise, however when materials are found in small quantities (i.e. a receipt or a coffee cup lid) they don't always register a weight on the scale. Audit supervisors use their judgement to either record this weight as 0.01 kg or record it as 0 kg. A standard discretion was agreed upon by both audit supervisors in the field and the project manager. Auditing larger samples that have been accumulated from several households will provide more accurate measurements.

A positive outcome from the current methodology is that it has allowed AET to designate participant types. It has allowed the Region to establish additional patterns and trends from the current sampled households. This information would not be apparent in the minimum standard audits. Caution must be used to only gather data from the participant types that have a significant sample size. In the case of the 2015/2016 audits, Recycling, Garbage & Organic Participants and Recycling & Garbage Participants had sample sizes exceeding 50 households. Garbage only Participants only had 14 participants. The remaining participant types not mentioned above do not qualify as representative data due to their low sample size.

Future consideration should be given for a different audit methodology. Two alternate methodologies to consider for future studies are listed below:

1. Pre-audit Surveying and Aggregated Waste Samples

If the ultimate goal is to be able to assess the composition of the waste streams, based on participant types, surveying can be completed for several weeks prior to the audit period to determine participant types for all sample areas. This way, participant types are pre-determined prior to the audit for each household. When collection commences, auditors can collect materials that have been aggregated from certain participant types.

2. Selective Sampling of Participant Types at the Curbside

This methodology would allow samples to be gathered for targeted participant types only. This method would involve different households being audited than previous studies. The auditors would drive along with the regular collection contractor and collect material at households that qualify as the participant type they are looking for. For example, you would start on a street and collect the first ten households that participate in all three diversion programs. This sample would be aggregated and classified as your Recycling, Garbage & Organics Participant from Street A. Similarly, auditors would collect material for the first 10 households that are classified as Recycling & Garbage Participants. This methodology is completely different and in turn would provide different composition data that would focus on the participant types. It would not be comparable to previous studies completed throughout the region.

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## Disclaimer

AET Group makes no warranty and assumes no liability for the information contained in this report outlining the waste composition study results. These results reflect measurements made over the sample periods as described in the methodology. As such, waste generation measurements should be considered snapshots and may not reflect accurate conditions across individual Municipalities or the region over time. Data provided by the Region from previously conducted studies (excluding the 2010/2011 audits) is not audited by AET.

## APPENDIX A

### MATERIAL CATEGORIES LIST

2015/16 Waste Composition Study - Material Categories		
Material Category	Stream	Description / Examples
<b>PRINTED PAPER</b>		
Newsprint - Daily and weekly	Grey & Green	Daily and weekly newspapers published by the Canadian Newspaper Association (CNA) and the Ontario Community Newspapers Association (OCNA); Globe and Mail, Toronto Star, Hamilton Spectator, community newspapers. Consult Stewardship Ontario and The Continuous Improvement Fund's list of OCNA/CNA publications. No inserts, flyers and magazines from newspapers.
Other Newsprint - Other	Grey & Green	Non OCNA/CNA publications (e.g. TV guides, Auto Trader, Real Estate News) plus inserts and flyers from OCNA/CNA newspapers. Consult Stewardship Ontario and The Continuous Improvement Fund's list of OCNA/CNA publications. Includes glossy flyers and advertising distributed with newspapers.
Magazines and Catalogues	Grey	Glossy magazines, catalogues, calendars, annual reports and product manuals (must be bound, i.e. stapled or glued).
Directories / Telephone books	Grey	Telephone books and other directories such as the Yellow Pages
Other Printed Paper (Obligated)	Grey	Mixed fine paper, bills and statements, ad mail, etc. Includes non-newsprint flyers and advertising, promotional calendars
Other Printed Paper (Non-Obligated)	Grey	Writing paper, office paper, soft or hard covered books, paper envelopes (blank), gift cards, purchased calendars, gift wrap, construction paper, photographs
<b>PAPER PACKAGING</b>		
Gable Top Containers	Blue	Polycoat containers with a gable shaped top, milk and milk substitutes like soy, almond and rice milk, juices, some foods, sugar, molasses etc.
Aseptic Containers (excluding alcoholic beverages)	Blue	Polycoat fibre and foil containers (e.g. Tetra Pak) for soy, almond and rice milk, juice boxes, water, soup, sauces etc.
Aseptic Containers - alcoholic beverages	Blue	Polycoat fibre and foil containers (e.g. Tetra Pak) for wine and other spirits
Polycoat Beverage Cups	Garbage	Hot beverage/food containers, with polycoat on inside only, including coffee cups, soup cups/bowls, chili cups etc. Cold beverage/food containers with polycoat on both sides including fountain drinks, take-out ice cream cups.
Spiral Wound Containers	Blue	Polycoat or paper containers with steel bottoms include chip containers, frozen concentrate juices, pre-packaged cookie dough, etc. May also have foil and/or plastic on ends.
Ice Cream Containers and Other Bleached Long Polycoat Fibre	Garbage	Polycoated paper ice cream containers, typically with a lid, excluding boxboard folded ice cream boxes. Food containers with white fibre and a rolled or folded rim, includes Michelin's frozen food, KFC tubs.
Paper Laminate Packaging	Garbage	Paper with aluminum foil, paper with plastic, multi-layered paper - Includes microwave popcorn bags, some cookie bags, dog food bags, paper granola bar wrappers, laminated paper carry out bags, etc.
Corrugated Cardboard	Grey & Green	Includes micro-flute corrugated containers, pizza boxes, waxed corrugated containers, electronic product boxes such as television and computer boxes, boxes used to direct mail for residential consumers. Kraft paper bags and wrap, grocery or retail bags, potato bags, some pet food bags, includes brown, white, and coloured kraft paper and bags. No bags with bonded plastic or foil liners/layers/coatings.
Boxboard	Grey & Green	Boxboard, paperboard, cereal box, shoe box, non-glossy frozen food boxes
Cores	Grey & Green	Cores from toilet paper/ towel/gift wrap, etc.
<b>PLASTICS</b>		
#1 PET Bottles and Jars (excluding alcoholic beverages)	Blue	#1 plastic bottles and jars including pop, juice, cooking oil, honey, dish soap, etc.
#1 PET Bottles and Jars ≥ 5 L (excluding alcoholic beverages)	Blue	#1 plastic bottles and jars including pop, juice, cooking oil, honey, dish soap, etc.
#1 PET Bottles (alcoholic beverages)	Blue	#1 plastic bottles used to contain alcoholic beverages
#1 PET Thermoform - Clear	Blue	#1 clamshells, #1 egg cartons, #1 trays, #1 blister packaging, etc.
#1 PET Thermoform - Coloured	Blue	#1 coloured PET microwaveable trays, etc.
#2 HDPE Bottles and Jugs (excluding alcoholic beverages)	Blue	#2 plastic bottles and jugs, juice, milk, laundry soap, shampoo, windshield washer fluid, etc.
#2 HDPE Bottles and Jugs ≥ 5 L (excluding alcoholic beverage)	Blue	#2 plastic bottles and jugs equal to or greater than 5 L
#2 HDPE Bottles (alcoholic beverage containers)	Blue	#2 plastic bottles used to contain alcoholic beverages
#2 Other HDPE Containers	Blue	Other #2 containers such as margarine and yogurt containers made from HDPE
Flexible Film Plastic – LDPE & HDPE	Grey	HDPE & LDPE film, dry cleaning bags, bread bags, non-aluminum lined, stretchy frozen food bags, milk bags, toilet paper and paper towel over-wrap, lawn seed bags, grocery and retail carry-out bags, frozen plastic pizza liners/wraps, produce bags.
LDPE/HDPE Film - Products (non-packaging)	Garbage	zip lock sandwich and freezer bags, plastic food wrap (i.e. Saran Wrap) and non-stretchy plastic film.
#5 PP Bottles	Blue	# 5 plastic bottles includes nutritional supplement drinks, shampoos, etc.
#5 Other PP Containers	Blue	# 5 containers such as margarine and yogurt containers and other containers made from PP, including tubs and lids with resin codes #5 PP
#6 PS - Expanded Polystyrene	Blue	# 6 Foam take-out containers such as drink cups, large, white packaging foam, meat trays, etc.
#6 PS - Non-expanded Polystyrene	Blue	#6 Polystyrene clear clamshell containers such as berry and muffin containers, opaque clamshell containers such as food take-out containers, yogurt containers, rigid trays, small milk or cream containers for hot beverages, cold drink cups.
Plastic Laminates and Other Film Packaging	Garbage	Laminated plastic film and bags that are at least 85% plastic (by weight). Includes chip bags, vacuum sealed bags, cereal liners, candy wraps, pasta bags, boil in a bag, plastic based food pouches, etc.
Other Rigid Plastic Packaging	Blue	Other rigid containers (#3, #4 & #7), non-PET blister packaging, unmarked/coded packaging, plant pots and trays, pails etc.
Large HDPE & PP Pails & Lids	Blue	Equal to or greater than 5 litres and less than 25 litres
Other Plastics - (non-packaging/durable)	Garbage	Rubbermaid tubs, toys etc.
<b>METALS</b>		
Aluminum- food and beverage Containers (excluding alcoholic beverage containers)	Blue	Single-serve juice/soft drink cans, pet food cans, food cans (e.g., sardine cans)
Aluminum (alcoholic beverage containers)	Blue	Aluminum cans and bottles used to contain alcoholic beverages
Aluminum Foil & Foil Trays	Blue	Aluminum foil wrap, pie plates, baking trays, etc.
Aluminum Aerosols	Blue	Empty Aluminum aerosol containers, hair products, etc.
Steel Food and Beverage Cans	Blue	Apple juice, soup beans, peaches cans, etc.
Steel Paint Cans	Blue	Empty Steel Paint Cans
Steel Aerosol Container	Blue	Empty spray paint cans, cooking oil, whipped cream, etc.

<b>GLASS</b>		
Clear Glass - food and beverage (excluding alcoholic beverage containers)	Blue	Food containers such as pickle jars, salsa jars and dairy tubs, cosmetic containers for creams, beverage bottles
Clear Glass - alcoholic beverage containers	Blue	Wine bottles, spirit bottles, single-serve cooler bottles, beer bottles
Coloured Glass - food and beverage (excluding alcoholic beverage containers)	Blue	Olive oil bottles, balsamic vinegar
Coloured Glass - alcoholic beverage containers	Blue	Wine bottles, spirit bottles, single-serve cooler bottles, beer bottles
<b>MUNICIPAL HAZARDOUS OR SPECIAL WASTE</b>		
Pressurized Containers	Garbage	All pressurized cylinders used for compresses gases including propane, helium, welding/brazing gases, etc.
Batteries (Consumer-Type Portable)	Garbage	All batteries (primary and secondary)
Paint & Stain	Garbage	Cans / tubs still containing product, oil and latex paint, wood stain, varnish, etc.
Motor Oil	Garbage	Oil filters and jugs or cans still containing oil
Other MHSW liquids	Garbage	Solvents, antifreeze, acids, pool chemicals, weed killer, gasoline, brake fluid, glues, adhesives, cleaners, nail polish remover, etc. Look for signal words such as "Poison", "Danger", "Warning", "Caution", and "Precautionary Statements".
Other MHSW	Garbage	Sharps, drug products, medicine, medical waste, fluorescent tubes, ionized smoke detectors, etc. Look for signal words such as "Poison", "Danger", "Warning" and "Caution" statements".
Home Health Care Waste	Garbage	Casts, catheters, dialysis waste (tubing, filters, disposable towels and sheets), disposable pads, gloves and masks, colostomy bags, gastric and nasal tubes, IV bags, soiled dressings, sponges.
<b>ORGANICS</b>		
Avoidable Food Waste (leftover bakery)	Green	Food that was prepared but not eaten (e.g. plate scrapings, half-eaten sandwich, uneaten leftovers).
Avoidable Food Waste (leftover meat & fish)	Green	
Avoidable Food Waste (leftover dried food)	Green	
Avoidable Food Waste (leftover fruit & vegetable)	Green	
Avoidable Food Waste (leftover other)	Green	
Avoidable Food Waste (untouched bakery)	Green	Food that expired or went bad before it could be eaten (e.g. food still in packaging, whole produce, uncooked food, whole slices of bread).
Avoidable Food Waste (untouched meat & fish)	Green	
Avoidable Food Waste (untouched dried food)	Green	
Avoidable Food Waste (untouched fruit & vegetable)	Green	
Avoidable Food Waste (untouched other)	Green	
Unavoidable Food Waste	Green	Food that could not be further eaten or prepared (e.g. vegetable and fruit peelings, fats, oils, bones, etc.)
Yard Waste	Green	Brush, branches, wood chips, leaves, soil, plant material, excluding grass clippings
Grass Clippings	Garbage	Grass clippings only
Pet Waste	Green	Animal feces, bedding, kitty litter
Molded Pulp Packaging	Green	Egg cartons, drink trays, other trays, molded pulp flower pots/trays, etc.
Non-laminated Paper/Packaging	Green	Chinette paper plates, microwave popcorn bags
Tissue/Towelling	Green	Napkins, Tissues, and Paper Towels
Compostable Plastic Bags	Green	Certified Plastic Compostable Bags
Compostable Paper Bags	Green	Certified Paper Compostable Bags
<b>WEEE (Waste Electrical and Electronic Equipment)</b>		
TVs	Garbage	Televisions (Tube, Projection, Plasma, LCD, LED)
Computer Monitors	Garbage	Computer Monitors (CRT, Flat panel/LCD)
Computer Components	Garbage	Computer towers and internal/external components (power supplies, hard drives, disk drives, motherboards, keyboards, mouse, cables, etc.)
Laptops	Garbage	Laptop computers or notebooks.
Computer Peripheral Devices	Garbage	Printers, scanners, fax machines.
Audio/Video Equipment	Garbage	DVD, Radio, VCR, Stereo Components (amplifiers, cassette decks, tuners, turntables, CD players, speakers), etc.
Telecom Equipment	Garbage	Phones, pagers, Blackberry, mobile phones, etc.
Small Home Appliances	Garbage	Blenders, coffee machine, room humidifier, etc.
Other Electronics	Garbage	Electronic games, toys, clocks, gadgets, anything with a plug or battery.
<b>BULKY ITEMS</b>		
Mattresses	Garbage	Mattresses and box springs, futons, foam mattresses
Wood Furniture or Fixtures	Garbage	Chairs, sofas, cabinets, tables, garden furniture, etc. made up of mostly wood
Plastic Furniture or Fixtures	Garbage	Chairs, sofas, cabinets, tables, garden furniture, etc. made up mostly of plastic
Carpeting	Garbage	Carpeting, underlay, mats
Other Large Bulky Items	Garbage	Other large items not classified elsewhere
White Good Appliances	Garbage	Stoves, refrigerators, washers, dryers, freezers, etc.
<b>OTHER MATERIALS</b>		
Diapers and Sanitary Products	Garbage	Diapers, sanitary napkins, hygiene products, etc.
Textiles	Garbage	Clothing, shoes, mats, drapes, sheets, etc. Plastic rice sacks go in Other Rigid Plastic Packaging
Construction & Renovation	Garbage	Lumber, wood cut off, drywall, ceramic tiles, plaster, etc.
Tires and Other Rubber	Garbage	Rubber tires and tubes, other rubber items such as hoses
Ceramics	Garbage	Ceramic plates, cups, plant pots, etc.
Other Aluminum (non-packaging)	Garbage	Aluminum siding, etc.
Other Steel (non-packaging)	Garbage	Non-packaging steel products including baking trays, frying pans etc.
Other Glass (non-Blue Box)	Garbage	Dishes, ceramics, window glass
Coffee Pods	Garbage	Full and Empty Coffee Pods
Other Waste	Garbage	All other materials not classified elsewhere (i.e. wooden fruit basket, vacuum bags, wax candles, furnace filters, juice pouches, bubble wrap, woven plastic feed bags, toys, etc.) Includes also includes wet-strength boxboard, fast food, frozen food boxes, ice cream boxes, cartons such as fry/onion ring boxes and laminated paper plates.

## APPENDIX B

### SUMMARY OF AUDIT RESULTS

Niagara Region - Waste Sort  
Results for Single-Family  
2015/16

Municipality:		Fort Erie	Fort Erie	Fort Erie	Fort Erie	Grimsby	Grimsby	Grimsby	Grimsby	Lincoln	Lincoln	Lincoln	Lincoln	Niagara Falls	Niagara Falls	Niagara Falls	Niagara Falls	Niagara-on-the-Lake	Niagara-on-the-Lake	Niagara-on-the-Lake	Niagara-on-the-Lake	Pelham	Pelham	Pelham	Pelham	Port Colborne	Port Colborne	Port Colborne	Port Colborne	St. Catharines	St. Catharines	St. Catharines	St. Catharines	Thorold	Thorold	Thorold
		Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling
		14,494	14,494	14,494	14,494	9,217	9,217	9,217	9,217	8,315	8,315	8,315	8,315	30,120	30,120	30,120	30,120	7,423	7,423	7,423	7,423	6,171	6,171	6,171	6,171	9,409	9,409	9,409	9,409	43,645	43,645	43,645	43,645	7,560	7,560	7,560
Waste Stream:																																				
# of Single-Family Households																																				
Notes:																																				
Material Category	Stream	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	
1. PRINTED PAPER																																				
Newsprint - Daily and weekly	Grey & Green	0.61	0.00	15.24	0.22	0.33	0.00	32.94	0.01	0.30	0.07	13.72	0.26	2.04	0.08	22.24	0.02	0.72	0.12	13.49	0.00	0.30	0.12	21.21	0.30	0.70	0.10	7.89	0.00	0.28	0.33	20.67	0.12	0.28	0.29	14.70
Other Newsprint - Other	Grey & Green	0.67	0.00	33.21	0.33	0.07	0.00	31.82	0.06	0.27	0.01	24.81	0.00	2.78	0.31	31.15	0.10	2.61	0.33	23.22	0.00	1.02	0.18	26.62	0.20	1.90	0.81	22.17	0.00	1.01	0.63	29.31	0.12	0.25	0.33	27.58
Magazines and Catalogues	Grey	0.98	0.00	2.43	0.00	2.46	0.00	10.40	0.00	0.52	0.00	6.77	0.00	0.65	0.00	6.47	0.00	2.26	1.71	7.78	0.00	0.62	0.04	18.66	0.00	2.21	0.00	5.90	0.00	0.74	0.07	9.45	0.00	0.31	0.00	5.64
Directories / Telephone books	Grey	0.00	0.00	1.16	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.32	0.00	0.26	0.10	2.31	0.00	0.00	0.00	2.28	0.00	0.00	0.00	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00
Other Printed Paper (Obligated)	Grey	4.49	0.00	3.21	0.21	3.01	0.08	4.34	0.08	1.92	0.10	2.82	0.00	3.80	0.04	5.66	0.17	3.47	0.00	7.62	0.00	7.05	0.64	8.05	0.01	3.44	0.12	3.20	0.00	4.02	0.10	6.54	0.00	3.23	0.04	2.98
Other Printed Paper (Non-Obligated)	Grey	5.41	0.08	14.84	0.02	1.36	0.12	2.54	0.04	2.18	0.01	7.58	0.00	3.58	0.01	4.44	0.00	1.34	0.00	6.58	0.00	4.69	0.69	11.48	0.01	1.05	0.00	3.07	0.00	4.66	0.01	4.90	0.00	9.74	0.01	2.95
Total Paper		12.16	0.08	70.09	0.77	7.22	0.21	82.69	0.19	5.19	0.20	56.02	0.26	13.11	0.54	72.27	0.28	10.39	2.16	60.97	0.00	13.68	1.66	88.64	0.51	9.31	1.03	42.22	0.00	10.70	1.13	71.21	0.25	13.80	0.67	53.85
2. PAPER PACKAGING																																				
Gable Top Containers	Blue	0.66	0.55	1.42	0.00	0.23	1.56	0.62	0.00	0.22	1.38	0.69	0.00	0.81	1.32	1.19	0.00	0.22	1.46	0.29	0.00	0.21	2.01	0.73	0.00	0.64	1.98	0.22	0.00	0.23	2.16	0.59	0.00	0.19	1.16	0.11
Aseptic Containers (excluding alcoholic beverages)	Blue	0.72	0.33	0.21	0.00	0.10	0.12	0.05	0.00	0.48	0.57	0.17	0.00	0.33	0.42	0.08	0.00	0.16	0.70	0.03	0.00	0.53	0.82	0.29	0.00	0.11	0.12	0.03	0.00	0.39	0.72	0.06	0.00	0.38	0.48	0.11
Aseptic Containers - alcoholic beverages	Blue	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Polycoat Beverage Cups	Garbage	2.53	0.71	0.22	0.05	1.72	0.03	0.69	0.65	1.42	0.14	0.70	0.09	1.71	0.04	0.57	0.00	0.20	0.02	0.04	0.00	0.92	0.20	0.27	0.00	0.76	0.05	0.01	0.00	0.87	0.20	0.15	0.34	0.21	0.15	0.40
Spiral Wound Containers	Blue	0.20	0.92	0.08	0.00	0.08	0.24	0.09	0.00	0.35	0.38	0.08	0.00	0.24	0.34	0.04	0.00	0.20	0.36	0.00	0.00	0.14	0.32	0.00	0.00	0.23	0.61	0.03	0.00	0.25	0.48	0.19	0.00	0.19	0.30	0.06
Ice Cream Containers and Other Bleached Long Polycoat Fibre	Garbage	0.69	0.11	0.25	0.00	1.00	0.18	0.03	0.00	0.45	0.05	0.19	0.00	0.52	0.12	0.06	0.00	0.17	0.04	0.19	0.00	0.49	0.20	0.03	0.00	0.33	0.08	0.00	0.00	0.39	0.25	0.10	0.00	0.13	0.10	0.01
Paper Laminate Packaging	Garbage	2.57	0.05	0.35	0.24	1.44	0.12	0.79	0.07	1.93	0.09	0.22	0.01	5.45	0.02	0.17	0.05	1.03	0.09	0.07	0.14	2.44	0.17	0.10	0.09	1.53	0.01	0.06	0.00	1.98	0.11	0.36	0.03	2.28	0.03	0.21
Corrugated Cardboard	Grey & Green	2.15	0.06	22.46	0.09	2.61	0.10	27.45	0.46	1.70	0.22	12.75	0.26	3.49	0.08	26.06	0.24	1.57	0.86	32.00	0.03	2.10	0.72	22.86	0.27	1.44	0.53	25.69	0.00	3.24	0.40	38.09	0.19	1.94	0.08	27.47
Boxboard	Grey & Green	5.91	0.37	23.64	0.00	4.72	0.40	20.37	0.48	3.26	0.23	14.86	0.00	6.45	0.24	17.53	0.11	3.81	0.42	12.71	0.00	3.30	1.14	19.25	0.10	3.99	0.51	13.05	0.00	4.85	0.83	17.23	0.23	4.32	0.98	16.81
Cores	Grey & Green	0.94	0.00	0.62	0.04	0.55	0.00	0.25	0.07	0.42	0.01	0.68	0.00	1.03	0.01	0.52	0.05	0.63	0.02	0.25	0.00	0.72	0.04	0.58	0.01	0.66	0.00	0.21	0.00	0.83	0.03	0.84	0.06	1.03	0.02	1.12
Total Paper Packaging		16.38	3.08	49.26	0.43	12.45	2.74	50.35	1.73	10.22	3.07	30.33	0.35	20.04	2.58	46.23	0.46	7.99	3.97	45.58	0.17	10.86	5.61	44.14	0.47	9.69	3.90	39.31	0.00	13.03	5.20	57.61	0.86	10.65	3.28	46.29
3. PLASTICS																																				
#1 PET Bottles and Jars (excluding alcoholic beverages)	Blue	1.73	13.51	0.00	0.00	0.99	7.68	0.21	0.03	1.00	9.93	0.08	0.00	2.58	11.87	0.07	0.00	1.10	6.36	0.06	0.00	5.46	9.86	0.61	0.00	1.79	6.49	0.07	0.00	2.19	7.85	0.09	0.02	0.49	10.34	0.06
#1 PET Bottles and Jars ≥ 5 L (excluding alcoholic beverages)	Blue	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.01	0.00	0.00
#1 PET Bottles (alcoholic beverages)	Blue	0.07	0.13	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.07	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.09	0.00	0.03	0.08	0.00	0.00	0.01	0.16	0.00	0.00	0.03	0.00	0.00	
#1 PET Thermoform - Clear	Blue	0.84	2.36	0.00	0.00	0.16	3.06	0.07	0.00	0.27	2.43	0.02	0.00	0.77	3.30	0.05	0.00	0.26	2.54	0.00	0.00	0.81	4.47	0.25	0.00	0.68	1.71	0.08	0.00	0.67	2.98	0.05	0.00	0.40	4.37	0.14
#1 PET Thermoform - Coloured	Blue	0.13	0.25	0.00	0.00	0.08	0.54	0.03	0.00	0.06	0.38	0.01	0.00	0.16	0.31	0.01	0.00	0.07	0.35	0.00	0.00	0.40	0.56	0.00	0.00	0.23	0.29	0.01	0.00	0.08	0.37	0.02	0.00	0.07	0.29	0.00
#2 HDPE Bottles and Jugs (excluding alcoholic beverages)	Blue	1.33	7.13	0.00	0.00	0.18	3.93	0.06	0.00	0.77	4.37	0.00	0.00	0.83	4.20	0.03	0.00	0.85	3.29	0.10	0.00	0.49	4.23	0.00	0.00	0.72	2.92	0.00	0.00	1.00	2.88	0.24	0.00	0.51	5.75	0.00
#2 HDPE Bottles and Jugs ≥ 5 L (excluding alcoholic beverage)	Blue	0.07	0.23	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.32	0.00	0.00	0.07	0.34	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.32	0.00
#2 HDPE Bottles (alcoholic beverage containers)	Blue	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	
#2 Other HDPE Containers	Blue	0.16	0.69	0.00	0.00	0.01	0.10	0.00	0.00	0.02	0.36	0.01	0.00	0.09	0.22	0.00	0.00	0.01	0.21	0.00	0.00	0.01	0.53	0.00	0.00	0.02	0.31	0.00	0.00	0.06	0.16	0.03	0.00	0.06	0.36	0.00
Flexible Film Plastic - LDPE & HDPE	Grey	8.94	1.63	1.81	0.03	6.80	1.09	4.99	0.41	7.09	0.46	4.15	0.11	8.27	1.50	2.20	0.42	6.20	1.72	1.18	0.00	8.10	0.66	1.54	0.31	4.71	0.42	0.85	0.00	6.77	1.59	2.25	0.04	8.59	0.65	3.46
LDPE/HDPE Film - Products (non-packaging)	Garbage	4.13	0.35	0.16	0.05	4.53	0.26	0.20	0.03	3.86	0.90	0.61	0.07	5.30	0.36	0.41	0.03	2.07	0.28	0.21	0.03	4.58	0.14	0												

Niagara Region - Waste Sort  
Results for Single-Family  
2015/16

Municipality:	Waste Stream:	# of Single-Family Households	Notes:	Fort Erie	Fort Erie	Fort Erie	Fort Erie	Grimsby	Grimsby	Grimsby	Grimsby	Lincoln	Lincoln	Lincoln	Lincoln	Niagara Falls	Niagara Falls	Niagara Falls	Niagara Falls	Niagara-on-the-Lake	Niagara-on-the-Lake	Niagara-on-the-Lake	Niagara-on-the-Lake	Pelham	Pelham	Pelham	Pelham	Port Colborne	Port Colborne	Port Colborne	Port Colborne	Port Colborne	St. Catharines	St. Catharines	St. Catharines	St. Catharines	Thorold	Thorold	Thorold
				Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	
				14,494	14,494	14,494	14,494	9,217	9,217	9,217	9,217	8,315	8,315	8,315	8,315	30,120	30,120	30,120	30,120	7,423	7,423	7,423	7,423	6,171	6,171	6,171	6,171	9,409	9,409	9,409	9,409	43,645	43,645	43,645	43,645	7,560	7,560	7,560	
Material Category	Stream	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	
Avoidable Food Waste (leftover meat & fish)	Green	8.73	0.00	0.00	1.11	1.50	0.09	0.00	0.69	2.91	0.00	0.00	5.18	3.60	0.00	0.00	2.05	1.15	0.00	0.00	1.29	5.07	0.00	0.00	2.94	3.38	0.00	0.00	0.46	3.80	0.00	0.00	2.01	2.48	0.00	0.00			
Avoidable Food Waste (leftover dried food)	Green	0.37	0.00	0.00	0.14	0.89	0.00	0.13	0.04	2.54	0.00	0.07	0.75	1.23	0.02	0.12	0.84	0.32	0.00	0.00	0.00	1.22	0.00	0.01	1.43	0.94	0.00	0.00	0.00	0.52	0.00	0.01	0.32	1.52	0.00	0.00			
Avoidable Food Waste (leftover fruit & vegetable)	Green	9.76	0.00	0.00	12.18	4.13	0.04	0.31	1.34	7.31	0.00	0.00	11.14	8.55	0.00	0.00	6.42	3.88	0.00	0.00	1.44	5.57	0.00	0.00	7.40	6.99	0.00	0.00	3.53	7.77	0.00	0.00	5.51	6.67	0.00	0.00			
Avoidable Food Waste (leftover other)	Green	13.77	0.24	0.00	5.70	12.86	1.87	0.10	10.87	15.09	10.00	0.17	21.59	23.25	2.26	0.46	11.96	4.72	0.40	0.27	5.12	7.69	3.14	0.03	24.37	16.38	1.09	0.00	4.36	20.25	0.41	0.05	6.31	25.64	2.13	0.11			
Avoidable Food Waste (untouched bakery)	Green	6.74	0.00	0.00	0.07	6.04	0.07	0.64	4.00	2.93	0.00	0.00	2.63	4.69	0.00	0.05	2.22	2.23	0.00	0.00	0.00	1.68	0.00	0.00	1.77	5.08	0.00	0.00	1.61	2.60	0.00	0.00	1.03	4.38	0.00	0.00			
Avoidable Food Waste (untouched meat & fish)	Green	3.62	0.00	0.00	0.00	2.98	0.00	0.00	0.08	1.03	0.00	0.00	1.22	2.63	0.00	0.00	0.70	2.59	0.00	0.00	0.00	1.73	0.00	0.00	0.98	3.32	0.00	0.00	0.00	2.86	0.00	0.00	0.28	4.20	0.00	0.00			
Avoidable Food Waste (untouched dried food)	Green	0.51	0.00	0.00	0.23	0.83	0.00	7.05	3.18	0.29	0.00	0.00	0.00	0.52	0.00	0.00	0.11	2.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	1.74	0.00	0.05	0.00	0.39	0.00	0.00			
Avoidable Food Waste (untouched fruit & vegetable)	Green	12.46	0.00	0.00	7.59	7.20	0.00	0.35	4.21	9.71	0.43	0.00	16.30	12.37	0.20	0.05	2.89	6.92	0.00	0.00	6.17	4.60	0.00	0.00	12.04	13.97	0.00	0.00	1.61	9.29	0.00	0.00	3.57	14.60	0.00	0.00			
Avoidable Food Waste (untouched other)	Green	9.51	1.14	0.00	0.18	6.51	0.75	0.01	2.19	10.04	2.63	0.01	1.38	8.93	0.06	0.24	1.27	2.77	1.34	0.56	1.19	4.93	0.00	0.00	0.88	8.23	0.00	0.22	0.20	11.88	0.35	0.02	0.26	7.42	0.85	0.03			
Unavoidable Food Waste	Green	51.28	0.06	0.00	69.82	31.24	0.73	1.95	24.08	19.77	0.43	0.14	47.57	48.56	0.03	0.04	35.02	29.78	0.10	0.12	57.42	32.14	0.03	0.01	81.83	25.74	0.12	0.00	14.25	38.95	0.05	0.43	48.96	74.32	0.05	0.03			
Yard Waste	Green	3.47	0.00	0.00	5.61	5.55	0.14	0.01	24.28	4.88	0.01	0.01	0.98	8.53	0.08	0.00	6.91	2.66	0.00	0.03	0.06	0.94	0.00	0.00	9.67	0.85	0.00	0.00	0.29	8.64	0.00	0.00	4.06	2.96	0.00	0.00			
Grass Clippings	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.12	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pet Waste	Green	53.25	0.00	0.00	35.24	52.10	4.35	0.12	14.16	29.57	0.00	0.00	17.63	18.24	0.00	0.02	16.34	6.72	0.03	0.00	51.30	22.05	0.00	0.00	4.33	26.45	0.00	0.06	0.00	25.67	0.00	0.00	1.63	85.95	0.05	0.00			
Molded Pulp Packaging	Green	2.41	0.00	1.10	2.35	0.38	0.18	0.77	0.39	0.86	0.10	2.09	0.76	0.92	0.23	0.63	0.76	0.60	0.01	0.72	5.03	0.20	0.12	0.49	0.41	0.94	0.03	0.85	0.16	0.91	0.15	0.78	0.78	1.66	0.23	0.64			
Non-laminated Paper/Packaging	Green	0.41	0.00	0.03	0.07	0.66	0.00	0.02	0.01	0.06	0.04	0.00	0.04	0.36	0.00	0.18	0.19	0.42	0.03	0.02	0.17	0.53	0.00	0.01	0.27	0.63	0.00	0.03	0.01	0.67	0.00	0.01	0.06	2.73	0.00	0.07			
Tissue/Towelling	Green	14.37	0.01	0.06	9.51	15.61	0.41	1.59	4.10	9.01	0.09	0.36	1.37	23.42	0.11	0.24	7.00	13.64	0.17	0.60	5.87	15.13	0.55	0.43	6.96	17.54	0.03	0.17	2.33	17.06	0.03	0.33	6.84	40.08	0.05	0.78			
Compostable Plastic Bags	Green	0.06	0.00	0.00	2.32	0.05	0.00	0.00	0.48	0.00	0.09	0.00	1.48	0.19	0.00	0.00	0.75	0.14	0.00	0.00	2.91	0.00	0.00	0.05	2.00	0.00	0.00	0.01	0.44	0.00	0.00	1.29	0.00	0.00	0.00	0.00	0.00	0.00	
Compostable Paper Bags	Green	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	
Total Organic Materials		196.42	1.45	1.19	156.52	151.78	8.63	13.15	102.08	118.11	13.82	2.88	137.66	171.67	2.99	2.11	97.43	84.74	2.07	2.32	141.77	108.34	3.84	1.04	161.88	134.59	1.27	1.35	29.71	157.76	1.00	1.69	87.69	279.62	3.35	1.66			
8. WEEE (Waste Electrical and Electronic Equipment)																																							
TVs	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Computer Monitors	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Computer Components	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Laptops	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Computer Peripheral Devices	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Audio/Video Equipment	Garbage	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.36	0.00	0.00	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Telecom Equipment	Garbage	0.79	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.01	0.04	0.00	0.00	1.18	0.45	0.00	0.00	0.02	0.00	0.00	0.00	0.06	0.00	0.07			
Small Home Appliances	Garbage	0.69	0.00	0.00	0.00	6.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.88	0.00	0.00	0.17	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	
Other Electronics	Garbage	3.58	0.00	0.00	0.00	0.20	0.30	0.00	0.00	12.90	1.11	0.00	0.00	2.52	0.03	0.00	0.00	3.31	0.29	0.00	0.00	0.86	0.00	0.00	0.01	0.25	0.00	0.00	1.94	0.13	0.01	0.00	0.88	0.06	0.00				
Total WEEE		5.06	0.00	0.00	0.00	6.86	0.30	0.00	0.00	12.97	1.11	0.00	0.00	5.05	0.93	0.00	0.00	3.74	0.29	0.00	0.00	1.25	0.04	0.00	0.00	2.14	0.70	0.00	0.00	2.88	0.18	0.01	0.00	1.42	0.06	0.07			
9. BULKY ITEMS																																							
Mattresses	Garbage	0.00	0.00	0.00	0																																		

Niagara Region - Waste Sort  
Results for Single-Family  
2015/16

Municipality:	Waste Stream:	# of Single-Family Households	Notes:	Thorold	Wainfleet	Wainfleet	Wainfleet	Wainfleet	Welland	Welland	Welland	Welland	West Lincoln	West Lincoln	West Lincoln	West Lincoln	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	GRAND TOTAL Niagara Region	GRAND TOTAL Niagara Region
				Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Garbage	Blue Box Recycling	Blue Box Recycling	Grey Box Recycling	Grey Box Recycling	Organics	Organics		
				7,560	3,194	3,194	3,194	3,194	19,525	19,525	19,525	19,525	4,857	4,857	4,857	4,857	163,930		163,930		163,930		163,930			
Material Category	Stream	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)
1. PRINTED PAPER																										
Newsprint - Daily and weekly	Grey & Green	0.00	3.13	0.00	3.21	0.00	1.80	0.00	18.49	0.00	1.16	0.00	2.02	0.00	0.94	0.30%	0.14	0.18%	18.35	15.34%	0.08	0.08%	19.51	3.15%		
Other Newsprint - Other	Grey & Green	0.31	2.77	0.00	6.22	0.00	1.34	0.01	22.55	0.10	1.07	0.00	9.02	0.00	1.38	0.43%	0.31	0.40%	27.18	22.72%	0.12	0.11%	28.99	4.68%		
Magazines and Catalogues	Grey	0.00	1.31	0.00	2.05	0.00	0.43	0.00	6.63	0.00	3.20	0.08	5.79	0.00	1.00	0.31%	0.10	0.13%	7.50	6.27%	0.00	0.00%	8.60	1.39%		
Directories / Telephone books	Grey	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01%	0.02	0.02%	0.87	0.73%	0.00	0.00%	0.94	0.15%		
Other Printed Paper (Obligated)	Grey	0.00	3.61	0.01	3.20	0.00	3.00	0.03	7.55	0.00	2.90	0.00	1.35	1.40	3.71	1.16%	0.08	0.10%	5.42	4.53%	0.10	0.09%	9.31	1.50%		
Other Printed Paper (Non-Obligated)	Grey	0.00	9.18	0.00	0.63	0.00	2.85	0.05	4.87	0.02	0.84	0.07	0.60	0.08	3.85	1.21%	0.05	0.07%	5.61	4.69%	0.01	0.01%	9.53	1.54%		
Total Paper		0.31	20.01	0.01	15.52	0.00	9.42	0.09	60.07	0.13	9.17	0.14	18.77	0.48	10.94	3.43%	0.69	0.91%	64.94	54.29%	0.30	0.29%	76.88	12.42%		
2. PAPER PACKAGING																										
Gable Top Containers	Blue	0.00	0.59	0.88	0.48	0.00	0.21	1.76	0.36	0.00	0.30	1.46	0.31	0.00	0.40	0.13%	1.60	2.11%	0.69	0.58%	0.00	0.00%	2.70	0.44%		
Aseptic Containers (excluding alcoholic beverages)	Blue	0.00	0.82	0.07	0.19	0.00	0.06	0.44	0.01	0.00	0.40	0.20	0.00	0.00	0.34	0.11%	0.48	0.64%	0.09	0.07%	0.00	0.00%	0.91	0.15%		
Aseptic Containers - alcoholic beverages	Blue	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00%	0.01	0.01%	0.00	0.00%	0.00	0.00%	0.01	0.00%		
Polycoat Beverage Cups	Garbage	0.00	1.07	0.12	0.14	0.00	1.68	0.33	0.20	0.00	3.00	0.53	0.00	0.00	1.35	0.42%	0.21	0.28%	0.29	0.25%	0.14	0.13%	1.99	0.32%		
Spiral Wound Containers	Blue	0.00	0.44	0.50	0.31	0.00	0.14	0.65	0.09	0.00	0.21	1.21	0.00	0.00	0.22	0.07%	0.50	0.66%	0.10	0.08%	0.00	0.00%	0.82	0.13%		
Ice Cream Containers and Other Bleached Long Polycoat Fibre	Garbage	0.00	0.51	0.00	0.07	0.00	0.32	0.08	0.05	0.00	0.27	0.07	0.00	0.00	0.45	0.14%	0.14	0.18%	0.09	0.07%	0.00	0.00%	0.68	0.11%		
Paper Laminate Packaging	Garbage	0.04	1.96	0.25	0.08	0.00	2.37	0.07	0.09	0.02	1.35	0.10	0.18	0.00	2.63	0.82%	0.08	0.10%	0.25	0.21%	0.06	0.05%	3.01	0.49%		
Corrugated Cardboard	Grey & Green	0.00	5.94	1.36	8.90	0.00	2.87	0.02	32.30	0.39	1.65	0.09	1.04	0.06	2.76	0.86%	0.27	0.36%	28.21	23.58%	0.20	0.19%	31.44	5.08%		
Boxboard	Grey & Green	0.00	9.53	0.36	3.95	0.00	4.69	0.17	15.46	0.13	4.62	0.78	4.68	0.00	5.04	1.58%	0.52	0.68%	16.68	13.94%	0.13	0.12%	22.36	3.61%		
Cores	Grey & Green	0.00	0.81	0.01	0.07	0.00	1.21	0.04	0.64	0.00	0.70	0.03	0.08	0.00	0.87	0.27%	0.02	0.02%	0.60	0.50%	0.03	0.03%	1.52	0.25%		
Total Paper Packaging		0.04	21.66	3.55	14.17	0.00	13.53	3.57	49.20	0.55	12.51	4.47	6.30	0.06	14.04	4.40%	3.84	5.04%	47.00	39.28%	0.56	0.54%	65.43	10.57%		
3. PLASTICS																										
#1 PET Bottles and Jars (excluding alcoholic beverages)	Blue	0.00	2.04	15.70	1.89	0.00	1.26	12.71	0.10	0.00	0.84	11.67	0.05	0.01	1.91	0.60%	10.08	13.24%	0.14	0.11%	0.01	0.01%	12.13	1.96%		
#1 PET Bottles and Jars ≥ 5 L (excluding alcoholic beverages)	Blue	0.00	0.00	3.48	0.00	0.00	0.05	0.43	0.00	0.00	0.00	0.29	0.00	0.00	0.05	0.02%	0.22	0.29%	0.00	0.00%	0.00	0.00%	0.27	0.04%		
#1 PET Bottles (alcoholic beverages)	Blue	0.00	0.05	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01%	0.12	0.15%	0.00	0.00%	0.00	0.00%	0.15	0.02%		
#1 PET Thermoform - Clear	Blue	0.00	0.24	1.98	0.03	0.00	0.51	2.58	0.00	0.00	0.19	2.63	0.01	0.00	0.59	0.18%	2.91	3.82%	0.05	0.04%	0.00	0.00%	3.55	0.57%		
#1 PET Thermoform - Coloured	Blue	0.00	0.22	0.13	0.00	0.00	0.39	0.39	0.02	0.00	0.02	0.14	0.00	0.00	0.15	0.05%	0.35	0.45%	0.01	0.01%	0.00	0.00%	0.51	0.08%		
#2 HDPE Bottles and Jugs (excluding alcoholic beverages)	Blue	0.00	1.05	4.67	0.12	0.00	0.54	4.38	0.00	0.00	0.79	4.49	0.00	0.00	0.82	0.26%	4.10	5.39%	0.08	0.07%	0.00	0.00%	4.99	0.81%		
#2 HDPE Bottles and Jugs ≥ 5 L (excluding alcoholic beverage)	Blue	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.14	0.03	0.00	0.00	0.02	0.01%	0.18	0.23%	0.00	0.00%	0.00	0.00%	0.20	0.03%		
#2 HDPE Bottles (alcoholic beverage containers)	Blue	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.07	0.09%	0.00	0.00%	0.00	0.00%	0.07	0.01%		
#2 Other HDPE Containers	Blue	0.00	0.05	0.37	0.00	0.00	0.10	0.16	0.00	0.00	0.03	0.29	0.00	0.00	0.07	0.02%	0.27	0.35%	0.01	0.01%	0.00	0.00%	0.34	0.05%		
Flexible Film Plastic – LDPE & HDPE	Grey	0.00	8.31	5.92	1.28	0.33	7.61	0.73	2.31	0.13	8.27	0.47	1.03	0.03	7.42	2.32%	1.30	1.71%	2.31	1.93%	0.15	0.15%	11.18	1.81%		
LDPE/HDPE Film - Products (non-packaging)	Garbage	0.00	5.66	0.40	0.01	0.00	3.72	0.42	0.06	0.00	3.65	0.25	0.05	0.05	4.16	1.30%	0.34	0.45%	0.26	0.22%	0.03	0.03%	4.79	0.77%		
#5 PP Bottles	Blue	0.00	0.23	0.64	0.00	0.00	0.12	0.58	0.00	0.02	0.13	0.36	0.00	0.00	0.20	0.06%	0.37	0.48%	0.01	0.01%	0.00	0.00%	0.59	0.10%		
#5 Other PP Containers	Blue	0.00	1.03	2.06	0.01	0.01	1.48	2.13	0.09	0.00	1.27	3.03	0.00	0.04	1.08	0.34%	2.93	3.85%	0.05	0.04%	0.01	0.01%	4.07	0.66%		
#6 PS - Expanded Polystyrene	Blue	0.00	1.09	1.01	0.02	0.01	1.19	1.03	0.19	0.00	1.12	0.16	0.03	0.01	0.99	0.31%	1.05	1.38%	0.14	0.11%	0.01	0.01%	2.18	0.35%		
#6 PS - Non-expanded Polystyrene	Blue	0.00	0.66	0.21	0.04	0.00	0.73	0.94	0.03	0.00	0.86	0.36	0.00	0.00	0.79	0.25%	0.82	1.07%	0.05	0.04%	0.01	0.01%	1.66	0.27%		
Plastic Laminates and Other Film Packaging	Garbage	0.00	11.37	0.81	0.29	0.10	8.32	0.50	0.43	0.06	4.81	0.36	0.18	0.12	6.41	2.01%	0.61	0.80%	0.59	0.49%	0.06	0.06%	7.66	1.24%		
Other Rigid Plastic Packaging	Blue	0.00	3.33	2.00	0.07	0.02	2.06	1.14	0.18	0.00	1.39	2.22	0.08	0.00	2.14	0.67%	1.48	1.94%	0.16	0.13%	0.01	0.01%	3.78	0.61%		
Large HDPE & PP Pails & Lids	Blue	0.00	23.06	0.35	0.00	0.00	0.06	0.33	0.00	0.00	0.00	0.61	0.00	0.00	0.48	0.15%	0.35	0.46%	0.00	0.00%	0.00	0.00%	0.83	0.13%		
Other Plastics - (non-packaging/durable)	Garbage	0.00	6.84	4.10	0.18	0.00	9.13	0.97	0.48	0.00	9.67	1.36	0.00	0.00	6.60	2.07%	1.69	2.22%	0.11	0.09%	0.01	0.01%	8.40	1.36%		
Total Plastics		0.00	65.25	43.82	3.93	0.47	37.25	29.70	3.90	0.21	33.18	28.72	1.42	0.26	33.92	10.62%	29.20	38.38%	3.96	3.31%	0.29	0.28%	67.37	10.88%		
4. METALS																										
Aluminum- food and beverage Containers (excluding alcoholic beverage containers)	Blue	0.00	0.36	1.79	0.04	0.00	0.48	3.72	0.10	0.00	0.16	1.78	0.00	0.00	0.67	0.21%	3.65	4.80%	0.04	0.04%	0.01	0.01%	4.37	0.71%		
Aluminum (alcoholic beverage containers)	Blue	0.00	0.17	0.45	0.00	0.00	0.04	0.19	0.01	0.00	0.01	0.17	0.00	0.00	0.17	0.05%	0.40	0.52%	0.01	0.01%	0.00	0.00%	0.57	0.09%		
Aluminum Foil & Foil Trays	Blue	0.00	1.11	0.14	0.05	0.01	0.93	0.74	0.00	0.00	0.61	0.00	0.00	0.01	1.23	0.39%	0.43	0.57%	0.02	0.01%	0.01	0.01%	1.69	0.27%		
Aluminum Aerosols	Blue	0.00	0.15	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.01	0.00	0.00	0.00	0.11	0.03%	0.06	0.08%	0.00	0.00%	0.00	0.00%	0.17	0.03%		
Steel Food and Beverage Cans	Blue	0.00	1.61	7.75	0.55	0.00	1.05	5.00	0.06	0.00	1.20	5.80	0.00	0.00	1.20	0.38%	6.05	7.95%	0.15	0.12%	0.00	0.00%	7.41	1.20%		
Steel Paint Cans	Blue	0.00	1.35	0.14	0.00	0.00	0.11	0.05	0.00	0.00	0.00	0.96	0.00	0.00	0.43	0.13%	0.09	0.11%	0.01	0.01%	0.00	0.00%	0.52	0.08%		
Steel Aerosol Container	Blue	0.00	0.73	0.14	0.00	0.00	0.94	0.48	0.00	0.00	0.38	0.29	0.00	0.00	0.58	0.18%	0.									

Niagara Region - Waste Sort  
Results for Single-Family  
2015/16

Municipality:	Waste Stream:	# of Single-Family Households	Notes:	Thorold	Wainfleet	Wainfleet	Wainfleet	Wainfleet	Welland	Welland	Welland	Welland	West Lincoln	West Lincoln	West Lincoln	West Lincoln	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	TOTAL Niagara Region	GRAND TOTAL Niagara Region	GRAND TOTAL Niagara Region
				Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Grey Box Recycling	Organics	Garbage	Blue Box Recycling	Blue Box Recycling	Grey Box Recycling	Grey Box Recycling	Organics	Organics			
				7,560	3,194	3,194	3,194	3,194	19,525	19,525	19,525	19,525	4,857	4,857	4,857	4,857	163,930		163,930		163,930					
Material Category	Stream	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)	Weight kg/hh/yr	Percentage (% by weight)
Avoidable Food Waste (leftover meat & fish)	Green	0.38	3.06	0.00	0.00	0.00	1.78	0.00	0.00	2.33	2.83	0.00	0.00	1.22	3.58	1.12%	0.01	0.01%	0.00	0.00%	1.84	1.76%	5.43	0.88%		
Avoidable Food Waste (leftover dried food)	Green	0.15	0.09	0.00	0.00	0.00	1.00	0.00	0.00	0.46	0.66	0.00	0.00	0.00	0.90	0.28%	0.00	0.00%	0.04	0.03%	0.41	0.39%	1.35	0.22%		
Avoidable Food Waste (leftover fruit & vegetable)	Green	0.44	4.82	0.07	0.00	0.00	4.48	0.07	0.00	6.07	2.31	0.00	0.00	4.42	6.90	2.16%	0.01	0.01%	0.02	0.02%	5.79	5.55%	12.71	2.05%		
Avoidable Food Waste (leftover other)	Green	6.91	11.53	1.18	0.00	0.00	10.93	1.78	0.00	12.72	16.99	0.24	0.00	7.66	17.02	5.33%	1.70	2.23%	0.13	0.11%	9.55	9.17%	28.40	4.59%		
Avoidable Food Waste (untouched bakery)	Green	0.16	5.82	0.00	0.00	0.00	2.37	0.00	0.00	2.31	2.85	0.00	0.00	0.10	3.78	1.18%	0.00	0.01%	0.04	0.04%	1.49	1.43%	5.32	0.86%		
Avoidable Food Waste (untouched meat & fish)	Green	0.00	4.08	0.00	0.00	0.00	2.36	0.00	0.00	0.08	0.86	0.00	0.00	0.00	2.74	0.86%	0.00	0.00%	0.00	0.00%	0.32	0.30%	3.05	0.49%		
Avoidable Food Waste (untouched dried food)	Green	0.00	2.39	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.93	0.29%	0.00	0.00%	0.41	0.34%	0.22	0.21%	1.56	0.25%		
Avoidable Food Waste (untouched fruit & vegetable)	Green	3.11	3.89	0.00	0.10	0.01	6.10	0.00	0.35	10.63	5.97	0.00	0.00	3.19	9.69	3.03%	0.06	0.08%	0.07	0.06%	5.54	5.32%	15.36	2.48%		
Avoidable Food Waste (untouched other)	Green	0.05	14.02	0.00	0.14	0.00	3.77	0.20	0.01	1.19	2.51	0.00	0.00	0.00	8.44	2.64%	0.50	0.66%	0.09	0.08%	0.76	0.72%	9.79	1.58%		
Unavoidable Food Waste	Green	19.08	43.30	2.24	0.02	5.13	37.13	0.25	0.03	47.48	20.25	0.08	0.00	48.68	39.92	12.50%	0.18	0.24%	0.25	0.21%	43.99	42.23%	84.33	13.62%		
Yard Waste	Green	36.59	3.44	0.00	0.10	0.00	1.14	0.00	0.09	14.44	2.42	0.00	0.00	0.04	5.35	1.68%	0.02	0.03%	0.02	0.01%	8.05	7.73%	13.44	2.17%		
Grass Clippings	Garbage	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	4.18	0.00	0.00	0.00	0.00	0.13	0.04%	0.00	0.00%	0.00	0.00%	0.96	0.92%	1.08	0.18%		
Pet Waste	Green	11.37	103.32	0.04	0.00	0.00	44.25	0.00	0.00	8.28	23.19	0.00	0.00	17.36	33.91	10.62%	0.25	0.33%	0.01	0.01%	12.75	12.24%	46.92	7.58%		
Molded Pulp Packaging	Green	0.14	0.72	0.13	0.05	0.00	4.88	0.04	0.56	0.78	0.92	0.16	0.06	0.21	1.48	0.46%	0.13	0.17%	0.77	0.64%	0.97	0.93%	3.34	0.54%		
Non-laminated Paper/Packaging	Green	0.16	0.23	0.01	0.01	0.00	0.98	0.00	0.04	0.12	0.28	0.00	0.00	0.05	0.65	0.20%	0.01	0.01%	0.05	0.04%	0.10	0.10%	0.81	0.13%		
Tissue/Towelling	Green	0.97	16.69	0.09	0.08	0.39	23.38	0.02	0.16	2.86	18.38	0.02	0.05	2.33	19.15	6.00%	0.09	0.12%	0.36	0.30%	5.37	5.16%	24.97	4.03%		
Compostable Plastic Bags	Green	0.55	0.00	0.00	0.00	0.00	0.75	0.00	0.00	1.61	0.06	0.00	0.00	0.99	0.14	0.04%	0.00	0.01%	0.00	0.00%	1.27	1.22%	1.41	0.23%		
Compostable Paper Bags	Green	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.11	0.11%	0.12	0.02%		
Total Organic Materials		80.35	220.87	3.89	0.50	13.20	149.51	2.36	1.24	118.41	102.85	0.49	0.10	88.53	159.13	0.50	2.97	0.04	2.29	0.02	102.72	0.99	267.10	0.43		
8. WEEE (Waste Electrical and Electronic Equipment)																										
TVs	Garbage	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%		
Computer Monitors	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%		
Computer Components	Garbage	0.00	0.25	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.03	0.01%		
Laptops	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%		
Computer Peripheral Devices	Garbage	0.00	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01%	0.01	0.01%	0.00	0.00%	0.00	0.00%	0.04	0.01%		
Audio/Video Equipment	Garbage	0.00	0.36	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.23	0.07%	0.01	0.01%	0.00	0.00%	0.00	0.00%	0.24	0.04%		
Telecom Equipment	Garbage	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.06%	0.03	0.04%	0.00	0.00%	0.00	0.00%	0.22	0.04%		
Small Home Appliances	Garbage	0.00	0.00	1.11	0.00	0.00	0.45	0.00	0.00	0.00	0.08	0.00	0.00	0.00	1.08	0.34%	0.18	0.24%	0.00	0.00%	0.00	0.00%	1.26	0.20%		
Other Electronics	Garbage	0.00	1.86	0.25	0.01	0.00	1.89	0.04	0.00	0.00	1.93	0.00	0.00	0.00	2.50	0.78%	0.15	0.20%	0.00	0.00%	0.00	0.00%	2.66	0.43%		
Total WEEE		0.00	4.34	1.36	0.01	0.00	2.64	0.04	0.00	0.00	2.79	0.00	0.00	0.00	4.07	1.27%	0.38	0.50%	0.01	0.00%	0.00	0.00%	4.46	0.72%		
9. BULKY ITEMS																										
Mattresses	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%		
Wood Furniture or Fixtures	Garbage	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.01	0.00%	0.00	0.00%	0.07	0.06%	0.00	0.00%	0.08	0.01%		
Plastic Furniture or Fixtures	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%		
Carpeting	Garbage	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	1.70	0.00	0.00	0.00	1.04	0.33%	0.07	0.09%	0.00	0.00%	0.00	0.00%	1.10	0.18%		
Other Large Bulky Items	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.07%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.22	0.04%		
White Good Appliances	Garbage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%		
Total Bulky Items		0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.59	0.00	1.70	0.00	0.00	0.00	1.28	0.40%	0.07	0.09%	0.07	0.06%	0.00	0.00%	1.41	0.23%		
10. OTHER MATERIALS																										
Diapers and Sanitary Products	Garbage	0.00	27.96	0.00	0.00	0.00	19.53	0.00	0.00	0.00	45.56	0.00	0.00	0.00	27.17	8.51%	0.11	0.15%	0.01	0.01%	0.01	0.01%	27.30	4.41%		
Textiles	Garbage	0.00	28.15	0.25	0.02	0.00	12.28	0.04	0.20	0.00	16.37	0.00	0.00	0.00	11.45	3.59%	0.12	0.16%	0.07	0.06%	0.03	0.02%	11.67	1.88%		
Construction & Renovation	Garbage	0.00	12.82	0.02	0.00	0.00	13.02	0.05	0.00	0.00	6.79	0.00	0.00	0.00	13.48	4.22%	0.07	0.09%	0.01	0.01%	0.01	0.01%	13.57	2.19%		
Tires and Other Rubber	Garbage	0.00	0.04	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.26	0.08%	0.03	0.04%	0.00	0.00%	0.00	0.00%	0.28	0.05%		
Ceramics	Garbage	0.00	1.63	0.44	0.51	0.00	2.45	0.70	0.05	0.00	0.33	0.00	0.00	0.00	1.62	0.51%	0.69	0.91%	0.02	0.02%	0.00	0.00%	2.33	0.38%		
Other Aluminum (non-packaging)	Garbage	0.00	0.00	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.01	0.01%	0.00	0.00%	0.00	0.00%	0.01	0.00%		
Other Steel (non-packaging)	Garbage	0.00	3.67	0.16	0.01	0.00	2.90	0.08	0.12	0.00	3.27	0.00	0.00	0.00	1.96	0.61%	0.62	0.81%	0.16	0.13%	0.00	0.00%	2.74	0.44%		
Other Glass (non-Blue Box)	Garbage	0.00	3.58	7.70	0.01	0.00	2.94	0.33	0.13	0.00	1.11	2.01	0.00	0.00	1.55	0.49%	0.94	1.24%	0.04	0.03%	0.00	0.00%	2.53	0.41%		
Coffee Pods	Garbage	0.00	1.46	0.00	0.00	0.00	2.56	0.01	0.00	0.00	0.31	0.00	0.00	0.00	2.36	0.74%	0.07	0.09%	0.05	0.04%	0.05	0.04%	2.53	0.41%		
Other Waste	Garbage	0.00	63.43	2.57	0.41	0.03	26.19	0.62	0.81	0.12	60.22	1.35	0.07	0.38	26.39	8.26%	0.92	1.21%	0.60	0.50%	0.16	0.16%	28.08	4.53%		
Total Other Materials		0.00	142.72	11.25	1.00	0.03	82.56	1.83	1.32	0.12	134.04	3.35	0.07	0.38	86.25	27.01%	3.58	4.71%	0.96	0.81%	0.26	0				

APPENDIX C  
CAPTURE RATES

Niagara Region - 2015/2016 Single Family Residential Curbside Study Capture Rates

Season:  Sample Area:		Summer	Summer	Summer	Fall	Fall	Fall	Winter	Winter	Winter	Spring	Spring	Spring	4-Season Average	4-Season Average	4-Season Average
		Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region	Niagara Region
Material Category	Stream	Generated per Household per year (kg/hh/yr)	Captured per Household per year (kg/hh/yr)	Capture Rate (%)	Generated per Household per year (kg/hh/yr)	Captured per Household per year (kg/hh/yr)	Capture Rate (%)	Generated per Household per year (kg/hh/yr)	Captured per Household per year (kg/hh/yr)	Capture Rate (%)	Generated per Household per year (kg/hh/yr)	Captured per Household per year (kg/hh/yr)	Capture Rate (%)	Generated per Household per year (kg/hh/yr)	Captured per Household per year (kg/hh/yr)	Capture Rate (%)
1. PRINTED PAPER																
Newsprint - Daily and weekly	Grey & Green	19.14	17.69	92.43%	17.47	16.36	93.69%	17.36	16.78	96.62%	19.61	17.95	91.54%	19.51	18.56	95.16%
Other Newsprint - Other	Grey & Green	26.61	25.28	95.01%	27.46	25.27	92.04%	22.22	20.93	94.22%	32.27	30.15	93.42%	28.99	27.61	95.25%
Magazines and Catalogues	Grey	8.58	7.84	91.42%	6.95	5.97	85.96%	9.28	8.03	86.49%	9.93	8.45	85.08%	8.60	7.60	88.32%
Directories / Telephone books	Grey	1.53	1.45	94.67%	0.81	0.71	88.00%	0.59	0.58	97.87%	0.82	0.82	100.00%	0.94	0.89	94.91%
Other Printed Paper (Obligated)	Grey	9.18	5.50	59.96%	8.27	3.77	45.60%	8.68	5.26	60.61%	10.27	6.65	64.76%	9.31	5.50	59.10%
Other Printed Paper (Non-Obligated)	Grey	10.20	4.45	43.64%	5.43	2.92	53.87%	6.89	4.39	63.69%	13.50	8.62	63.87%	9.53	5.67	59.45%
Total Paper		75.23	62.21	82.70%	66.37	55.01	82.88%	65.03	55.97	86.07%	86.40	72.64	84.08%	76.88	65.83	85.63%
2. PAPER PACKAGING																
Gable Top Containers	Blue	2.84	2.51	88.53%	2.63	2.06	78.24%	2.58	2.26	87.89%	2.37	1.97	83.13%	2.70	2.30	85.11%
Aseptic Containers (excluding alcoholic beverages)	Blue	0.60	0.29	48.95%	0.79	0.52	65.51%	1.04	0.72	69.35%	1.10	0.62	55.93%	0.91	0.57	62.38%
Aseptic Containers - alcoholic beverages	Blue	0.02	0.01	42.86%	0.01	0.01	100.00%	0.00	0.00	100.00%	0.00	0.00	N/A	0.01	0.01	61.94%
Spiral Wound Containers	Blue	1.05	0.77	73.50%	0.63	0.37	58.48%	0.83	0.67	81.04%	0.76	0.57	74.63%	0.82	0.60	73.27%
Corrugated Cardboard	Grey & Green	36.48	32.85	90.04%	24.55	20.81	84.79%	26.23	23.75	90.54%	28.85	26.31	91.20%	31.44	28.68	91.23%
Boxboard	Grey & Green	21.37	15.69	73.44%	20.40	14.28	70.01%	21.22	16.37	77.13%	21.88	16.04	73.27%	22.36	17.32	77.48%
Cores	Grey & Green	1.72	0.75	43.65%	1.35	0.55	40.34%	1.27	0.50	39.17%	1.42	0.48	33.95%	1.52	0.65	42.89%
Total Paper Packaging		64.07	52.88	82.53%	50.36	38.60	76.64%	53.18	44.28	83.26%	56.38	45.98	81.55%	59.76	50.13	83.89%
3. PLASTICS																
#1 PET Bottles and Jars (excluding alcoholic beverages)	Blue	14.32	12.52	87.45%	11.41	9.50	83.25%	11.71	9.46	80.76%	12.60	10.93	86.75%	12.13	10.21	84.18%
#1 PET Bottles and Jars ≥ 5 L (excluding alcoholic beverages)	Blue	0.40	0.37	93.31%	0.45	0.35	77.85%	0.27	0.27	100.00%	0.60	0.52	86.47%	0.27	0.22	81.25%
#1 PET Bottles (alcoholic beverages)	Blue	0.16	0.16	99.04%	0.18	0.12	65.66%	0.13	0.10	81.53%	0.12	0.10	83.92%	0.15	0.12	81.80%
#1 PET Thermoform - Clear	Blue	4.11	3.51	85.62%	2.76	2.34	84.70%	3.40	3.00	88.01%	3.80	3.07	80.74%	3.55	2.96	83.38%
#1 PET Thermoform - Coloured	Blue	0.51	0.35	69.44%	0.44	0.27	61.88%	0.62	0.45	72.83%	0.48	0.31	64.99%	0.51	0.36	69.81%
#2 HDPE Bottles and Jugs (excluding alcoholic beverages)	Blue	5.26	4.60	87.52%	4.68	3.85	82.24%	4.42	3.57	80.83%	5.57	4.81	86.42%	4.99	4.18	83.68%
#2 HDPE Bottles and Jugs ≥ 5 L (excluding alcoholic beverage)	Blue	0.34	0.31	90.45%	0.16	0.16	100.00%	0.19	0.19	100.00%	0.09	0.02	21.33%	0.20	0.18	87.82%
#2 HDPE Bottles (alcoholic beverage containers)	Blue	0.10	0.10	100.00%	0.00	0.00	100.00%	0.14	0.14	100.00%	0.03	0.02	87.43%	0.07	0.07	99.64%
#2 Other HDPE Containers	Blue	0.48	0.34	70.39%	0.30	0.24	81.10%	0.31	0.29	92.37%	0.25	0.24	95.52%	0.34	0.27	80.55%
Flexible Film Plastic – LDPE & HDPE	Grey	12.17	3.81	31.31%	10.00	2.84	28.41%	9.66	2.94	30.49%	13.43	5.00	37.20%	11.18	3.61	32.26%
#5 PP Bottles	Blue	0.61	0.42	68.81%	0.56	0.26	47.38%	0.70	0.50	71.75%	0.66	0.53	80.62%	0.59	0.38	64.73%
#5 Other PP Containers	Blue	4.01	2.91	72.52%	4.35	3.06	70.21%	3.62	2.70	74.68%	3.80	2.85	75.06%	4.07	2.98	73.16%
#6 PS - Expanded Polystyrene	Blue	1.99	0.92	46.37%	1.84	0.97	52.44%	2.50	1.45	58.08%	2.28	1.34	58.80%	2.18	1.18	54.21%
#6 PS - Non-expanded Polystyrene	Blue	1.74	0.97	55.80%	1.35	0.56	41.48%	1.55	0.79	51.25%	1.70	0.99	58.46%	1.66	0.87	52.17%
Other Rigid Plastic Packaging	Blue	4.45	1.95	43.76%	2.72	1.32	48.60%	4.41	1.91	43.24%	3.66	1.52	41.66%	3.78	1.63	43.19%
Large HDPE & PP Pails & Lids	Blue	1.00	0.96	96.70%	6.09	0.32	5.18%	0.27	0.25	92.37%	0.14	0.14	96.65%	0.83	0.35	41.91%
Total Plastics		51.63	34.21	66.26%	47.30	26.16	55.31%	43.90	28.02	63.83%	49.20	32.40	65.85%	46.51	29.57	63.56%
4. METALS																
Aluminum- food and beverage Containers (excluding alcoholic beverage containers)	Blue	4.76	3.97	83.41%	4.13	3.54	85.62%	4.04	3.58	88.59%	4.27	3.59	83.97%	4.37	3.69	84.48%
Aluminum (alcoholic beverage containers)	Blue	0.77	0.60	77.96%	0.33	0.14	42.61%	0.29	0.27	93.94%	0.66	0.44	67.25%	0.57	0.40	70.59%
Aluminum Foil & Foil Trays	Blue	1.51	0.42	27.73%	1.57	0.37	23.49%	1.50	0.32	21.03%	1.86	0.60	32.35%	1.69	0.45	26.43%
Aluminum Aerosols	Blue	0.25	0.12	48.43%	0.10	0.01	12.11%	0.08	0.03	33.40%	0.16	0.06	33.84%	0.17	0.06	35.58%
Steel Food and Beverage Cans	Blue	5.98	4.81	80.34%	7.30	6.41	87.77%	8.28	6.94	83.82%	7.62	6.36	83.42%	7.41	6.20	83.69%
Steel Paint Cans	Blue	1.03	0.01	1.36%	0.63	0.30	47.51%	0.01	0.01	100.00%	0.59	0.18	31.14%	0.52	0.09	17.75%
Steel Aerosol Container	Blue	0.98	0.47	47.96%	1.12	0.48	42.28%	0.85	0.34	39.89%	1.05	0.47	45.18%	1.04	0.46	43.86%
Total Metals		15.28	10.39	68.04%	15.20	11.25	73.98%	15.06	11.49	76.28%	16.21	11.70	72.19%	15.77	11.35	71.98%
5. GLASS																
Clear Glass - food and beverage (excluding alcoholic beverage containers)	Blue	16.18	14.59	90.19%	12.89	11.24	87.19%	13.60	12.19	89.61%	14.50	12.68	87.47%	14.50	12.67	87.37%
Clear Glass - alcoholic beverage containers	Blue	5.00	4.53	90.58%	3.75	3.75	100.00%	4.29	4.09	95.26%	4.67	3.39	72.70%	4.44	3.98	89.76%
Coloured Glass - food and beverage (excluding alcoholic beverage containers)	Blue	2.32	2.08	89.35%	4.51	4.39	97.32%	3.84	3.75	97.70%	4.25	4.12	96.83%	3.57	3.41	95.50%
Coloured Glass - alcoholic beverage containers	Blue	4.69	4.50	95.83%	4.46	4.06	91.06%	3.83	3.63	94.86%	4.19	3.53	84.23%	4.58	4.27	93.31%
Total Glass		28.20	25.69	91.13%	25.62	23.45	91.52%	25.56	23.66	92.56%	27.61	23.72	85.92%	27.09	24.34	89.84%
7. ORGANICS																
Avoidable Food Waste (leftover bakery)	Green	5.60	1.96	34.95%	9.86	5.28	53.55%	6.04	1.85	30.68%	8.17	3.67	44.88%	7.69	3.24	42.11%
Avoidable Food Waste (leftover meat & fish)	Green	4.91	1.98	40.22%	6.40	1.99	31.06%	3.33	1.07	31.97%	5.55	1.96	35.29%	5.43	1.84	33.86%
Avoidable Food Waste (leftover dried food)	Green	1.47	0.56	37.81%	2.01	0.59	29.51%	0.84	0.01	1.13%	1.22	0.49	39.84			

## APPENDIX D

### TECHNICAL MEMO ON NIAGARA WASTE AUDIT AND TRENDS ANALYSIS FROM 2010/11 TO 2015/16

TO: Ben Dunbar, AET Group Inc.  
FROM: Neil Menezes, Reclay StewardEdge Inc.  
DATE: January 3, 2017  
RE: **Niagara Waste Audit and Trends Analysis from 2010/11 to 2015/16**

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Reclay StewardEdge (RSE) has undertaken comprehensive research and analysis to understand the Packaging Trends that may impact Niagara Region's strategy to reach diversion target of 65 percent by 2020. Additionally, this analysis will take into consideration the impact of the Waste Free Ontario Act (2016) through two scenarios: 100 percent producer control and 100 percent producer funded with municipal control.

## **Market Trends Analysis**

### ***General Trends***

The mix and generation of materials as a result of our "on-the-go" lifestyle is changing, and these changes are becoming more noticeable in waste and recyclable streams managed by municipalities. For example, some producers are opting for smaller packaging sizes and greater use of flexible, light-weight packaging. Flexible packaging is seen to satisfy multiple needs of the on-the-go lifestyle, namely because of the portability, the ability to easily open and reseal the container, and the packaging durability. Notably, products sold with this type of packaging generally contain less packaging for the same volume of product, which is positive step towards packaging efficiency.<sup>i</sup> Flexible packaging has expanded across a number of product chains, including: snacks, processed meats and poultry, chocolate confectionary, and pet food.<sup>ii</sup> Flexible packaging however, is not readily recyclable as it consists of multiple layers of various materials that are inseparable (e.g. foil and plastic layers, multiple plastic polymers, etc.). Furthermore, as a consequence of its thin design flexible packaging is a difficult material to manage at a Material Recovery Facility. (MRF) It can comeingle with other materials, creating further challenges for equipment and increasing instances of contamination.

On-the-go lifestyles also promote two other prominent trends, namely pre-prepared meals and single-serve packaging. Additionally, the relative growth in pre-prepared meal options, as well as single-serve portions, will inherently result in more, often flexible plastic, packaging. With continued expansion of convenience, single-serve, and on-the-go food options, flexible packaging is expected to remain the dominant packaging type, maintaining 29 percent globally.<sup>iii</sup> Moreover, as a consequence of the growing reliability on convenience and foods with on-the-go properties (bottled water and juice), PET containers are expected to experience significant growth 2014-2019 at 4.7 percent.<sup>iv</sup> Building on the growing consumer needs for convenience, there is additional development forecasted for the food and beverage packaging industries with growth expected at 4 percent and 4.4 percent respectively by 2019.<sup>v</sup>

Eco-responsible and sustainable packaging continue to gain momentum as a result of changes in legislation, growing consumer awareness and ultimately the bottom line. Changes in legislation have been directed at reducing the amount of packaging put on the market, this however has resulted in the 'lightweighting' of multiple materials, most notably plastic PET. Lightweighting will continue to gain momentum as multiple manufacturers have identified ways to lightweight materials while maintaining the integrity and durability of the packaging. For example, the Dow Chemical Company has created a new line of high performing resins for packaging that are both sustainable with significant lightweight capabilities.<sup>vi</sup>

Resulting from growing consumer awareness and concern, some brands are shifting to more environmentally friendly packaging options. This movement is shaped by two key brand initiatives: alternative and more sustainable sources for packaging material, and considering the ability to repurpose or reuse packaging.<sup>vii</sup> Additionally, "brown" is said to be the new "green" with a shift toward compostable packaging, where natural browns are preferred over bleached paper, and the use of plant based plastics (Bioplastics) which are perceived as an environmentally responsible alternative. As

a consequence of this understanding, consumers believe that all Bioplastics are the same and can be recycled or in some cases composted. However, while some plant based plastics, which are chemically identical to the oil based plastic can be actively recycled, other plant based plastics, like Polylactic Acid (PLA) are not and are a cause of concern at the MRF. Alternatively, some Bioplastics are sold to consumers indicating the plastic is compostable or biodegradable. While this may be true in some instances, Bioplastics often do not fully break down in most municipal composting systems, creating additional contamination and quality issues for the Municipal Organics Processing Facility.

### ***Provincial Data***

An analysis was conducted using Stewardship Ontario data to compare trends between 2012 (2010 data) and 2016 (2014). There are a number of notable changes between 2010 and 2014; noteworthy decreases include telephone books (-75%), newsprint CNA/OCNA (-36%), paint cans (-42%) and coloured glass (-27%). The declining trend was expected across newsprint and telephone books, as electronic sources continue to gain momentum and phase out paper products. The decline in steel paint cans was expected to a lesser extent, largely as a result of designated program for the collection of paint and steel paint containers. There were three notable material increases, namely plastic film (18%), boxboard (10%), and other plastics (9%). Both plastics categories are aligned with global plastic growth trends, especially related to flexible plastics (plastic film). This is largely as a consequence of producers and manufacturers continuing to put emphasis on the reduction of material inputs resulting in both light-weighted packaging and a proliferation of products now packaged in flexible ‘pouch’ packaging versus traditional containers, for example pet food and lubricating oil, which are not recyclable.

### ***Niagara Data***

Using the 2010-2011 and 2015-2016 data, the analysis included a review of the material composition between the two data sets as well as an assessment of the overall total generation and recovery rate changes. In the 2010-2011 audit, Niagara was achieving a 47.5% diversion, which had dropped slightly to 45.7% in 2015-2016. This decline in overall diversion is due to three key factors: declining generation of materials with high recovery rates, increasing generation of materials with typically low recovery rates, and low diversion of acceptable organic waste. The current diversion rate of 45.7% in Niagara is based on an 80% diversion of acceptable recyclable materials but only a 37% diversion of acceptable organic materials. Although the audits represent two limited sets of sample data, this provides a general reflection of the successes and challenges of the Recycling and Organics programs in the region. At a high level it is evident that both streams are contributing to the challenges associated with reaching the 65 percent target diversion rate by 2020. However, it should also be noted that the diversion rate goal is also based on other efforts, including drop-off depot tonnage for other waste streams which have not been assessed as part of the curbside audit.

Total waste generation is on a downward trend, declining by 11%, including the declines in the following material types: newspaper – dailies and weeklies (-42%) and newspaper – other (-24%), boxboard (-10%), books & mixed fine paper (-26%), and shredded paper (-13%). This declining trend is particularly notable as these material types represented 20% of the total waste stream<sup>1</sup> in the 2010-2011 audit to approximately 18% in the 2015-2016 audit. These materials also represent some of the materials with the highest recovery rates: newspaper - newspaper – dailies and weeklies (95%) and newspaper – other (95%), boxboard (75%), books & mixed fine paper (59%), and shredded paper (59%).

The most significant change resulting from the aforementioned analysis is a combination between a decline in waste generation for material types that have traditionally represented a relatively large portion of the waste stream, with high recovery, namely newspapers. While boxboard generation appears to be declining, it represents 4% of the waste stream with an unchanged recovery rate of 75%. It should be noted however, that the decline in boxboard generation in the Niagara region reflects the opposite of provincial trends; Niagara’s boxboard generation declined 10% while the provincial generation increased 10%. The downward trend of the aforementioned material types will impact the

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<sup>1</sup> Total waste stream is defined as the combination of all waste streams; garbage, recycling and organics stream.

Region's ability to achieve the target recycling goals as a result of putting more pressure on all other material types that traditionally have not had significant recovery rates.

There were a number of notable waste generation increases identified, namely: laminated/other plastic bags & film (96%); LDPE (#4) and PP (#5) other bottles, jars and jugs (68%); PET bottles (11%) and glass (9%). This is especially notable as these materials, with the exception of glass, have experienced similar growth in the provincial stream, and are expected to grow further in global trends. While there has been a generation increase of these materials, two of the growing materials types achieved a significantly low recovery rate, specifically laminated/other plastic bags & film (14%) and LDPE (#4) and PP (#5) other bottles, jars and jugs (58%). While currently these material types only make up approximately 1% of the waste stream, both global and provincial trends have identified these plastics for significant growth in the coming years. As a result of the changes in waste generation, composition, and recovery, Niagara will need to determine if efforts should be concentrated toward improving recovery of materials that represent a relatively significant percentage of the waste stream, perhaps despite the reduced material value.

### ***Considerations and Recommendations***

To increase overall diversion, the Region should consider the following factors of consideration and recommendations associated with recycling and organics collection.

There are two primary factors contributing to the low diversion rate, namely the Organics program and the changing composition, generation, and recovery of certain recyclable material types. With consideration to the Organics program, the Region should focus on improving the recovery of the *right* materials. Specifically, there continues to be significant quantities of divertible organic material in the garbage (food and pet waste).<sup>2</sup> This can be attributed to a variety of factors, including but not limited to the 'yuck' factor, resulting in residents who choose not to properly divert these materials because they find it unpleasant.

If greater Organics diversion is not achieved, the Region will not be able to reach its overall diversion target of 65 percent by 2020. Improving the Organics program will require focus, above the current social marketing and education campaigns. The Region should ensure that its current practice of leaving behind untagged garbage containers over the limit, or highly contaminated Organics bins with an explanatory note that both encourages residential participation while providing a reminder about proper disposal and recycling practices in the Region is continued. This practice will ensure more of the *right* items are included in the Organics stream, rather than being disposed of in the garbage stream. It is important to note that in the 2015 waste audit, 50% of the waste found within the garbage stream consisted of organic materials. This was virtually the same finding as the 2010 audit (51%). While the Region currently employs a fee for additional garbage container collection as a deterrent, the Region may also wish to focus on alternative collection mechanisms to discourage residents from putting Organics in garbage stream, such as a move to bi-weekly garbage collection.

With consideration to the changing trends related to recycling composition, generation and recovery, the Region should focus on material types not achieving a high recovery rate as comparable material types (e.g.: boxboard recovery rate at 75% compared to corrugated cardboard at 91%, etc.), and/or materials with growing generation trends with low recovery rates. While both books & mixed fine paper, and shredded paper are on the decline in the region, both these materials continue to make up 3% of the waste stream respectively. While these materials should be prioritized, an overall shift in focus should take place on materials that are growing in generation and expected further growth.

With consideration of all analytical factors, including the market trends analysis, Stewardship Ontario data, and Niagara Region's waste audits, RSE has the following recommendations:

- ✓ Focus on Organics diversion and ensure residents are putting more of the right materials in the right place (yard and pet waste in Organics versus garbage).

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<sup>2</sup> Yard waste and grass clippings were excluded from the analysis.



- ✓ Reconsider bi-weekly garbage collection. If the Region does wish to consider moving to bi-weekly garbage collection, it is recommended the Region implement a small scale pilot in representative communities to test the effectiveness before a large scale roll-out. The objective will be to increase the capture of Organics available for collection at the home and to reduce the amount of Organics in the garbage stream.
- ✓ Consider additional research to determine which areas/neighborhoods of the Region with certain demographics have the most challenge with the Organics program.
  - This will guide any future Promotion and Education initiatives to target the root of the matter, namely whether participation is limited because of lack of education and awareness, or the 'yuck' factor.
- ✓ Consider creating Guide or Promotion and Education initiatives to focus on non-traditional materials that are not achieving optimal recovery performance:
  - Boxboard
  - Hard-cover books not accepted while paperback can be recycled
  - Shredded paper should be collected in clear bags to avoid contamination to ensure material recovery.

## **Waste Free Ontario Act (2016)**

The Act was proclaimed on November 30, 2016, ensuring that Extended Producer Responsibility (EPR) policy will be continued and strengthened in Ontario. In addition, the Ministry of Environment and Climate Change (MOECC) released their Final Draft for the Strategy for a Waste Free Ontario Building the Circular Economy, in December 2016. However, even with the Proclamation of the Act and revised Strategy Document, there is still uncertainty around the role municipalities will play under the new act. As this is unknown at the time of the writing of this memo, the assessment considers two potential scenarios relating to EPR policies for Printed Paper and Packaging: 100 percent producer control and 100 percent producer funded with municipal control.

The 100 percent producer control is similar to the current model in British Columbia. While the legislative intent was to create full EPR, the outcome was less than ideal for municipalities. Municipalities were presented with the first right of refusal. Specifically, to either accept the terms and conditions and pricing offered and turn the collection and sorting service to Multi-Material British Columbia (MMBC), or to refuse the offer and continue providing recycling service. This inevitably created a monopoly for residential processing. Municipalities are not seeing full responsibility, but rather fixed terms with multiple terms and conditions as required by MMBC. Other regulated programs in British Columbia for other products such as electronics, tires, paint are managed under programs that are 100 producer controlled and financed systems.

Conversely, 100 percent producer funding with municipal control is more similar to the model in Ontario if the funding was raised from the current 50 percent to 100 percent. The legislation has the intent of ending the current Stewardship Ontario monopoly by introducing a competitive compliance scheme. However, there are few details on how coordination between multiple schemes would be facilitated. The existing infrastructure however, will be shared, thereby ensuring that all Blue Box materials will remain together. While this model would facilitate options for both producers and municipalities, it is unclear whether the legislation will include a mechanism, or expand on the Authority's role, to ensure service providers and municipalities collaborate. An example of this approach exists in Quebec where the current Blue Box program allows for municipal control of the program, with 100 percent steward funding of reported costs with some built in deductions.

While the Act has passed, the specific details will be in regulations that have not been Tabled at this time. Consequently, it is unclear which type of scenario would be realized in Ontario. What is evident however, is that the Minister and the legislation are clear about creating a truly Extended Producer Responsibility program that does not foster or facilitate the existing inefficiencies and challenges associated with diversion programs and producer stewardship.



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<sup>i</sup> Mintel Group. (2013). *Consumer Trends and Flexible Packaging: How packaging can help drive trends*. London: Mintel Group, 5.

<sup>ii</sup> Ibid, 9.

<sup>iii</sup> Packaging Machinery Manufacturers Institute. (2015). *Global Packaging Trends - Global Growth Markets for Packaging*. Reston: The Association for Packaging and Processing Technologies, 6.

<sup>iv</sup> Ibid

<sup>v</sup> Sharma, D., & Sinha, A. A. (2016, February 17). *Out of the Box: Trends in Global Packaging*. Retrieved from The Smart Cube: [http://www.thesmartcube.com/insights/trends/item/out-of-the-box-trends-in-global-packaging?category\\_id=27](http://www.thesmartcube.com/insights/trends/item/out-of-the-box-trends-in-global-packaging?category_id=27)

<sup>vi</sup> Ibid

<sup>vii</sup> Mintel Group. (2016). *Global Packaging Trends*. London: Mintel Group, 3.

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## **MEMORANDUM**

**WMPSC-C 8-2019**

**Subject: Ontario Waste Management Association's State of Waste in Ontario:  
Landfill Report**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Andrew Winters, Program Manager**

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This memorandum is intended to provide Committee members with an update on the Ontario Waste Management Association (OWMA) report on the status of landfills and waste generated in Ontario.

### **Background**

The OWMA is the largest waste/resource management trade association in Canada, representing members from both the private and public sector, including municipalities. The OWMA embarked on a major data collection and analysis initiative in 2015 to better understand data related to waste management in the province and issued the first State of Waste Report in February 2016. The OWMA has recently issued a follow-up report in 2018. The purpose of the 2015 and 2018 reports is to examine Ontario's remaining landfill capacity in order to allow for more informed policy decisions for the waste management sector.

### **Report**

The OWMA's 2018 State of Waste – Landfill Report in Ontario focused on two key factors - the amount of waste generated in Ontario and the remaining available landfill capacity based on current practices. In 2017, 46% of waste (5,386,067 tonnes) went to private Ontario landfills, 24% (2,745,203 tonnes) was disposed of in Ontario public landfills, and 30% (3,517,567 tonnes) was exported to the United States. As a point of reference, Niagara Region delivered 40,500 tonnes of curbside collected waste to Walker's Landfill (a privately owned facility) in 2017 and 70,455 tonnes of total waste material was landfilled at Niagara Region landfill sites (Humberstone and Regional Road 12).

As of 2017, there was approximately 122.9 million tonnes of available landfill capacity remaining in Ontario. Based on OWMA's analysis, 36% of the remaining capacity is owned by the private sector, while 64% is held by the public sector. If current waste generation rates are maintained and 30% of Ontario's waste continues to be exported to the United States then Ontario would run out of landfill capacity by the year 2032. If

waste was no longer exported to the United States and landfilled in Ontario then the remaining capacity would be exhausted by 2028.

Niagara Region is well positioned in terms of landfill capacity over the next 25 years (Table 1). The Region operates two municipally owned landfills – Humberstone (Welland) and Niagara Road 12 (Grimsby). As of December 2018, Humberstone has 27 years of capacity remaining after receiving from the Ministry of Environment, Conservation and Parks an Environmental Compliance Approval for the expansion of the landfill in February 2019. The Niagara Road 12 landfill site has 47 years of remaining capacity as of December 2018 based on the current landfill practices.

Table 1

Landfill	Remaining Capacity (years)
Humberstone	27
Niagara Road 12 (NR – 12)	47

Additionally, the Region has a contract with Walker's Environmental Group that allows for the landfilling of up to 100,000 tonnes of Region curbside waste annually thus further preserving the Region's landfill capacity. The contract with Walker's is scheduled to expire in 2031.

Respectfully submitted and signed by,



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Andrew Winters  
Program Manager, Waste Disposal Operations

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## MEMORANDUM

WMPSC-C 9-2019

**Subject: A Made-in-Ontario Environment Plan**

**Date: Monday, Feb 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Jennifer Mazurek, Acting Manager, Waste Policy and Planning**

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This memorandum provides Waste Management Planning Steering Committee members with a copy of Waste Management staff comments (attached as Appendix A) to the Ministry of the Environment, Conservation and Parks (MECP), in regards to the Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan – Environmental Registry of Ontario (ERO) Number 013-4208.

On November 29, 2018, the Province released the proposed [Made-in-Ontario Environment Plan](https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan_1.pdf) (Environment Plan, [https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan\\_1.pdf](https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan_1.pdf)), attached as Appendix B, for a 60-day public review and comment period. Staff from Niagara Region's Planning and Development Services team coordinated comments on behalf of Niagara Region to ensure submission of a unified and comprehensive response, and will provide the full comments from Public Health and Emergency Services, Planning and Development Services, and Public Works in a future report to Council. The joint submission to the Province was completed on February 1, 2019, as an extension was obtained in order for Niagara Region to circulate comments to the local Area Planning group. All Waste Management staff comments reflect previously approved comments and positions by Niagara Region Committees and Council.

The Environment Plan is divided into six major sections: Our Province Today; Protecting our Air, Lakes and Rivers; Addressing Climate Change; Reducing Litter and Waste in Our Communities and Keeping Our Land and Soil Clean; Conserving Land and Greenspace; and Next Steps. The first section, Our Province Today, describes Guiding Principles. Within each of the remaining sections, multiple priority action items are defined. Waste Management staff provided comment on all action items that would potentially impact the waste services and/or programs Niagara Region provides, as well as the Next Steps. Many of the action items are already supported by currently existing policies and programs in Waste Management Services, as documented in the response. Some of the action items could have a potential financial and/or administrative impact on Niagara Region (e.g. a food and organics disposal ban at landfills) and our response highlights Provincial support, both financial and through the development of policies and regulations, that municipalities will require throughout the implementation of the action items.

It is recommended that Niagara Region support further development of the Environmental Plan, subject to the comments that were submitted to the MECP. Key to a successful implementation, and included in Niagara Region's comments, is that the Province must provide detailed plans and timelines that will inform planning processes, programs and policy development.

Staff will continue to be active participants in future consultations related to the Environment Plan and related guides and regulations. Staff will also continue to be involved in industry/municipal associations reviewing potential impacts of the Environment Plan on municipal programs and policies.

Respectfully submitted and signed by



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Jennifer Mazurek  
Acting Manager, Waste Policy and Planning

## **Appendices**

Appendix A: Waste Management Comments on A-Made-in-Ontario  
Environment Plan

Pages 1-16

Appendix B: Preserving and Protecting our Environment for Future  
Generations: A Made-in-Ontario Environment Plan

## Waste Management Comments on Specific Proposals in Environmental Plan

Reference in Proposed Environmental Plan	Staff Comments
<b>Addressing Climate Change</b>	
We will work with partners on ways to make it easier for residents and businesses to waste less food or reuse it for beneficial purposes such as compost. (p 31)	Niagara Region supports the Ontario Food Recovery hierarchy consisting of the following steps in order of importance: (I) Reduce; (ii) Feed People; (iii) Recover Resources. When considering recovery rates it is important to consider the parameters used to in the calculation. Comments on other action items in this plan specifically reflect Niagara Region's position that individual sectors in the province should have their own measurable targets and metrics
Quick Fact: About 60% of Ontario's food and organic waste is sent to landfills which emits methane – a potent greenhouse gas – when it decomposes. Efficient diversion of household waste from landfills is an important tool in the fight against climate change. To read more about our plan to fight litter and waste, see page 40. (p 32)	Niagara Region's position to date, reflected in the Province's Food and Organic Waste Framework, is that actions focusing on prevention of food and organic waste are critical. We also support the Province's expanded vision to take a systems approach to food and organic waste generation, management and recovery, recognizing that all stages of supply and production have a role to play in moving towards a circular economy.

## Waste Management Comments on Action Items in Environmental Plan

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
Expand green bin or similar collection systems in large cities and to relevant businesses. (page 41)	Niagara Region supports this action and currently offers organics collection for small to medium sized Industrial, Commercial and Institutional (ICI) properties. Carts are priced for cost recovery only, encouraging participation.

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	<p>Provincial plans should specifically reflect expansion and targets for ICI and high and low-rise multi-residential (multi-res) sectors as participation rates for these sectors are typically lower than for Low Density Residential (LDR). Multi-res high-rise buildings may face unique challenges with respect to collection of organics materials, depending on age and design. Collection of organics must be as convenient as garbage collection is to encourage participation and improve program participation rates in these sectors.</p> <p>The Province should also consider public spaces and community events as a sector to target (e.g. festivals generate food waste). Some municipalities, including Niagara Region, already offer organics collection at special events.</p> <p>As noted in previous EBR comments on the Province's Food and Organic Waste Framework, parameters to be used for measuring success, and the detailed calculation to establish a baseline and future measurement for the percentage of waste reduction and resource recovery, need to be defined, separately, for each sector. The Province should work with all stakeholders to establish timelines, as municipalities must budget and plan for processing capacity and end markets must be identified. Additionally, beneficial activities such as on-site management of organics through grasscycling and backyard composters should not be reduced through implementation or expansion of organics collection programs.</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
Develop a proposal to ban food waste from landfill and consult with key partners such as municipalities, businesses, and the waste industry. (p 41)	<p>Niagara Region is supportive of a disposal ban, as noted in previous EBR comments on the Province's Food and Organic Waste Framework.</p> <p>Materials to be included in the ban must be clearly defined and the program should be further expanded to include branded (non-food) organics, including compostable packaging and other materials, some of which may already be acceptable in local programs (e.g. leaf and yard waste and pet waste).</p> <p>A disposal surcharge could potentially be used in conjunction with a ban to provide some allowance for incidental amounts of designated materials.</p> <p>Disincentives in the form of levies/penalties are needed to discourage private sector facilities from accepting banned materials.</p> <p>In order for bans to be effective, targets must be established and implementation time is needed between diversion program start, target dates and enforcement of a ban. For example, Niagara Region currently collects from LDR, ICI and multi-res locations in the same routes, and phased-in targets might be different for each sector. Participation and contamination rates currently vary by sector and this may make thresholds for compliance and enforcement more challenging. Implementation time between the various sectors should be done within reasonable time limits in order to ensure consistency in messaging to the public.</p> <p>Compensation to municipalities should be provided for any additional costs related to disposal bans, as food and organics are costly waste streams for municipalities to collect and process. The Province must provide the necessary oversight and enforcement resources to ensure compliance of disposal bans.</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	<p>Timelines are critical for planning by municipalities as many, including Niagara Region, have a tonnage threshold at which the processing costs increase, and many municipalities have little or no excess capacity.</p>
<p>Educate the public and business about reducing and diverting food and organic waste. (p 41)</p>	<p>Niagara Region's position, as noted in previous EBR submissions for Ontario's Food and Organic Waste Framework, is that actions focusing on prevention of waste, including education, are critical in attaining goals minimizing the amount of food and organic waste to be disposed of. Niagara Region will continue to develop Promotional and Educational material (P&amp;E) and programs aimed at preventing food waste, for example by participating in and leveraging work completed through the Ontario Food Collaborative (OFC) and other initiatives. Province-wide P&amp;E messaging to prevent food waste is supported.</p> <p>To date, Province-wide P&amp;E messaging on organics diversion collection programs has been difficult to deliver and may contribute to resident confusion due to the differences between municipal processing systems and the various materials that can be accepted in each system. Also P&amp;E needs to be customized to reflect needs of different sectors, such as lower participation and higher contamination rates experienced by the multi-res sector.</p> <p>Niagara Region's residential food/organics diversion program rate is less than 50% based on a 2015/2016 waste composition study. Participation rates in organics programs for the ICI sector tend to be even lower (in Niagara between 6% and 14% of ICI properties in downtown business areas use organics, according to audits completed between 2014 and 2018). Although education programs do</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	work, further actions are required. Niagara Region had suggested in previous comments for the Food and Organic Waste Strategy that food waste reduction in the ICI sector could be better achieved through provincial policy/legislative changes such as policies similar to those in France/Europe that allow for and reduce risk to retailers when donating food as well as incentives to reduce food waste at the producer/retail level.
Work with other provinces, territories and the federal government to develop a plastics strategy to reduce plastic waste and limit micro-plastics that can end up in our lakes and rivers. (p 42)	Similar to our position regarding food and organic waste, Niagara Region believes that actions focusing on reduction and reuse are critical. Municipal waste management systems must currently handle plastics at the end of the lifespan, whether through recycling programs or as litter, and as such, municipalities are an important stakeholder. Niagara Region looks forward to a coordinated effort with all levels of government. Any plastics strategy should also include the development and retention of recycling markets in Ontario.
Seek federal commitment to implement national standards that address recyclability and labelling for plastic products and packaging to reduce the cost of recycling in Ontario. (p 42)	Niagara Region is supportive of actions to reduce the cost of recycling, such as through implementation of national standards.
Ontario will establish an official day focused on cleanup of litter in Ontario, coordinated with schools, municipalities and businesses, to raise awareness about the impacts of waste in our neighbourhoods, in our waterways and in our green spaces. (p 42)	Niagara Region is supportive of this action and is undertaking an educational anti-litter campaign in 2019. The objectives of this campaign are to: (i) decrease the amount of litter in communities, specifically neighbourhoods, parks and other outdoor public spaces and; (ii) increase understanding and use of proper disposal methods for commonly littered items. Strategies include an education piece (targeted public space advertising, ads in newspaper and social media), provision of support to coordinated activities, and for Niagara

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	<p>Region to act as a hub for community clean ups so residents can participate.</p> <p>It would be beneficial for the Province to advertise and promote not only the official clean-up day, but also other local cleanup events, and to fund all or a portion of these clean-up events.</p>
Work with municipal partners to take strong action against those who illegally dump waste or litter in our neighbourhoods, parks and coastal areas. (p 42)	<p>Niagara Region is supportive of initiatives to reduce illegal dumping and is proactive in taking action against offenders. A reporting tool, accessible on-line or by phone, is available. A monetary reward (a shared cost between Niagara Region and the appropriate LAM) is provided to persons reporting illegal dumping when the report results in an act of compliance (i.e. the offender returns to the site and removes the dumped material) or in a conviction. In 2017 Niagara Region's Illegal Dumping Working Group (IDWG), reestablished in 2012 and comprised of Regional staff and LAM representatives, formalized a partnership with Crime Stoppers of Niagara (CSN) to aid in public awareness of initiatives and allow all parties to better utilize resources. Residents can use CSN's anonymous tipster system as an alternative option for reporting incidents of illegal dumping, and are still eligible for rewards related to compliance and conviction as outlined above. CSN also aids in the promotion of illegal dumping campaigns on their social media platforms. In 2018 the IDWG continued to focus on installation of illegal dumping signage at hot spots, continued to promote Niagara Region's illegal dumping campaign and reporting tool via multiple avenues including newspaper ads, banners, transit ads, brochures and social media, and provided public litter bin stickers tailored to each LAM, along with other actions.</p> <p>Niagara Region also works with local residents associations to help with concerns of illegal dumping and contamination. In 2018 Niagara Region completed a litter bin "blitz" in LAMs to reduce illegal</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	<p>dumping in litter receptacles, an ongoing issue in Niagara Region.</p> <p>In 2018 a total of 755 illegal dumping reports were received at Niagara Region, an increase of 11% compared to 2017, and two offence notices were issued, along with 142 warning letters. Challenges for by-law officers include the need for evidence of the offender (e.g. material with the name and address of the offender) and the availability of a witness who is willing to testify in court. While bylaw officers have jurisdiction on public property, illegal dumping often occurs on private property.</p>

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Develop future conservation leaders through supporting programs that will actively clean up litter in Ontario's green spaces, including provincial parks, conservation areas and municipalities. (p 43)	<p>Niagara Region supports this action. One example is our Public Spaces Recycling (PSR) Program. To encourage installation of PSR containers in indoor and outdoor public spaces with higher public traffic, funding for the cost of containers is provided on a 50/50 cost-sharing basis between Niagara Region and LAMs.</p> <p>Niagara Region offers Special Events Recycling and Organics (SER&amp;O) programs throughout the year to all public events within Niagara Region. A unique aspect of the program is the partnership with Eco-Defenders, a local non-profit community group that provides trained waste sorting volunteers to public events. Material diverted by Eco-Defenders is free of contamination and minimizes garbage produced by events, improving the diversion rates for Niagara Region's SER&amp;O programming.</p> <p>As demonstrated by these examples, Niagara Region sees high value in the continued support of local programs promoting clean-up of litter and diversion of waste.</p> <p>All community events should be mandated to have diversion programs (twinned with garbage) and the Province should providing funding for volunteers to help sort waste properly at events. Public events should be waste-free and generate only acceptable recyclable and compostable material.</p>

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Connect students with recognized organizations that encourage environmental stewardship so they could earn volunteer hours by cleaning up parks, planting trees, and participating in other conservation initiatives. (p 43)	Niagara Region has traditionally supported waste diversion programs in educational facilities and we continue to expand our programming.
Work with municipalities and producers to provide more consistency across the province regarding what can and cannot be accepted in the Blue Box program. (p 43)	Niagara Region supports a consistent Provincial approach to standardization of materials accepted in the Blue Box program that should be done as part of the change to full producer responsibility. To achieve this, materials should not be removed from the program and if they are, alternative approaches for disposal must be considered, with producers paying for management of the material in the waste management system. Consumer convenience should be maintained or improved, and access to existing services should not be negatively impacted by any changes to Blue Box program.
Explore additional opportunities to reduce and recycle waste in our businesses and institutions. (p 43)	<p>Niagara Region is supportive of initiatives that target waste reduction and diversion in the ICI sector. As noted earlier, Niagara Region currently offers unlimited curbside recycling and organic pick-up service to small and medium sized businesses. We have created an environmental program specific to businesses: Rethink Your Waste at Your Workplace. This recognition program includes an educational component and rewards businesses that make efforts to maximize their waste diversion efforts.</p> <p>Similar voluntary programs have been in existence for a number of years, however, to make tangible progress towards reducing and recycling waste in the ICI sector, it would be beneficial to establish mandatory Provincial targets with firm timelines for the sector.</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	Municipalities need to be compensated for ICI materials that are municipally collected as part of the integrated collection system.
Move Ontario's existing waste diversion programs to the producer responsibility model. This will provide relief for taxpayers and make producers of packaging and products more efficient by better connecting them with the markets that recycle what they produce. (p 43)	<p>Niagara Region is fully supportive of making producers responsible for properly managing the waste they produce, and believes the internalization of the cost of end-of-life product packaging with all-in pricing to remove costs from municipalities/taxpayers is the best option for Ontario. This provides the opportunity for design for the environment and less disposal.</p> <p>Niagara Region agrees with the Association of Municipalities of Ontario (AMO), who note that, "it is to the benefit of all stakeholders and citizens to have the Blue Box transition process start with the Minister of Environment, Conservation and Parks issuing a wind-up letter early in 2019, allowing for adequate time for robust planning and consultation on the development of a Paper Product and Packaging Regulation under Resource Recovery and Circular Economy Act, 2016 (RRCEA)".</p> <p>Furthermore, the list of designated materials should be reviewed and items such as construction and demolition waste included under producer responsibility.</p>
Investigate options to recover resources from waste, such as chemical recycling or thermal treatment, which have an important role – along with reduction, reuse and recycling – in ensuring that the valuable resources in waste do not end up in landfills. (p 43)	<p>Incentives to promote waste reduction (avoid waste generation) followed by reuse, recycling/composting are needed. These are higher value activities and although recovery is secondary, there should be recognition of energy production from biological treatment as diversion (e.g. anaerobic digestion to produce biogas or biological drying of organics into biofuel).</p> <p>Niagara Region is supportive of this and currently completes a formal yearly (at minimum) review of alternative waste management technologies. Niagara Region continues to engage other</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	neighbouring municipalities in discussions related to available capacity at their current/future alternative waste management technology facilities and/or future needs that could be addressed by partnering with Niagara Region on alternative technologies.
Encourage increased recycling and new projects or technologies that recover the value of waste (such as hard to recycle materials). (p 43)	There is a desire for access to increased options for recycling unacceptable Blue Box items by residents. While Niagara Region supports the goal of increased recycling and development of new technologies, the approach to encourage improved environmental outcomes should also include mechanisms to discourage the use of difficult to recycle materials. With access to additional funding and Provincial support, innovative programs to increase municipal diversion rates could be more widely implemented.
Ensure new compostable packaging materials in Ontario are accepted by existing and emerging green bin programs across the province, by working with municipalities and private composting facilities to build a consensus around requirements for emerging compostable materials. (p 43)	Niagara Region is supportive of this action as municipalities currently face challenges with respect to compostable packaging, namely that the material does not all break down in the various organic processing systems, at the same rate. Consensus around requirements would ensure the effectiveness of producer P&E material and also reduce resident confusion. Requirements would also help ensure that producers do not move to compostable packaging simply to avoid producer responsibility for designated paper and packaging, thereby shifting the problem. At the same time, the requirement to accommodate standard compostable material may mean that some municipalities must invest in new technology. Cost and capacity is a concern as increased tonnages will result in increased processing contract costs. Municipalities must be supported in these efforts.
Consider making producers responsible for the end of life management of their products and packaging. (p 43)	This aligns with previous positions put forward by Niagara Region. Niagara Region requests the Province take a firm stance, for example, designating all packaging, whether it is recycling or compostable. Producers should pay for

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
	<p>management of designated materials regardless of the stream in which they end up.</p> <p>Niagara Region also supports designation and full producer responsibility of new materials such as additional electronics (appliances, electrical tools), florescent bulbs and tubes, mattresses, carpets, clothing and textiles, furniture and the bulky items.</p> <p>Transition plans particularly for the Blue Box program must address municipal contracts and assets and how to avoid stranded assets. Transition to a producer responsibility regime could lead to Niagara Region's Recycling Centre becoming a stranded asset depending on the strategies put forth to achieve producer responsibility.</p>
<p>Cut regulatory red tape and modernize environmental approvals to support sustainable end markets for waste and new waste processing infrastructure. (p 44)</p>	<p>Access to stable and sustainable end markets for processed materials are critical to the successful implementation of the Province's plan. This includes the development and implementation of local / domestic end markets.</p> <p>As previously noted, increased organics tonnages due to an organics ban and increased P&amp;E, requires that municipalities have the capacity to process and manage the material. The process could be eased with modernized environmental approval processes. With respect to Blue Box materials, market prices have fluctuated in recent years and access to the world-wide market requires production of a consistent and un-contaminated product. Funding and improved access to new waste processing infrastructure might allow for better sorting and processing of material, resulting in an improved and more desirable product for end-markets along with increased diversion.</p> <p>Niagara Region is supportive of streamlining approvals for waste processing infrastructure.</p>

<b>Reducing Litter and Waste in Our Communities &amp; Keeping our Land and Soil Clean</b>	
Provide municipalities and the communities they represent with a say in landfill siting approvals....The province will look for opportunities to enhance municipal say while continuing to ensure that proposals for new and expanded landfills are subject to rigorous assessment processes and strict requirements for design, operation, closure, post-closure care and financial assurance. (page 44)	Niagara Region is supportive of streamlining landfill site approvals.
Set clear rules to allow industry to reduce constructions costs, limit soil being sent to landfill and lower greenhouse gas emissions from trucking by supporting beneficial reuses of safe soils. (p 45)	Niagara Region agrees that excess soil from construction projects should be beneficially re-used wherever possible. Landfill sites should not be the first option for soils disposal, as landfill capacity is required for solid waste disposal. Niagara Region agrees that beneficial soil re-use sites should be identified locally to reduce trucking distances, whereby reducing cost and reducing greenhouse gas emissions. Previous modification to the MECP Excess Soil Disposal Framework included practical options for municipalities to apply with respect to soil reuse. For example, municipalities can reuse salt contaminated soils at other locations that have similar salt impact using local background soil quality as a benchmark, rather than immediately resorting to landfilling if the soil exceeds the MECP Ontario background concentrations. The valuable input and ideas provided in previous EBR consultations should be incorporated in future plans.
Work with municipalities, conservation authorities, other law enforcement agencies and stakeholders to increase	As previously noted, Niagara Region by-law officers do not have jurisdiction over illegal dumping on private lands, and illegal soil dumping on public land in Niagara Region is not a common practice. (Some

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enforcement on illegal dumping of excess soil. (p 45)	<p>of the Local Area Municipalities in Niagara have site-alteration by-laws to regulate illegal dumping of fill.) Clarification regarding who is responsible for monitoring of excess soil movement should be provided. Contamination is based on soil chemistry and as such, visual inspection is not sufficient. Currently our by-law officers focus on the illegal dumping of waste material and monitoring/enforcement of illegal soil dumping is difficult due to the nature of the material as it is typically lacking supporting documentation required for conviction.</p> <p>A provincial framework for development of Excess Soil Management Plans (ESMP) developed in consultation with stakeholders, would help ensure consistency across Ontario municipalities.</p>
Consider approaches for the management and spreading of hauled sewage to better protect human health and the environment (including land and waterways) from the impacts of nutrients and pathogens. (p 45)	<p>In Niagara, all sewage is hauled to municipally owned wastewater treatment plant for disposal and treatment. No spreading of raw sewage occurs on agricultural land here. Niagara Region has implemented a successful sewage biosolids management program that works well and is welcomed and supported by the local agricultural industry. The nutrient rich biosolids, from anaerobically digested sewage are land applied to give the soils the required nutrients needed to make local crops thrive. This program has worked effectively for several decades and Niagara would want to have input if any changes are being contemplated that may impact our contractual obligations or the agricultural community in general.</p>

## Waste Management Comments on Next Steps in Environmental Plan

<b>Next Steps</b>	
Continue to consult with the public and engage with Indigenous communities. (p 52)	Niagara Region is supportive of continued public engagement. Programs are most effective when all stakeholders are engaged in defining and developing opportunities, leading to better uptake and support. Waste Management Services (WMS) actively engages with all levels of stakeholders, including citizens, with respect to waste management policies and programs. As part of the Niagara Region's Humberstone Landfill Site Expansion EA process, dedicated meetings with Indigenous communities including Six Nations and Niagara Region Metis Council occurred. An EA Advisory Group comprised of local residents and businesses was also established. These efforts helped develop trust with the neighbouring community and Aboriginal Groups resulting in successful EA.
Begin implementing priority initiatives. (p 53)	Stakeholders need information about short and long-term timelines and access to detailed implementation plans in order to best support the Province with implementation of priority initiatives.

<b>Next Steps</b>	
Measure and report on progress. (p 53)	Creation of data collection mechanisms to measure progress in waste reduction and resource recovery is vital. The province should have separate targets and metrics for reporting progress in reducing waste in the disparate sectors (LDR, ICI and multi-res sectors) and these targets should be enforced. Targets and metrics should be developed in partnership with all stakeholders, including municipalities.



# Preserving and Protecting our Environment for Future Generations

## A Made-in-Ontario Environment Plan



# Minister's Message



## **Rod Phillips**

Minister of the Environment,  
Conservation and Parks

The people of Ontario are passionate about the great outdoors and the natural spaces our communities offer. We recognize the importance of a clean environment to our health, our wellbeing and our economic prosperity for future generations. We also recognize the important responsibility we all have to our environment.

Ontario boasts hundreds of thousands of parks, hiking trails and forests to explore with our families and friends. Ontarians can camp in protected areas like Quetico Provincial Park in Northern Ontario and see firsthand the magnificence of a moose. We can also enjoy a family picnic at Victoria Park in Kitchener and enjoy local fresh fruits, vegetables and dairy products that were grown and produced on nearby farms. Ontario is home to hundreds of thousands of lakes, rivers and waterways that are the lifeblood of our province, where people fish, kayak and swim. We also rely on our waters to transport goods, feed our crops, and have a safe, reliable source of drinking water.

These waterways are under increasing pressure as urban development expands along their shorelines, invasive species expand on land and in water, and climate change causes changing weather patterns that can bring heavier rains resulting in damage to homes, businesses and public infrastructure.

Preserving and protecting our environment begins with a new vision for Ontario. One where hardworking taxpayers are protected and respected, and where environmental stewardship connects with the people of this province.

I am pleased to present the following made-in-Ontario plan to keep our province beautiful by protecting our air, land and water, preventing and reducing litter and waste, supporting Ontarians to continue to do their share to reduce greenhouse gas emissions, and helping communities and families prepare for climate change.

This plan will ensure we balance a healthy environment with a healthy economy, and will be reviewed on a four-year basis.

This is a plan that represents a clean break from the status quo.

We understand the pressure Ontarians feel with rising costs of living as well as skyrocketing energy costs that have hurt our economy and our competitiveness. They are understandably frustrated to see their hard-earned tax-dollars being put towards policies and programs that don't deliver results.

That's why a cap-and-trade program or carbon tax that seeks to punish people for heating their home or driving their cars remains unacceptable to the people of Ontario.

When the government does invest in environmental programs, taxpayers should not have to watch their hard-earned dollars be diverted towards expensive, ineffective policies and programs that do not deliver results.

The people of Ontario deserve recognition for the sacrifices they have made and the ones they continue to pay for.

Our plan reflects our province's specific needs and opportunities, and it does not include a carbon tax. We will continue to do our share to reduce greenhouse gases and we will help communities and families prepare to address climate change. With hard work, innovation and commitment, we will ensure Ontario achieves emissions reductions in line with Canada's 2030 greenhouse gas reduction targets under the Paris Agreement.

We will tap into the resourcefulness and creativity of our diverse and thriving private sector by helping them invest in and develop clean solutions to today's environmental challenges.

We have consulted extensively with the public, receiving more than 8,000 ideas and recommendations through our online portal. These comments have been considered alongside submissions from stakeholders and information from Indigenous communities who provided feedback on fighting climate change and other areas of environmental focus. We will continue to consult and engage on the proposals contained within this plan in the coming weeks and months.

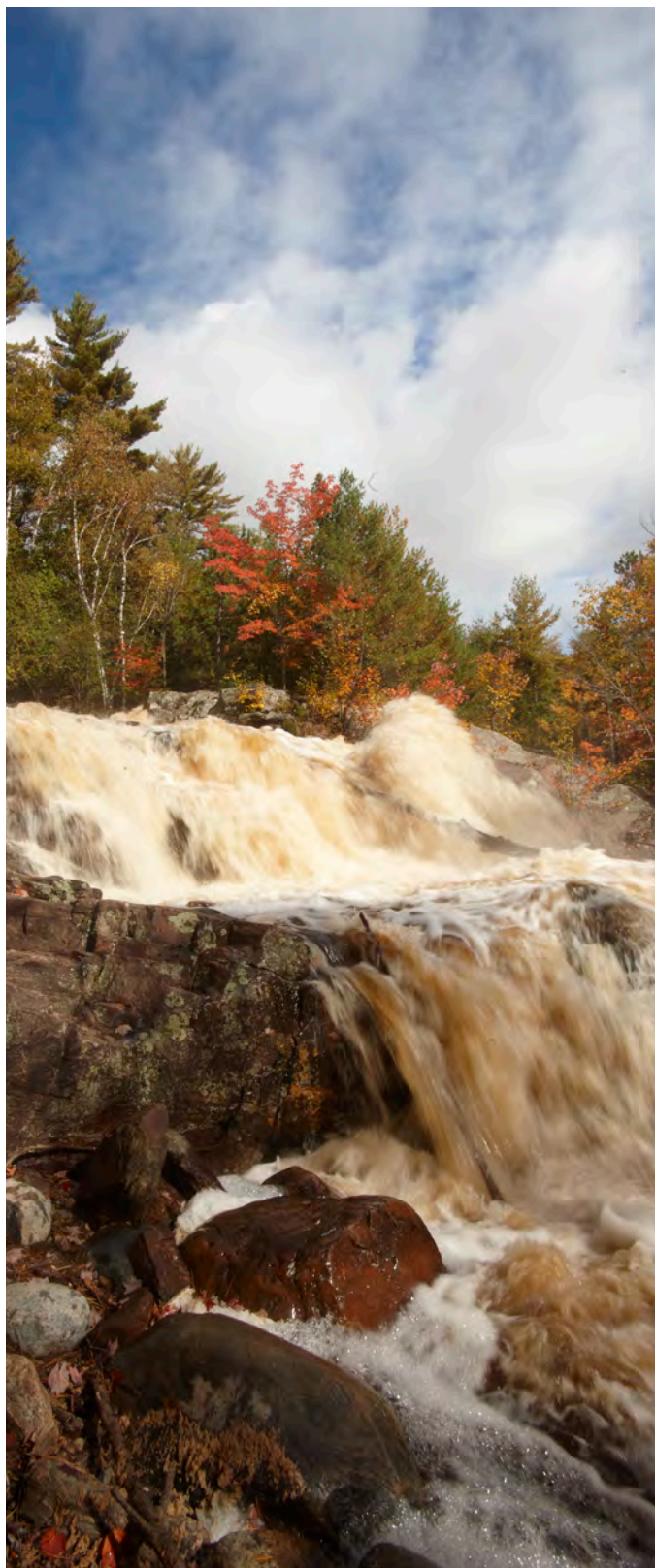
All of us have a role to play in protecting the environment, and there are many great ideas across our province and country. It will be important that we continue to have constructive dialogue with other jurisdictions to tackle these environmental challenges together. One thing that has become particularly clear over the past few months is the fact that no one solution fits all provinces, regions or communities.

Our plan describes the actions Ontario is proposing to take and the ways we will enable industry, business, communities and people to continue to do their part.

Ontario families understand that we have a personal responsibility to leave behind a province better off than the one we inherited; not just environmentally, but financially as well.

I invite you to read our plan and join with us today, and every day, to create a better future for Ontario.

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# Our Province Today

Those of us who call Ontario home couldn't ask for a better place to live, work and raise a family. The quality of life in our communities and the success of our businesses depends to a great extent on the clean air we breathe, the safe water we drink, and the well-protected lands and parks we enjoy.

Today, the people of Ontario are breathing cleaner air with large reductions in levels of many harmful pollutants. In 2001, Ontario began the process of closing its coal plants and in the years since, we have significantly reduced pollutants such as nitrogen dioxide, sulphur dioxide, mercury and particulate matter.

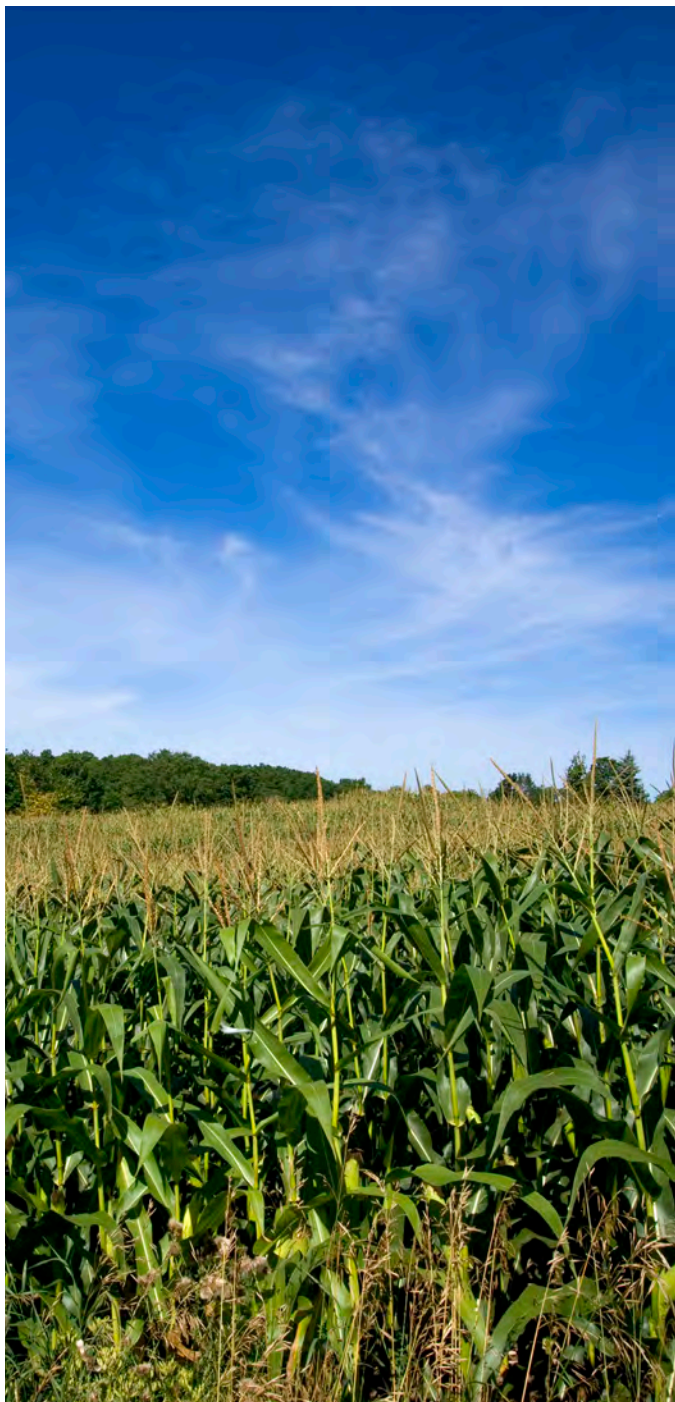
Our Great Lakes attract millions of residents and visitors to waterfront communities around the province each year. These lakes provide safe drinking water to more than 70% of Ontarians and their watersheds are home to more than 4,000 species of fish, birds and other living things. They, along with all of our waterways and groundwater, underpin our province's economic prosperity and wellbeing – supporting Ontario's manufacturing, power generation, fisheries, tourism, agriculture and drinking water.

Parks and greenspace across our province provide individuals, families and tourists with opportunities to canoe in lakes, hike in forests and camp on protected lands.



## THE CHALLENGE AHEAD

At the same time, climate change threatens these resources and our homes, communities and businesses, infrastructure, and our locally grown food and crops. It also threatens food security and road access for remote First Nations, as well as the health of ecosystems across our great province.



We can do more to protect ourselves from the extreme weather events that have flooded houses, buildings and roads, overwhelmed aging stormwater and wastewater systems, damaged crops, and brought heavy ice and wind storms that knocked out power for hundreds of thousands of people, including those who are most vulnerable.

Heat waves and recent drought conditions in some areas of the province, coupled with anticipated impacts of climate change and population growth, have intensified concerns related to water security for farmers, Indigenous communities, industry and municipalities.

We also recognize that there is much more that can still be done to keep our lands and waterways clean and free of litter. Nobody wants to see plastic and litter polluting our waterways, neighbourhoods and parks. No one wants sewage and wastewater overflowing into our lakes and rivers or salt making its way into our waterways. These issues are happening now and need to be addressed. There is also a need to address specific air quality concerns in communities that continue to face air quality challenges. True environmentalism begins with a sense of civic responsibility that we foster through meaningful action close to home.

Our environment plan reflects our government's commitment to addressing these pressing challenges. We will use the best science, real-time monitoring where available, and strong, transparent enforcement to protect our air, land and water, prevent and reduce litter and waste, support Ontarians to continue to do their share to reduce greenhouse gas emissions, and help communities and families prepare for climate change.

## DOING OUR PART

In 2001, the government of the day announced the closure of the Lakeview Generating Station, setting the stage for the phase out of coal-fired electricity generation which remains the largest single greenhouse gas reduction in Canadian history. Ontario's low-emission combination of hydroelectric, nuclear, natural gas and non-hydro renewable generating capacity has enabled the province to avoid up to 30 megatonnes of annual greenhouse gas emissions, equivalent to taking up to seven million vehicles off our roads. In 2017, approximately 96% of the electricity generated in Ontario was emissions-free.

The combination of nuclear, hydro, other renewables and efficient natural gas has given Ontario one of the cleanest energy grids in North America. Ontario's supply of clean electricity is one of its unique strengths. Ontario is currently a net exporter of electricity, with our clean power offsetting a higher emitting mix of coal and natural gas generation in neighbouring states, such as Michigan and New York.

**Measured against the same base year of Canada's target under the Paris Agreement (2005), the province's total greenhouse gas emissions have dropped by 22% – even while the rest of Canada saw emissions increase by 3% during that same time.**

Doing Canada's heavy lifting on greenhouse gas emission reductions came at a cost that was too high for Ontario families and businesses. In 2017, prior to the introduction of the Fair Hydro Plan Act, 2017, the cost associated with transitioning to Ontario's low emission electricity system was an estimated \$33 per month for a typical residential electricity consumer and about \$435 per month

for a small business, such as a restaurant. Since 2005, about \$40 billion has been spent in capital investments to transition the province to an electricity system that is virtually emissions-free. Now is not the time to add further costs to the price of electricity that is already very clean.

We will continue to do our share to address climate change and protect our environment. We will do so in a way that protects our economy and respects the people.

We will hold polluters accountable by ensuring strong enforcement with real consequences and penalties, especially for repeat offenders.

We will also help our urban and rural communities and landscapes become more sustainable and resilient. We will help others do their part, whether it's leveraging private sector investments to drive environmental solutions or making it easier for people and companies to go the extra mile to reduce emissions, clean up their communities, protect waterways, conserve lands and restore habitats.

Ontario has a long history of working cooperatively with other provinces and territories, as well as with the federal government through formal agreements such as the Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health and through intergovernmental forums such as the Canadian Council of Ministers of the Environment. There are also global environmental issues on which Ontario will continue collaborating with the federal government and participating in international meetings and agreements.

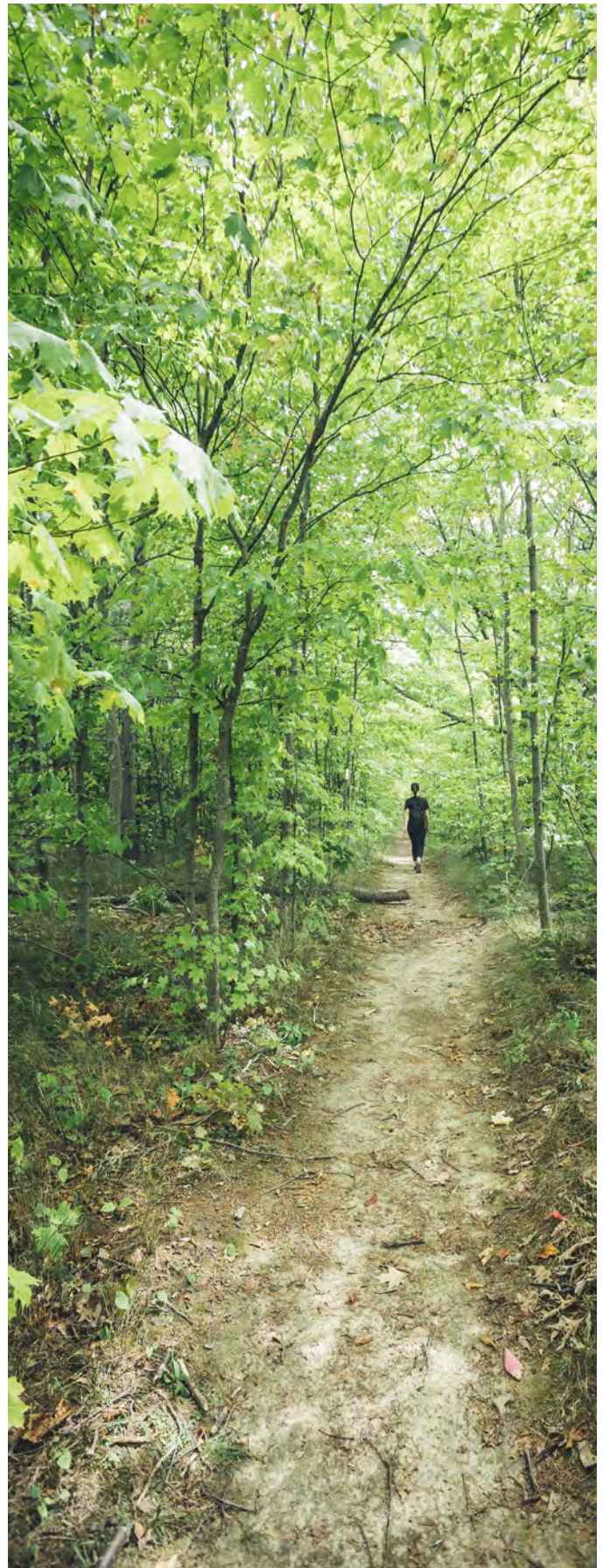
Protecting the environment is a responsibility of all of us who call Ontario home.

We will continue to work in partnership with other provinces, neighbouring jurisdictions, the federal government, municipalities, Indigenous communities, business and local partners to help protect our environment and ensure we pass on a cleaner environment to future generations.

## GUIDING PRINCIPLES

Our guiding principles will help us address our most serious environmental challenges in a responsible, effective, measurable and balanced way.

- **Clear Rules and Strong Enforcement:** We will ensure that polluters are held accountable with tougher penalties, while reducing regulatory burden for responsible businesses.
- **Trust and Transparency:** We will provide Ontarians with the information and tools required – with a particular focus on real-time monitoring – to understand the current environmental challenges we face and how these challenges impact individuals, businesses and communities across the province.
- **Resilient Communities and Local Solutions:** We recognize that environmental impacts faced by communities across Ontario may be very different. We will work with these communities and use best scientific practices and other evidence-based methods to develop unique solutions to their challenges.



# Protecting our Air, Lakes and Rivers

Ontario's water and air are life support systems for our province and our people. Pollution in our air and water increases healthcare costs, affects the enjoyment of our outdoors and contributes to lost economic opportunity. We will protect these critical systems by keeping our water and air clean while growing our economy.



**Our plan will make it easier for people to report pollution that is impacting their lives by developing an online platform for reporting incidents that allows photos or video to be sent in, as well as reporting an incident by e-mail, phone or through an app.**

**Additionally, we will put in place an improved complaint response system that sets out the services Ontarians can expect from inspectors and investigators when they file a complaint, and new standards on the response time they can expect based on the type of incident they report. We will be transparent about pollution incidents and spills, and provide real-time information where it is available so that people can see if a spill or incident has already been reported, as well as the status of the ministry's response.**

## CLEAN AIR

Although Ontario's air quality has improved significantly, some areas of the province still experience poorer air quality due to pollution. We are committed to protecting our air, ensuring we have strong environmental standards that are protective of human health and the environment, and taking action to enforce local air quality standards.

**Quick Fact: Ontario initiated the first closure of a coal plant in 2001. This action and the subsequent closure of 19 coal-fired units in five plants contributed to reducing the number of smog days in Ontario from a peak of 53 in 2005 to zero in 2017.**

## Actions

### Improve air quality in communities by creating unique solutions to their individual challenges

- Focus on parts of the province that continue to experience air quality challenges due to pollution from transportation, industry and other sources.
- Work in partnership with municipalities, industry, public health units, other community stakeholders and Indigenous communities to address local air quality concerns and achieve clean air objectives.

### Reduce emissions from heavy-duty vehicles

- Redesign the emissions testing program for heavy-duty vehicles (e.g. commercial transport trucks) and strengthen on-road enforcement of emissions standards.

### Improve understanding of different sources of air pollution and their impact

- Monitor pollutants to evaluate long-term trends so we can gather the information we need to take action on air pollution.

- Increase road-side monitoring of traffic pollution and expand road-side monitoring of pollutants beyond the Greater Toronto Area to other heavily urbanized communities such as Sarnia, Sudbury and Hamilton.

### Strengthen collaboration on addressing air pollution that comes from outside of Ontario's borders

- Call on the federal government to proactively address the impacts of air pollution from outside Ontario, including from the United States and international sources, and ensure continued cooperation and commitment to improve air quality.
- Expand collaboration with Michigan and Ohio to reduce the emission of contaminants of concern that impact southern Ontario, Michigan and Ohio airsheds.



#### Success story: Sarnia's air quality is improving

In partnership with industry, the Clean Air Sarnia and Area (CASA) advisory panel launched the website [cleanairsarniaandarea.com](http://cleanairsarniaandarea.com) so users could view contaminant levels from seven air monitoring stations in the Sarnia community. Air quality information is refreshed every hour on an interactive map so users can find out whether air quality is good, moderate or poor compared to provincial standards. While Ontario and industry have been monitoring air quality in the Sarnia area for decades, the CASA initiative marks the first time that data has been accessible to the public in real-time and in one location.

Ontario is also moving forward with a Sarnia Area Environmental Health Project to help address concerns about air pollution and other environmental stressors from local industries in the Sarnia area. The project will help enhance our understanding of the links between the environment and health in the community, with a focus on assessing exposures to air contaminants.

These projects are great examples of the collaborative efforts of local industry, the municipality, the Aamjiwnaang First Nation and interested community groups.

## CLEAN WATER

Our lakes, waterways and groundwater are the foundation of Ontario's economic prosperity and wellbeing – supplying water to our communities, sustaining traditional activities of Indigenous peoples, supporting Ontario's economy, and providing healthy ecosystems for recreation and tourism.

Over past decades, Ontario has seen significant improvements in Great Lakes water quality due to efforts by governments and other partners. These partnerships have achieved a 90% reduction in releases of mercury, dioxins and polychlorinated biphenyls (PCBs), resulting in fish that are safer to eat, clean-up of polluted areas and the restoration of species.



Water resources in Ontario are facing many pressures. Population growth, rapid urban development, aging infrastructure and invasive species are threatening our waterways through pollution and loss of natural heritage. For example, excess road salt can damage roads, cause vehicle corrosion and be harmful to fish in our waterways. The changing climate is compounding these stresses with droughts, floods and extreme storms. Declining ice cover is causing shoreline erosion, warmer water is creating conditions for blooms of harmful algae, and shifting water conditions are changing when and where fish spawn.

Working together, we can help conserve and manage our water resources. Ontario's drinking water, for example, is among the best protected in the world as a result of the province's strong monitoring, reporting and enforcement activities and programs.

We will take strong enforcement action to protect our lakes, waterways and groundwater from pollution.

We will also work with municipalities and other partners to increase transparency through real-time monitoring of the sewage overflows from municipal wastewater systems, which too often flow into Ontario's lakes and rivers. We must step up efforts to ensure the public is aware and that proper monitoring occurs.

**Quick Fact: 99.8% of more than 518,000 test results from municipal residential drinking water systems meet Ontario's strict drinking water quality standards.**

Our plan focuses on key areas of action to protect our waters and keep our beaches clean for swimming, recreation, enjoyment and traditional use.

## Actions

### **Continue work to restore and protect our Great Lakes**

- Build on previous successes and continue efforts to protect water quality and ecosystems of the Great Lakes. This includes keeping coastlines and beaches clean, protecting native species and safeguarding against invasive species such as Asian carp or Phragmites, and reducing harmful algae by continuing partnerships and negotiations with the federal government under agreements and plans such as the [Canada-Ontario Great Lakes Agreement](#) (COA) and the [Canada-Ontario Lake Erie Action Plan](#). Since signing the eighth COA in 2014, Ontario has directly invested \$15.3 million per year in programs. This includes supporting the Lake Erie Action Plan and restoring geographic areas, known as areas of concern, where significant impairment or contamination has occurred as a result of human activities at the local level.
- Review and update [Ontario's Great Lakes Strategy](#) to continue to protect fish, parks, beaches, coastal wetlands and water by reducing plastic litter, excess algae and contaminants along our shorelines, and reducing salt entering waterways to protect our aquatic ecosystems.

### **Asian Carp:**

#### **A threat to the Great Lakes Fisheries and Economy**

Asian carp typically weigh two to four kilograms but can weigh up to 50 kilograms and can grow to a length of more than one metre. They consume a significant amount of food and can eat up to 20% of their body weight each day, which harms the Great Lakes ecosystem. Asian carp were introduced to aquaculture facilities in the southern U.S. in the 1970s to remove algae and suspended solids from their ponds. They escaped when the Mississippi River flooded and have spread northward in the Mississippi watershed towards the Great Lakes.

Asian carp pose a significant threat to recreational and commercial fisheries in Ontario which are worth almost \$2.5 billion combined. Ontario is working with many partners including the Asian Carp Regional Coordinating Committee, a committee including all Great Lakes states and provinces, U.S. federal agencies, and Fisheries and Oceans Canada to facilitate collaboration on prevention, early detection, response, and monitoring activities.

**Quick Fact: Ontario's more than 250,000 lakes, including the Great Lakes, contain about one fifth of the world's fresh water.**

### **Continue to protect and identify vulnerable waterways and inland waters**

- Build on previous successes and continue to implement the [Lake Simcoe Protection Plan](#) to protect and restore important natural areas and features of the lake. Ontario has invested annually in the implementation of the Lake Simcoe Protection Plan.
- Protect the quality of the Lake of the Woods by continuing to work with partners on reducing phosphorus that, in excessive quantities, can cause toxic blue-green algae.
- Build on the ministry's monitoring and drinking water source protection activities to ensure that environmental impacts from road salt use are minimized. Work with municipalities, conservation authorities, the private sector and other partners to promote best management practices, certification and road salt alternatives.
- Work with Indigenous communities and stakeholders, including the public, on the remediation of mercury contaminated sediments in the St. Clair and English-Wabigoon Rivers, including efforts such as:
  - ensuring clean-up of the remaining mercury contaminated sediments located in three areas downstream of the former Dow Chemical site.
  - participating in the work of the English and Wabigoon Rivers Remediation Panel to fund remediation activities from a trust that was established with \$85 million under the *English and Wabigoon Rivers Remediation Funding Act, 2017*.

## Action in Progress:

### Protecting the Muskoka watershed

Through the Muskoka Watershed Conservation and Management Initiative, the community and province will work together to protect this vital area by identifying the issues facing the region. Ontario will invest \$5 million and commit up to an additional \$5 million in matching contributions.



Effective watershed management is important to the people in our communities, especially at times when watersheds are facing stresses such as increased development and flooding caused by severe weather events.

This initiative will also help us develop a more comprehensive approach to watershed management, which can inform current actions and future development.

### Success story: Celebrating recovery of freshwater fish in Lake Simcoe



Over the years, many organizations alongside the provincial and federal governments have worked hard to protect and restore the Lake Simcoe watershed against contaminants and excess nutrients like road salt and phosphorus that have had a negative effect on water quality. The Lake Simcoe ecosystem is showing encouraging signs of recovery and demonstrating that efforts to restore and protect the lake are having an impact. For example, populations of sensitive aquatic life such as lake trout, lake whitefish and cisco are trending upward.

### Ensure sustainable water use and water security for future generations

- Thoroughly review the province's water taking policies, programs and science tools to ensure that vital water resources are adequately protected and sustainably used.
- Enhance how we manage water takings to ensure we have sustainable water resources in the face of a changing climate and continued population growth. We will do this by examining approaches to assessing and managing multiple water takings, establishing priorities for different water uses, and preparing and responding to drought conditions.
- Ensure the knowledge gained through the drinking water source protection program helps inform our water management programs.

**Quick Fact: Thanks to local source protection committees and conservation authorities, Ontario has source protection plans being implemented across 38 watershed-based areas. These locally developed plans identify and protect areas where drinking water is vulnerable to contamination and depletion.**

- Encourage targeted investment and innovation in managing wastewater that overflows into our lakes and rivers.

**Quick Fact: There were a total of 1,327 bypasses and/or overflows from all municipal wastewater sources in the 2017/18 fiscal year, as reported to the Ministry of the Environment, Conservation and Parks.**

### **Help people conserve water and save money**

- Promote the use of technologies and practices to ensure water is used more efficiently. This includes water conservation planning; water use tracking and reporting; improving standards for household fixtures and appliances, such as dishwashers or washing machines; and profiling provincial and broader public sector leadership in this area.

### **Improve municipal wastewater and stormwater management and reporting**

- Increase transparency through real-time monitoring of sewage overflows from municipal wastewater systems into Ontario's lakes and rivers. Work with municipalities to ensure that proper monitoring occurs, and that the public is aware of overflow incidents.
- Update policies related to municipal wastewater and stormwater to make them easier to understand. We will consider how wastewater and stormwater financing could be updated to improve investment and support new and innovative technologies and practices.

#### **Success story: City of Kingston shows environmental leadership**



Utilities Kingston and the City of Kingston have shown leadership by providing real-time public reporting of sewage overflows, reducing pollution, and working with partners such as Swim Drink Fish Canada and the W. Garfield Weston Foundation to create the Gord Edgar Downie Pier at Breakwater Park, giving the community a new place to swim and enjoy a cleaner Lake Ontario waterfront.

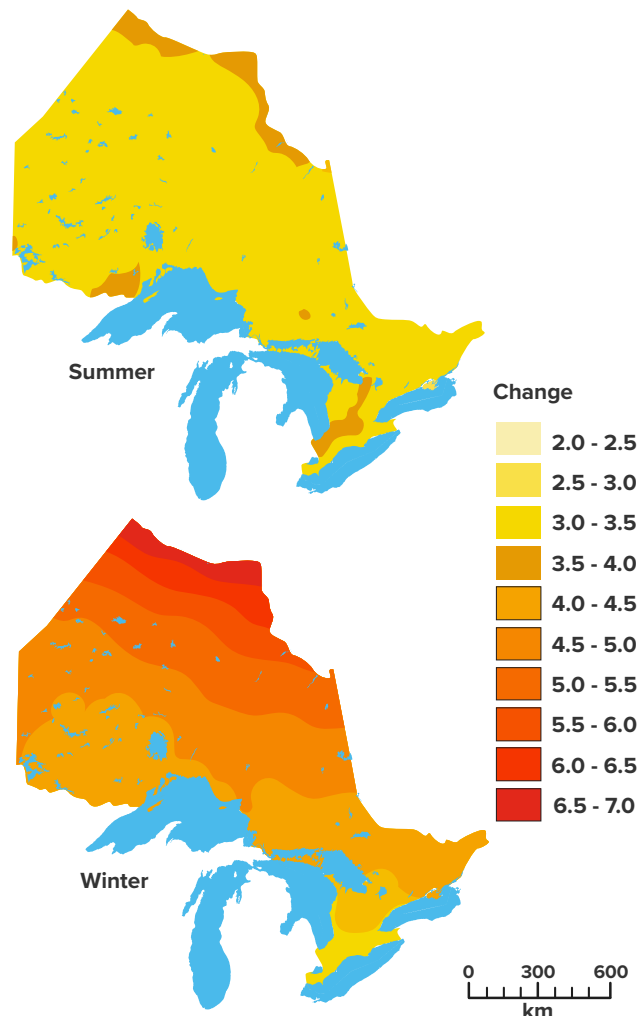
# Addressing Climate Change

**Quick Fact: As of 2013, Canada is responsible for 1.6% of global emissions, with Ontario responsible for less than 0.4% of global emissions.**

The climate is changing. Severe rain, ice and wind storms, prolonged heat waves and milder winters are much more common. Forests, waters and wildlife across the province are and will continue to be significantly impacted by these changes. People across the province – especially Northern communities – and all sectors of the economy are feeling the impacts of climate change and paying more and more for the costs associated with those impacts.



The following graph shows projected seasonal summer and winter temperature changes in Ontario by the 2050s.



Source: Ontario Climate Data Portal – [http://lamps.math.yorku.ca/OntarioClimate/index\\_v18.htm](http://lamps.math.yorku.ca/OntarioClimate/index_v18.htm). Projected seasonal (summer and winter) temperature changes by the 2050s (relative to the average of 1986-2005), under the Inter-governmental Panel for Climate Change (IPCC) 5th assessment report (AR5) business as usual emission scenario (RCP8.5).

The people of Ontario have already made significant contributions to meaningful climate action. We have played an important role in fighting climate change and mitigating the threats to our prosperity and way of life, implementing significant changes to drastically reduce our greenhouse gas emissions.

The government of the day initiated the first closure of a coal plant in 2001. This action and the subsequent closure of 19 coal fired units in five plants by 2014 led to the largest single reduction of greenhouse gas emissions, not just in Ontario, but across Canada. It was also one of the largest actions to reduce emissions in North America.

Emission-free electricity generation also plays a significant role in Ontario. Nuclear power, along with our hydroelectric fleet, continues to generate the lion's share of our clean electricity.

Today, Ontario has one of North America's cleanest electricity grids. We also have effective natural gas conservation programs, helping homeowners, businesses and industry reduce their carbon footprint.

**Quick Fact: Almost all of Canada's progress towards its 2030 Paris Agreement targets has been driven by Ontario.**

But doing Canada's heavy lifting on greenhouse gas emission reductions has come at a cost to Ontario families. Our government understands the part that Ontarians have played and continue to play in reducing their emissions.

We have already been a leader when it comes to climate. **Indeed, we are on track to meet Canada's commitment under the Copenhagen Accord of 17% below 2005 levels by 2020.**

Now, we must look to find a balanced approach to reducing our emissions and prepare families for the impact of climate change in order to maintain both a healthy economy and healthy environment. This plan is our alternative to a carbon tax. It means finding effective and affordable ways to slow down climate change and build more resilient communities to prepare for its effects.

## Ontario and the Rest of Canada's Greenhouse Gas Emissions from 2005 to 2016



We will work to unlock private capital to give Ontario businesses and residents new and more affordable ways to invest in energy efficiency, save money and reduce greenhouse gas emissions. One of the most effective ways we can combat climate change is encouraging innovation and reducing regulatory barriers to climate solutions. Through this plan, our government will focus on smart regulatory and policy approaches to facilitate and enable innovation rather than hindering it.

The following chapter of our environment plan acts as Ontario's climate change plan, which fulfills our commitment under the *Cap and Trade Cancellation Act, 2018*.

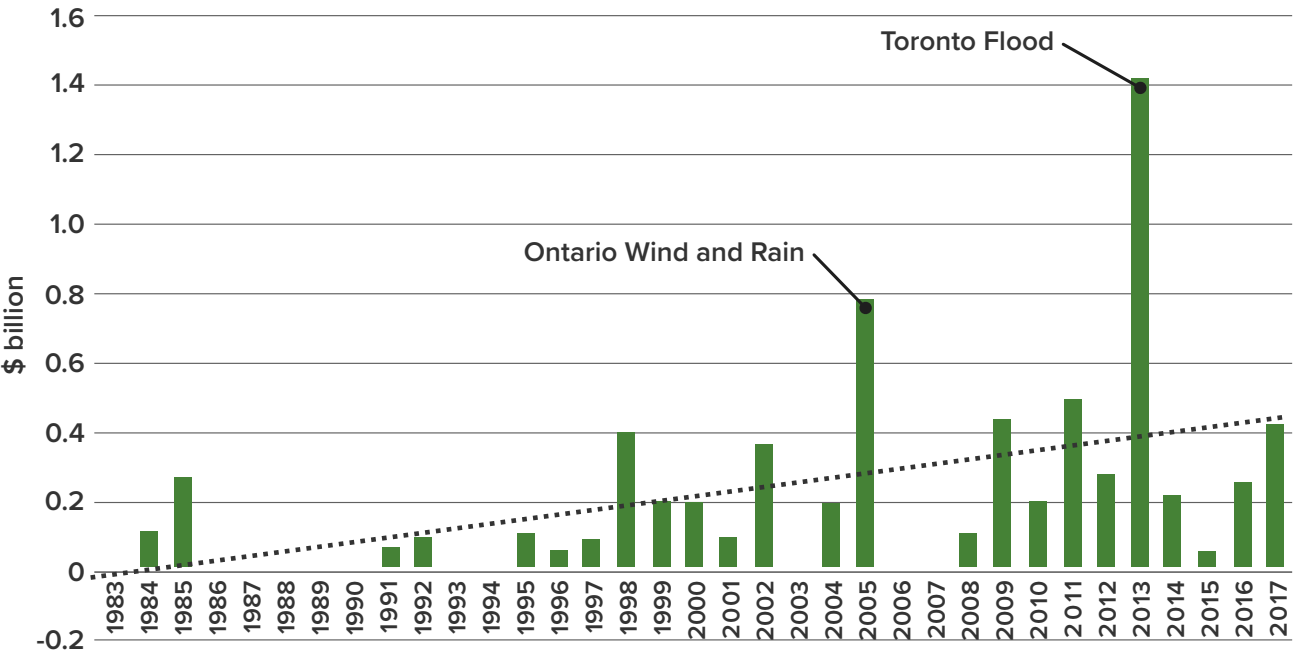
## BUILDING RESILIENCE: Helping Families and Communities Prepare

We are committed to preparing families and communities for the costs and impacts of climate change, and to protecting our natural environment, communities, businesses and municipalities.

While our actions are important in the global fight to reduce emissions, we all understand the need to strengthen our resilience to the impacts of climate change such as more frequent extreme weather events.

The following graph shows the rising costs of insured property damage in Ontario between 1983 and 2017, providing an indication of the costs of climate change. The financial costs associated with extreme weather events in Ontario have increased over this period. Chief among factors affecting the increasing costs to Ontarians is the phenomenon of flooding, and more specifically, residential basement flooding.

Costs of Insured Property Damage in Ontario Between 1983 and 2017



Source: Insurance Bureau of Canada.

Building resilience is about having the right information, tools and resources to adapt and respond to our changing climate. We will access the best science and information to better understand where the province is vulnerable and know which regions and economic sectors are most likely to be impacted. Through this enhanced understanding, the province, local communities, businesses, Indigenous communities and the public will be more prepared for the impacts of a changing climate.

#### **Case study:** **Climate change impact assessments**

Ontario has never completed a provincial-level climate change impact assessment. Since 2008, the United Kingdom has conducted two assessments using best available data and an up-to-date understanding of climate science and future climate impacts. Each assessment provides detailed analysis of the risks, vulnerabilities and impacts of climate change on key economic sectors, infrastructure, the environment and societal health and well-being.

Each assessment gives the government a roadmap to “high” and “low” climate change risks now and in future years.

## **Actions**

### **Improve our understanding of how climate change will impact Ontario**

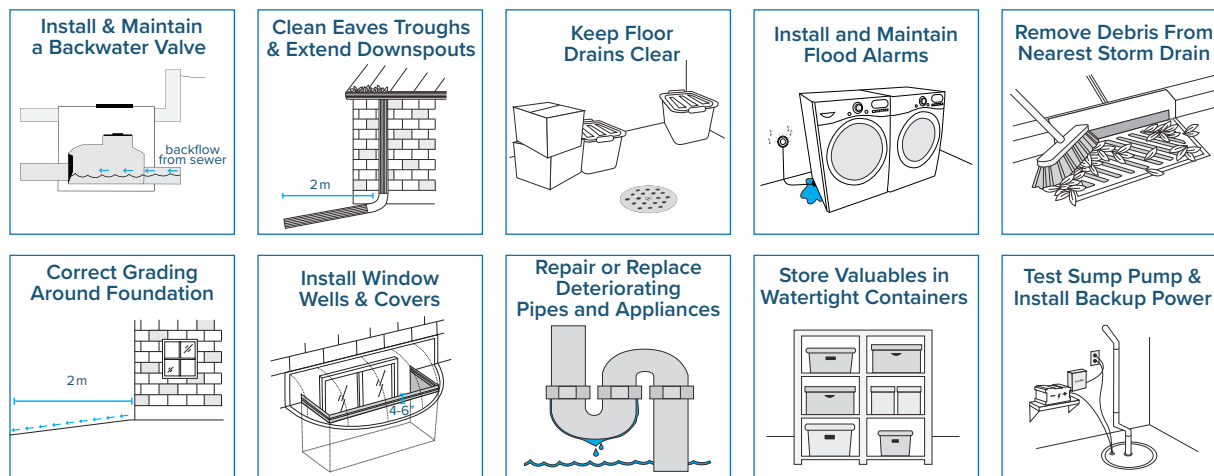
- Undertake a provincial impact assessment to identify where and how climate change is likely to impact Ontario’s communities, critical infrastructure, economies and natural environment. The assessment would provide risk-based evidence to government, municipalities, businesses, Indigenous communities and Ontarians and guide future decision making.
- Undertake impact and vulnerability assessments for key sectors, such as transportation, water, agriculture and energy distribution.

### **Help Ontarians understand the impacts of climate change**

- Develop a user-friendly online tool that makes practical climate change impact information available for the public and private sectors. This tool will help developers, planners, educators, homeowners and others understand the potential impacts of climate change in their communities.
- Work closely with climate science modelling experts, researchers, Indigenous communities, and existing climate service providers to identify and create adaptation solutions.
- Support communities by demonstrating how climate science can be applied in decision making to improve resilience.

The graphics below illustrate practical actions that homeowners can take – simply and affordably – to lower their risk of basement flooding. Home flood protection can include property level initiatives such as disconnecting downspouts from weeping tile systems, placing plastic covers over window wells, outfitting sump pumps with battery back-up supply, and installing back water valves on drain lines.

## 10 Ways to Prevent Home Basement Floods



Source: Home Flood Protection Program, Intact Centre on Climate Adaptation, University of Waterloo

Ontario will work with the real estate and insurance industries to raise awareness among homeowners about the increasing risk of flooding as we experience more frequent extreme weather events. Flooding damage is the leading cause of insured property damage in Ontario. The risk of home flooding is also increasingly the reason why homeowners are unable to adequately insure their homes.

Flood damages can cost homeowners tens of thousands of dollars to repair. According to the National Flood Insurance Program in the U.S., a 15-centimetre flood in a 2,000-square-foot home is likely to cause about USD \$40,000 in flood damage. Once flooding occurs, securing insurance will become more difficult and may become unaffordable for individual homeowners.

However, simple steps, such as removing debris from nearby storm drains, ensuring correct grading around home foundations, clearing eaves troughs, and installing extended downspouts and window well covers can significantly mitigate basement flood risks.

### Update government policies and build partnerships to improve local climate resilience

- Modernize the Building Code to better equip homes and buildings to be better able to withstand extreme weather events. This could include affordable adaptation measures such as requiring backwater valves in new homes that are at risk of backflow, which would significantly reduce the impacts of basement flooding.
- Review the Municipal Disaster Recovery Assistance program to encourage municipalities to incorporate climate resilience improvements when repairing or replacing damaged infrastructure after a natural disaster. Since the Municipal Disaster Recovery Assistance program was launched in 2016, over \$2.6 million has been provided to 11 municipalities.
- Consult on tax policy options to support homeowners in adopting measures to protect their homes against extreme weather events, such as ice and wind storms and home flooding.

- Review land use planning policies and laws to update policy direction on climate resilience. This will help make the way our communities are planned and designed more responsive and adaptive to changing weather conditions, such as improving the way that stormwater is managed.
- Build resilience in the province's critical infrastructure, through better technology as well as back-up generation and energy storage options, so that our vital services and infrastructure, such as hospitals, can better withstand and remain operational during extreme weather events.
- Support improvements to existing winter roads where they may be required to replace roads that are deteriorating as a result of changing weather conditions and shortened winter seasons, and develop a strategy to enhance all-season road connections to northern communities.
- Continue to support programs and partnerships intended to make the agriculture and food sectors more resilient to current and future climate impacts. We will support on-farm soil and water quality programming and work with partners to improve agricultural management practices.

#### **Lake Erie Action Plan and 4R Nutrient Stewardship**

Ontario's farmers continue to demonstrate leadership in environmental stewardship, which is important to their livelihood. Farmers are also embracing and championing innovative farming practices, such as 4R Nutrient Stewardship (Right Source @ the Right Rate, Right Time, and Right Place®), and other initiatives under the [Canada-Ontario Lake Erie Action Plan](#), that are designed to enhance environmental protection and improve sustainability.

## **CONTINUING TO DO OUR SHARE: Achieving the Paris Agreement Target**

One of the key ways we are defining our vision for climate action in Ontario is by setting an achievable greenhouse gas reduction target. This will help us focus our efforts and provide a benchmark for our province to assess its progress on the climate change mitigation components of our plan.

**Ontario will reduce its emissions by 30% below 2005 levels by 2030.**

This target aligns Ontario with Canada's 2030 target under the Paris Agreement.

This is Ontario's proposed target for the reduction of greenhouse gas emissions, which fulfills our commitment under the *Cap and Trade Cancellation Act, 2018*.

**Quick Fact: The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change. Its goal is to keep the increase in global average temperature to well below 2 °C above pre-industrial levels, and pursue efforts to limit the increase even further to 1.5 °C, in order to reduce the risks and impacts of climate change.**

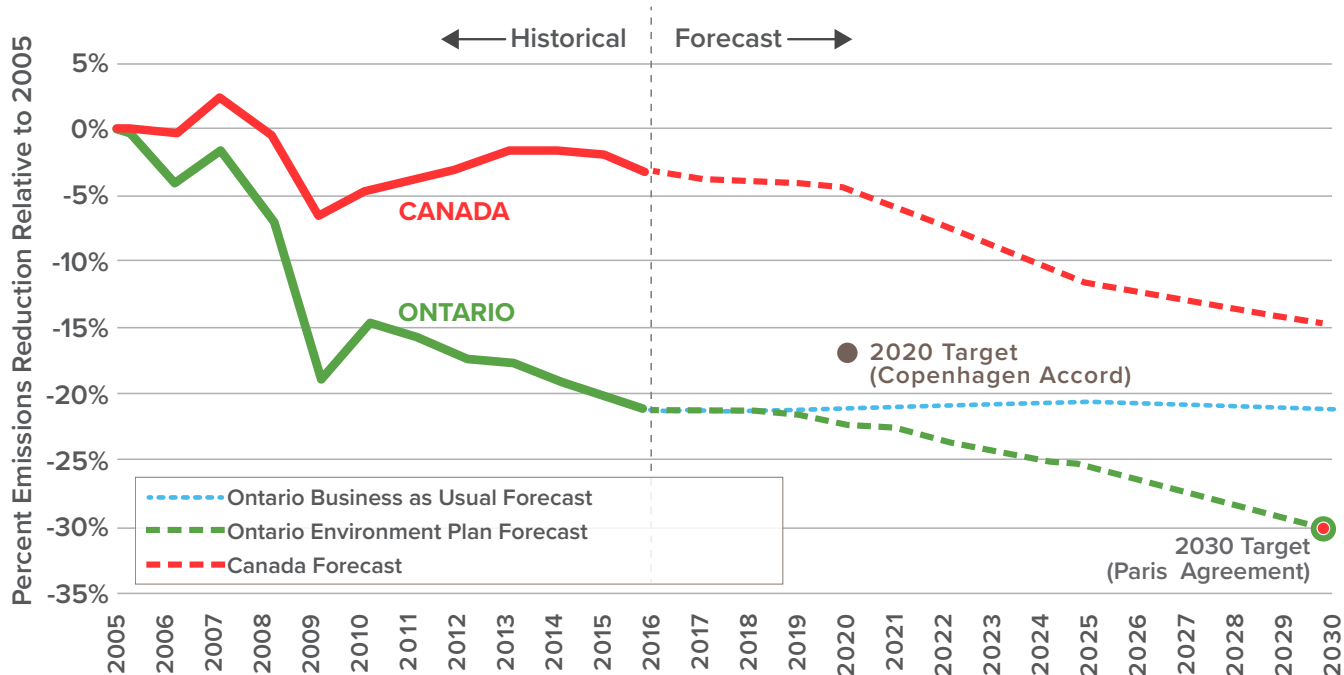
This target takes into consideration the commitment the people of Ontario have already shown in reducing emissions, as well as our commitment to growing Ontario's economy while doing our part to tackle climate change.

There has been a steep decline in emissions from 2005, driven in large part by improvements in the electricity sector, including closing coal-fired

electricity generation. As a result, we are on track to do better than the federal 2020 target set under the Copenhagen Accord in 2010.

The following graph shows our 2030 target is achievable. The policies within this plan will put us on the path to meet our 2030 target, and we will continue to develop and improve them over the next 12 years. This plan will be reviewed and revised on a four-year basis.

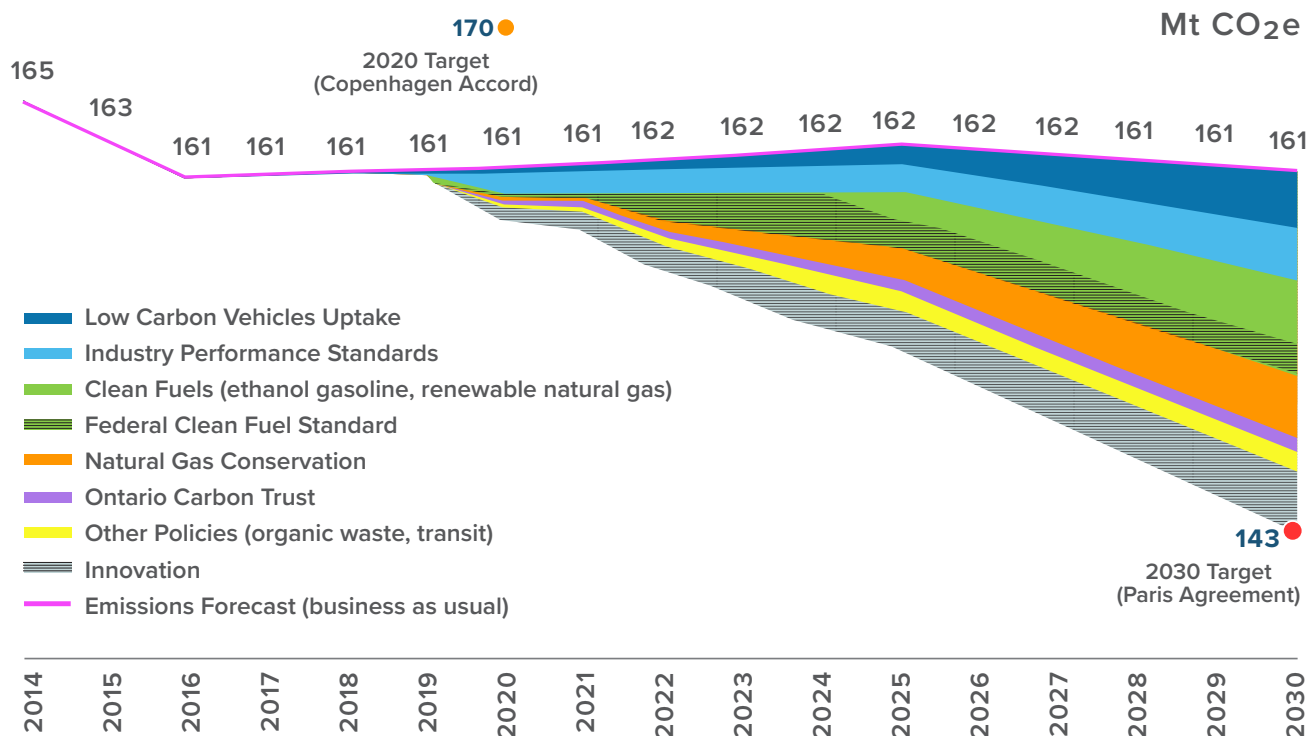
### Past and Projected Greenhouse Gas Emission Reductions for Canada and Ontario



Source: Environment and Climate Change Canada (2018) National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in Canada. Canada 2017 Biennial Report and internal Ontario modelling.



## Path to Meeting Ontario's 2030 Emission Reduction Target



The chart above shows where we expect Ontario's emissions to be if we take no action (161 megatonnes) compared to where we expect our emissions to go if we take actions in specific sectors. Our target is equivalent to 143 megatonnes in 2030 and we will need reductions in key sectors identified in the graph to get there.

The coloured portions of the chart above refer to emissions reductions we expect to see from actions in this plan and the shaded portions represent the potential we have to enhance some of those actions.

The actual reductions achieved will depend on how actions identified in our plan are finalized based on feedback we get from businesses and communities. The estimated reductions are explained in more detail below.

The **Low Carbon Vehicles** uptake portion refers primarily to electric vehicle adoption in Ontario and in small part to the expansion of compressed natural gas in trucking.

**Industry Performance Standards** refer to our proposed approach to regulate large emitters of greenhouse gas emissions, as described later in this plan. The final impact of this approach will depend on consultation with industry partners.

**Clean Fuels** refer to increasing the ethanol content of gasoline to 15% as early as 2025, and encouraging uptake of renewable natural gas and the use of lower carbon fuels.

The Federal **Clean Fuel Standard** is an estimate of the additional impact of the proposed federal standards, which could expand the use of a broad range of low-carbon fuels, energy sources and technologies, such as ethanol, renewable natural gas, greener diesel, electricity, and renewable hydrogen.

The **Natural Gas Conservation** action reflects programs that are well established in Ontario to conserve energy and save people money. This case assumes a gradual expansion of programs delivered by utilities, which would be subject to discussions with the Ontario Energy Board.

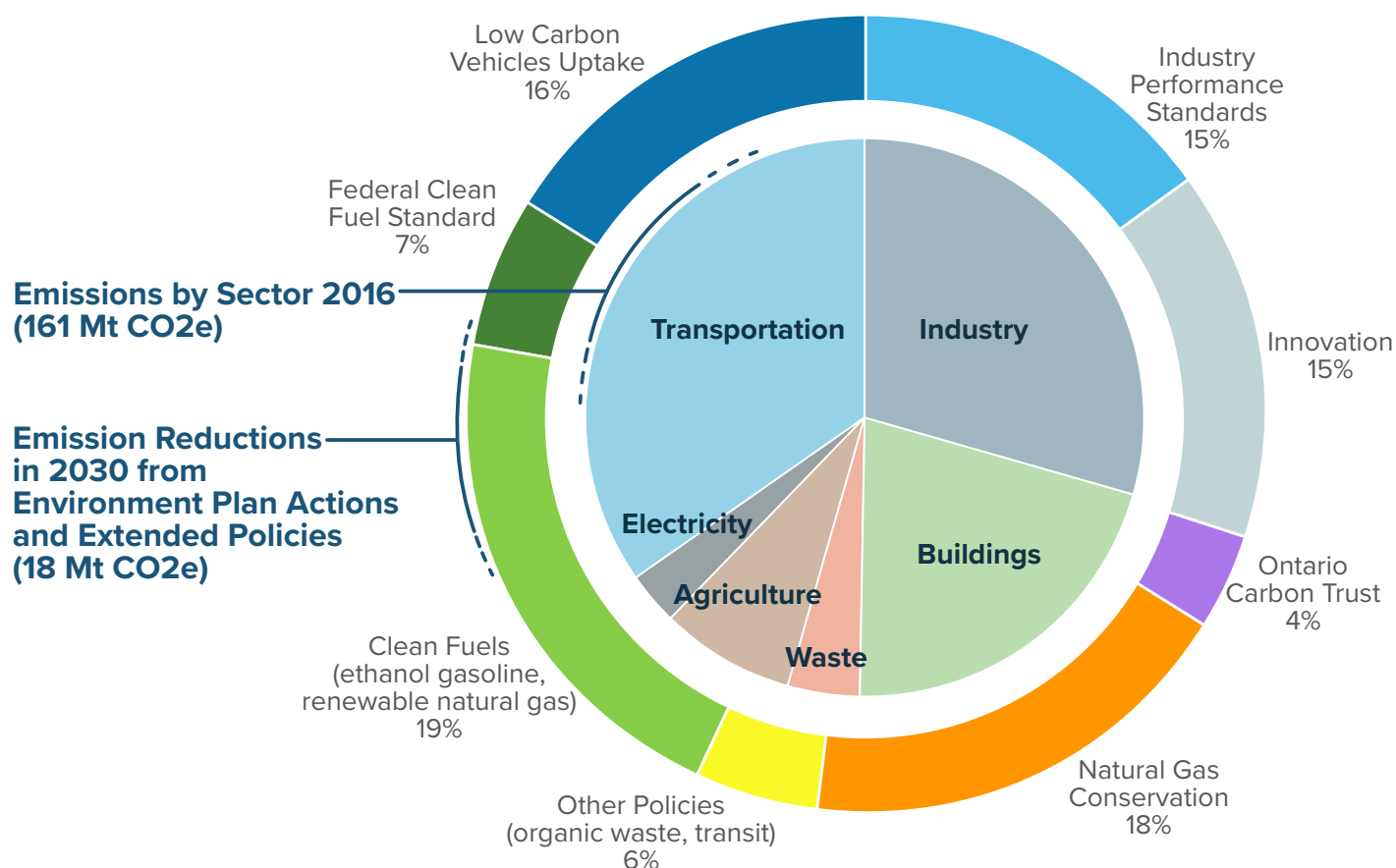
■ The **Ontario Carbon Trust** is an emission reduction fund that will use public funds to leverage private investment in clean technologies that are commercially viable. For this action we estimate a fund of \$350 million will be used to leverage private capital at a 4:1 ratio. Estimates will depend on the final design and mandate of the trust. The estimates also include the potential emission reductions associated with a \$50 million Ontario Reverse Auction designed to attract lowest-cost greenhouse gas emission reduction projects.

■ **Other policies** include the emission reductions associated with investments in public transit, and our commitment to improve diversion of food and organic waste from landfills, as described later in this plan.

■ **Innovation** includes potential advancements in energy storage and cost-effective fuel switching from high intensive fuels in buildings to electricity and lower carbon fuels.

As part of our commitment to transparency, the government is committed to updating and reporting on these estimates once program details are finalized to ensure we are making progress to the 2030 targets.

## Planned Emission Reductions in 2030 by Sector



The chart above shows how the plan is tailored to address Ontario's greenhouse gas emissions. The inner pie shows the breakdown of Ontario's 2016 greenhouse gas emissions by sector. The outer ring colours show the policies from the environment plan that are targeted at reducing emissions in each sector.

The government is committed to balancing emissions reductions and economic growth. Ontario's economy has been growing, even as emissions are declining.

Tracking this improvement is an important part of Ontario's climate change plan. In coming months we will consult on the development of an economy wide carbon intensity target as a complementary metric to our absolute emissions target and to ensure that our climate change plan helps us to continue this positive trend.

The below areas are where we will focus our initiatives and actions to tackle and be more resilient to climate change and to meet our balanced target.

## MAKE POLLUTERS ACCOUNTABLE

We know job creators in this province have made great strides to reduce greenhouse gas emissions, some leading their industry globally. We will ensure polluters pay their fair share for their greenhouse gas emissions, while also ensuring industry continues to make advances to help Ontario achieve its share of reductions.

Greenhouse gas emissions from the industrial sector, including smaller industrial facilities, accounted for 29% of Ontario's total emissions in 2016. We plan to regulate large emitters with a system that is tough but fair, cost-effective and flexible to the needs and circumstances of our province and its job creators. We will also ensure strong enforcement of these rules.

This system will recognize the unique situation of Canada's manufacturing and industrial heartland. Ontario depends on many industries that compete internationally. Our made-in-Ontario standards will consider factors such as trade-exposure, competitiveness and process-emissions, and allow the province to grant across-the-board exemptions for industries of particular concern, like the auto sector, as needed.



## Actions

### Implement emission performance standards for large emitters

We will create and establish emission performance standards to achieve greenhouse gas emissions reductions from large emitters. Each large industrial emitter will be required to demonstrate compliance on a regular basis. The program may include compliance flexibility mechanisms such as offset credits and/or payment of an amount to achieve compliance.

**An emissions performance standard** establishes emission levels that industrial facilities are required to meet and is tied to their level of output or production. This approach does not enforce a blanket cap on emissions across Ontario and takes into consideration specific industry and facility conditions while allowing for economic growth. It also recognizes industries in Ontario that are best-in-class while requiring improvements from sectors that have room to improve.

### Case study: Saskatchewan's output-based performance standards (OBPS) system



In December 2017, Saskatchewan introduced a comprehensive Prairie Resilience climate change strategy, which included a plan to implement an OBPS system in 2019. The OBPS will apply to facilities in regulated sectors that emit more than 25,000 tonnes of greenhouse gas emissions per year. The OBPS is expected to be implemented by January 1, 2019, and the Government of Saskatchewan estimates it will cut annual emissions of covered sectors by 10% by 2030.

In addition, Saskatchewan is regulating emissions from electricity generation to achieve a 40% reduction in electricity emissions, and is regulating flared and vented methane emissions in the upstream oil and gas sector, which will lead to additional annual reductions of 40 to 45% in that sector by 2025.



## ACTIVATE THE PRIVATE SECTOR

Ontario is home to the hub of the Canadian financial industry – banks, investment firms, pension funds and insurance companies. Ontario hosts the head offices of Canada’s five largest banks, three of which rank among the world’s largest 25 banks by market capitalization.

We recognize that our private sector has the capital, capability and know-how to transform clean technology markets and transition Ontario to a low-carbon economy. This is why we intend to help facilitate the private sector’s best projects and ideas to drive emission reductions at the lowest cost to taxpayers. Our plan will ensure the prudent and responsible use of public resources to drive private sector investment.

We also want to enable consistent disclosure about financial risks associated with climate change so that companies can provide information to investors, lenders, insurers and other stakeholders.

Together, these actions will help improve the capacity of the sustainable finance sector in Ontario and position us as a global leader in this area.

### Actions

#### **Launch an emission reduction fund – The Ontario Carbon Trust – and a reverse auction to encourage private investment in clean technology solutions**

Ontario will commit to ensuring funding of \$400 million over four years. These funds will complement penalties paid into The Ontario Carbon Trust by polluters. This will ensure that over the next four years, The Ontario Carbon Trust should be able to leverage over \$400 million to unlock over \$1 billion of private capital.

If Canada’s federal government returns to the Pan-Canadian Framework agreement with the people of Ontario, The Ontario Carbon Trust could be increased by \$420 million through the Low Carbon Economy Leadership Fund. This would increase the fund to \$820 million and unlock more than \$2 billion of private capital. It would also ensure that the people of Ontario are provided the most cost-effective approach to reducing greenhouse gas emissions. Canada’s commitment to partner with the people of Ontario through supporting The Ontario Carbon Trust would allow Ontario to reduce emissions beyond what is forecasted in this plan, and help Canada meet its Paris target.

The Ontario Carbon Trust will use innovative financing techniques and market development tools in partnership with the private sector to speed up the deployment of low-carbon solutions. It will use public funds to leverage private investment in clean technologies that are commercially viable and will have a widespread presence. It will also seek to reduce energy costs for ratepayers, stimulate private sector investment and economic activity, and accelerate the transition to a low-carbon economy.

The Ontario Carbon Trust could consider investing in cost-effective projects from various sectors, such as transportation, industry, residential, business and municipal.

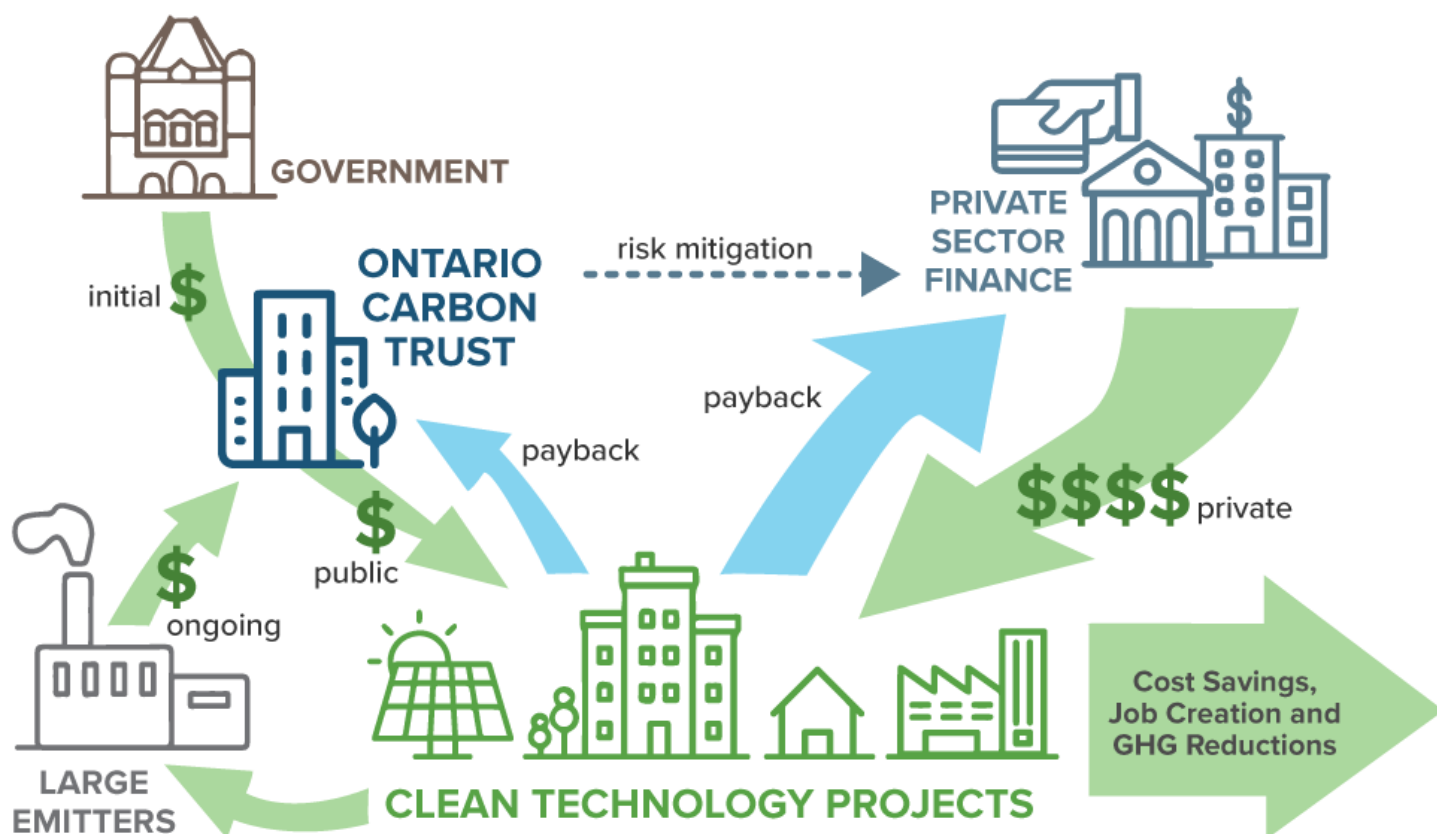
We will establish an independent board with the appropriate expertise, with a mandate to form The Ontario Carbon Trust, which will be tasked with working with the private sector to identify projects that will reduce emissions and deliver cost savings. We will:

- Create an emission reduction fund to support and encourage investments across the province for initiatives that reduce greenhouse gas emissions. The fund will leverage an initial

investment from the government (\$350 million) to attract funds from the private sector in order to drive investment in clean technologies.

- Launch an Ontario Reverse Auction (\$50 million), allowing bidders to send proposals for emissions reduction projects and compete for contracts based on the lowest-cost greenhouse gas emission reductions.

## The Ontario Carbon Trust



Source: Adapted from Coalition for Green Capital, Growing Clean Energy Markets with Green Bank Financing: White Paper, page 2, <http://coalitionforgreencapital.com/wp-content/uploads/2015/08/CGC-Green-Bank-White-Paper.pdf>.

### Case study: NY Green Bank

Created as a division of the New York State Energy Research and Development Authority, NY Green Bank is a state-sponsored, specialized financial entity that works with the private sector to increase investments in clean energy markets.

NY Green Bank's flexible approach to clean energy financing helps reduce the need for government support and increase investments into New York's clean energy markets, creating a more efficient, reliable and sustainable energy system.

By investing funds at market rates, NY Green Bank is able to cover its own costs and keep its funding base for future projects. As of September 30, 2018, NY Green Bank has committed \$580.1 million to support clean energy projects with a total cost of between \$1.44 and \$1.68 billion.

### Enhance corporate disclosure and information sharing

- Work with the financial sector to promote climate-related disclosures in Ontario.
- Encourage the Ontario Securities Commission to improve guidance on climate-related disclosures.

Globally, many financial institutions are adopting the recommendations of the Task Force on Climate-Related Financial Disclosures. Ontario's financial sector is also working to improve disclosures.

**What is a reverse auction?** The buyer, in this case government, sends out a request for proposals, services or contracts. Bids are assessed and chosen based on the lowest cost, which in this case is the lowest cost per tonne of greenhouse gas emission reductions. The "bidders" in the auction compete to win the project or contract, often underbidding each other, resulting in lower costs for the buyer.

## Encourage private investments in clean technologies and green infrastructure

- Ontario will parallel federal changes to the Accelerated Capital Cost Allowance, which will make technology investments in clean energy generation and energy conservation equipment more attractive.
- Work with the Ontario Financing Authority to issue Green Bonds by the end of the fiscal year, after realigning the Green Bond program to support our approach to addressing environmental challenges. This action was included in the Fall Economic Statement.
- Consider tax policy options to encourage the creation of clean technology manufacturing jobs in Ontario.

**Green Bonds** serve as an important tool to help finance projects that will help us address our environmental challenges. Project categories include transit initiatives, extreme-weather resistant infrastructure, and energy conservation and efficiency projects (including health and education-related projects). By capitalizing on low interest rates, Ontario's Green Bonds enable the Province to raise funds while respecting the taxpayers of Ontario and without adversely impacting businesses.

### Success story: Algae carbon capture



In 2012, Pond Technologies, an Ontario technology company, partnered with St. Marys Cement to run a pilot using CO<sub>2</sub> generated by its cement plant to grow algae. Like plants, algae absorb carbon as they grow. Revenue generated from the sale of algae-derived bioproducts provide the economic basis for the adoption of this technology. Pond's pilot proved that reducing greenhouse gas emissions can generate revenue.

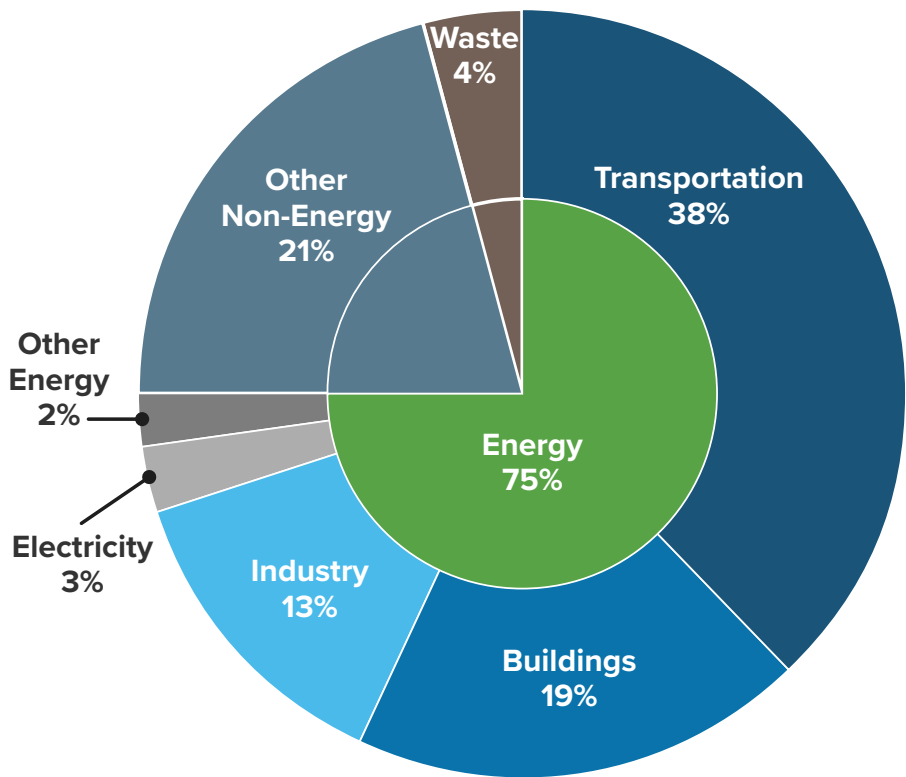


USE ENERGY AND RESOURCES  
WISELY

We will develop climate solutions that will save energy, resources and money.

About 75% of Ontario's greenhouse gas emissions come from using energy in our homes, buildings, vehicles and industry while 4% comes from waste.

Ontario's Energy Use by Sector



Source: Data from Environment and Climate Change Canada, 2018 National Inventory Report

We use gasoline and diesel fuel almost exclusively for transportation, while our main energy source for space and water heating is natural gas. Even though Ontario's vehicles have become more efficient, the number of vehicles on the road has increased.

Today, the transportation sector remains our largest source of emissions. That means we need to focus on using energy more efficiently, including in transportation, on expanding access to cleaner energy.

Our government will ensure the Ontario Energy Board keeps pace with consumer demands and the adoption of innovative energy solutions in this time of unprecedented technological change.

We also know that just over 60% of Ontario's food and organic waste is sent to landfills. In a landfill, it breaks down to create methane, a potent greenhouse gas that contributes to climate change. In fact, methane is 25 times more potent as a greenhouse gas than carbon dioxide. When food and organic waste is sent to landfill, opportunities are lost to preserve valuable resources that could be used to heat our homes, support healthy soils and reduce greenhouse gas emissions.

We will work with partners on ways to make it easier for residents and businesses to waste less food or reuse it for beneficial purposes such as compost.

**Quick Fact: About 60% of Ontario's food and organic waste is sent to landfills which emits methane – a potent greenhouse gas – when it decomposes. Efficient diversion of household waste from landfills is an important tool in the fight against climate change. To read more about our plan to fight litter and waste, see page 40.**

## Actions

### **Conserve energy in homes and buildings to cut costs and reduce emissions**

- Increase the availability and accessibility of information on energy and water consumption so that households, businesses and governments understand their energy use (e.g. collection of data related to electric vehicles, household-level energy and water consumption data). For example, provide customers with access to their energy data by working with electricity and natural gas utilities to implement the [Green Button data standard](#). We will support water utilities to implement Green Button on a voluntary basis.
- Work with the Ontario Real Estate Association to encourage the voluntary display of home energy efficiency information on real estate listings to better inform buyers and encourage energy-efficiency measures.

- Review the Building Code and support the adoption of cost effective energy efficiency measures that can lower the cost of electricity and natural gas needed to operate buildings. Ontario is currently a leading jurisdiction in Canada when it comes to energy efficiency standards in its Building Code. Today, Ontario's Building Code ensures new homes built after 2017 use 50% less energy to heat and cool than houses built before 2005, resulting in a much lower carbon footprint than older homes.
- Work with the Ontario Energy Board and natural gas utilities to increase the cost-effective conservation of natural gas to simultaneously reduce emissions and lower energy bills.
- Ensure Ontario's energy-efficiency standards for appliances and equipment continue to be among the highest in North America.

**Quick Fact: Enbridge Gas Distribution and Union Gas offer gas conservation programs that offer incentives for homeowners to complete upgrades that make their homes more energy efficient. Each dollar spent results in up to \$2.67 in reduced energy bills for program participants.**

## Increase access to clean and affordable energy for families

- Continue to support connecting Indigenous communities in Northern Ontario to Ontario's clean electricity grid, to replace local diesel and other types of electricity generation.
- Increase the renewable content requirement (e.g. ethanol) in gasoline to 15% as early as 2025 through the Greener Gasoline regulation, and reduce emissions without increasing the price at the pump, based on current ethanol and gasoline prices.
- Encourage the use of heat pumps for space and water heating where it makes sense, as well as innovative community-based systems like district energy.
- Require natural gas utilities to implement a voluntary renewable natural gas option for customers. We will also consult on the appropriateness of clean content requirements in this space.
- Consult on tax policy options to make it easier for homeowners to increase energy efficiency and save money.
- Streamline and prioritize environmental approvals for businesses that use low-carbon

technology, while maintaining high standards for environmental protection.

- Support the integration of emerging smart grid technologies and distributed resources – including energy storage – to harness and make best use of Ontario's clean electricity.
- Improve rules and remove regulatory barriers that block private investors from deploying low-carbon refueling infrastructure that will help increase the uptake of electric, hydrogen, propane, autonomous and other low-carbon vehicles without government subsidies.
- Collaborate with the private sector to remove barriers to expanding 24/7 compressed natural gas refueling stations for trucks along the 400-series highways, and maintain the existing tax exemption (gasoline and fuel tax) on natural gas as a transportation fuel. This will provide heavy-duty vehicles (such as transport trucks) with a cost-effective path to lower on-road transportation emissions.

**Quick Fact: Natural gas is exempt from the fuel tax in Ontario, and natural gas trucks have a smaller carbon footprint compared to diesel trucks.**



**Success story:**  
**Niagara Falls pump  
generating station produces  
zero-emissions power**



Ontario Power Generation's Sir Adam Beck Pump Generating Station is an important source of flexible zero-emissions power for Ontarians. The station fills a 750-acre reservoir when demand for power is low, storing the equivalent amount of energy as 100,000 electric car batteries. The filled reservoir can then be used to generate hydroelectric power when needed, displacing 600 megawatts of fossil fuel generation for up to eight hours.

**Success story:**  
**Partnering to fuel lower-  
carbon heavy-duty  
transportation**



In April 2018, Union Energy Solutions Limited Partnership, an unregulated affiliate of Union Gas Limited (an Enbridge Company), announced a partnership with Clean Energy to build three compressed natural gas fueling stations along Ontario's Highway 401. The initiative will enable heavy-duty vehicles (such as transport trucks) that use natural gas as a transportation fuel to travel and refuel along the 401, leading to lower on-road transportation emissions.

**Case study:**  
**Electrify Canada building an electric vehicle  
charging network**

Electrify Canada is a new company that will build ultra-fast charging networks for electric vehicles across Canada, which are anticipated to be operational starting in 2019. This includes the installation of 32 electric vehicle charging sites near major highways and in major metro areas in British Columbia, Alberta, Ontario and Quebec.

## DOING OUR PART: Government Leadership

Ontario is committed to doing its part to address climate change. This includes leading by example. We will encourage local leadership on climate change, including municipal governments, the broader public sector, business associations, community groups, Indigenous communities and voluntary organizations to develop and promote climate solutions for their members and communities. We will continue to engage on international climate issues by providing Ontario's perspective to Canada's international climate negotiations.

As part of the government's commitment to curriculum renewal we will explore changes that embed learning about the environment in the classroom. Learning about protecting our air,



land and water, addressing climate change, and reducing the amount of litter and waste in our communities will not only raise awareness in schools, it will also enable students to pass on this knowledge to their families.

Partnering with and enabling people, businesses, municipalities and schools will help us find ways to address local issues and needs, save energy and costs, and minimize climate risks to our schools, hospitals, highways and critical infrastructure.

### Actions

#### **Make climate change a cross-government priority**

- Improve our ability to consider climate change when we make decisions about government policies and operations by developing a Climate Change Governance Framework that will:
  - Establish clear responsibilities and requirements for ministries to track and report on climate change measures.
  - Consider climate change when we purchase goods and services across government, where it is cost-effective (i.e. low-carbon intensity steel and cement).
  - Explore opportunities to enhance coordination and guidance for municipalities to help them consider climate change in their decision-making.
  - Update Statements of Environmental Values to reflect Ontario's environmental plan.

- Continue to execute a high-performance building automation strategy for government buildings. This strategy uses advanced automation and integration to measure, monitor, and control operations and maintenance at the lowest cost, also reducing greenhouse gas emissions during day-to-day building operations. The strategy includes, but is not limited to, HVAC and lighting controls, security, elevators, fire protection, and life safety systems in order to improve performance and to reduce energy consumption.
- Ensure investments in future renovations of government buildings maximize energy cost savings. For instance, Ontario is building new correctional facilities to meet LEED standards, which ensures high environmental performance and will improve efficiency while saving money.
- Undertake a review of government office space, with an eye to optimizing our physical and carbon footprint. Ontario will reduce its per employee real estate footprint to reduce energy costs and emissions, as recommended in the Auditor General's 2017 Report.
- Support the adoption of low-carbon technologies and climate resilience measures by working to reduce costly and time-consuming regulatory and operational barriers.
- Encourage the federal government to ensure that climate negotiations under Article 6 of the Paris Agreement improve our cleantech sector's access to emerging global markets for low-carbon technologies. Ontario is a leader in clean technology and more access to global markets will help our local companies create new green jobs in Ontario.
- Develop tools to help decision makers

understand the climate impacts of government activities. For example, we will identify and report on emissions reductions from school capital investments and enable school boards to access energy efficiency data to inform their investment decisions.

- Provide guidance to public property owners of heritage buildings to help them reduce their energy use and save on operating costs while continuing to conserve these important cultural heritage resources for future generations.
- Continue to support the purchase of electric ferries which will be in service in 2020 and 2021 connecting Wolfe and Amherst Islands to the mainland.

**Quick fact: The government's annual procurement budget to purchase goods and services is \$6 billion.**

**Success story:  
Ontario's private sector  
leads the country in  
cleantech**



Ontario has the largest and fastest-growing cleantech sector in Canada, with \$19.8 billion in annual revenues and over 5,000 companies employing 130,000 people.

Ontario is home to 35% of Canada's innovative cleantech companies.

Ontario is a leading hub for water technologies with over 900 companies and 22,000 employees.



**Success story:**  
**Government building renovations to save energy and money**

The Queen's Park Reconstruction Project is an eight-year initiative that involves the extensive reconstruction of the Macdonald Block Complex, which is located in downtown Toronto and includes the Macdonald Block Podium, Hearst, Hepburn, Mowat and Ferguson Towers.

The 47-year-old Macdonald Block Complex is home to the largest concentration of political and public service individuals in the province. It has never undergone a major renovation and the building's core systems, including electrical, water, cooling and heating, have reached the end of their useful life.

Following advice from an independent third-party expert panel, the government's Macdonald Block Complex is undergoing extensive reconstruction to achieve significant long-term cost and energy savings for the province over the next 50 years. Those savings will be achieved through reduced operating costs, lower energy and capital maintenance expenditures, and the reduction of costly third-party leases across the downtown Toronto core. The reconstructed Macdonald Block Complex will meet LEED silver certification.



**Success story:**  
**City of Toronto Green Fleet**

The City of Toronto's Green Fleet Plan focuses on reducing emissions from almost 10,000 vehicles as well as by equipment owned and operated by the city. The consolidated plan, led by the Fleet Services Division, brings together all five major City of Toronto fleets – City of Toronto Fleet Services Division, Emergency Medical Services, Toronto Fire Services, Toronto Police Service, and Toronto Transit Commission – under one plan.

As of 2017, the city had 2,091 green vehicles and pieces of equipment in its fleet, representing 24% of the total number of vehicles in the city's fleet.

**Empower effective local leadership on climate change**

- Work with municipalities to develop climate and energy plans and initiatives to support building climate resilience and transformation to the low-carbon future.
- Support the efforts of Indigenous communities to integrate climate action into local plans and initiatives for community power, economic development, health and sustainability.
- Encourage local leadership by forming stronger partnerships and sharing best practices with community groups and business associations.

## Improve public transportation to expand commuter choices and support communities

**Commit \$5 billion more for subways and relief lines. Ontario will also invest in a two-way GO transit service to Niagara Falls, as part of the existing plan to build a regional transportation system.**

- Establish a public education and awareness program to make people more aware of the environmental, financial and health impacts of their transportation choices.
- Develop a plan to upload the responsibility for Toronto Transit Commission (TTC) subway infrastructure from the City of Toronto to Ontario. An upload would enable the province to implement a more efficient regional transit system, and build transit faster. Moreover, this would allow the province to fund and deliver new transit projects sooner.



## Support green infrastructure projects

We're also greening the government's fleet of vehicles. The Ontario Public Service currently has 1,632 hybrid, plug-in hybrid and full battery electric vehicles, which represent 70% of its entire passenger vehicle fleet.

**Work with federal and municipal governments through the green stream of the Investing in Canada Infrastructure Program to invest up to \$7 billion in federal, provincial and municipal funding over the next 10 years. Funding could be for projects that lower greenhouse gas emissions, reduce pollution, and help make community infrastructure more resilient. Example investments could include improvements to transit and transportation infrastructure and improved local water, wastewater and stormwater systems.**

### Early actions: GO Train Service Increase

This government is expanding GO service and making it easier for commuters and members of the community to move around the GTHA. More riders in seats relieves congestion on the roads. We're providing more reliable, predictable journeys across the region – greatly improving the daily transit experience. These improvements bring us a step closer to our vision to deliver two-way, all-day GO service.

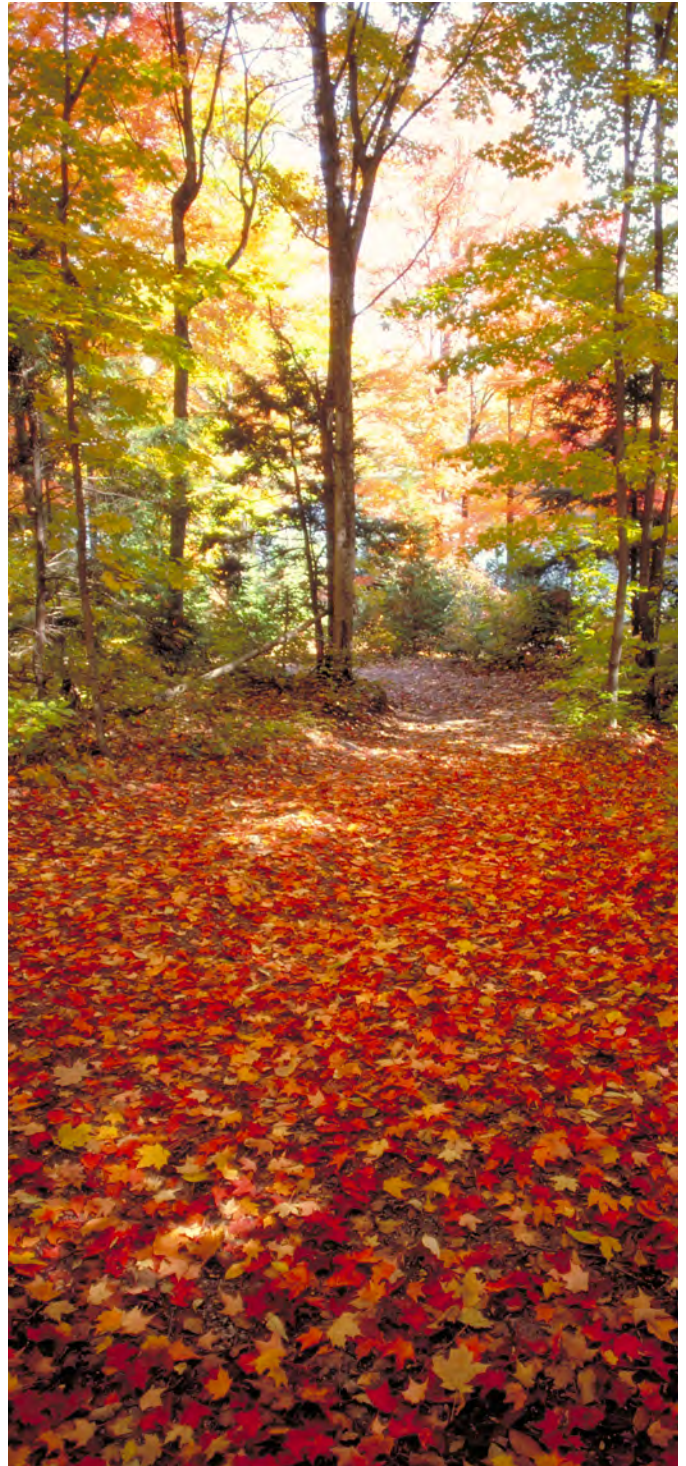
# Reducing Litter and Waste in Our Communities & Keeping our Land and Soil Clean

Currently, Ontario generates nearly a tonne of waste per person every year and our overall diversion rate has stalled below 30% over the last 15 years. Ontario needs to reduce the amount of waste we generate and divert more waste from landfill through proven methods like Ontario's curbside Blue Box Program, existing and emerging municipal green bin programs and other waste recovery options. Existing and emerging technologies are increasingly allowing us to recover and recycle materials back into our economy rather than sending them to landfills. This is helping us to better protect our communities and keep our air, land and water clean and healthy.

To keep our land and water clean, we will take strong enforcement action to ensure waste, including hazardous waste, is properly stored, transported, recycled, recovered or disposed.

We are looking at proposed ways to:

- Reduce the amount of waste going to landfills or becoming litter
- Increase opportunities for Ontarians to participate in efforts to reduce waste
- Increase opportunities to use technologies, such as thermal treatment, to recover valuable resources in waste
- Manage excess soil and hauled sewage
- Redevelop brownfield sites to better protect human health and the environment



# REDUCE LITTER AND WASTE

Today, some of the highest waste diversion rates in the province are in our homes. Ontarians divert almost 50% of their own household waste, through sorting what they throw away into their blue bin and, increasingly, their green bin.

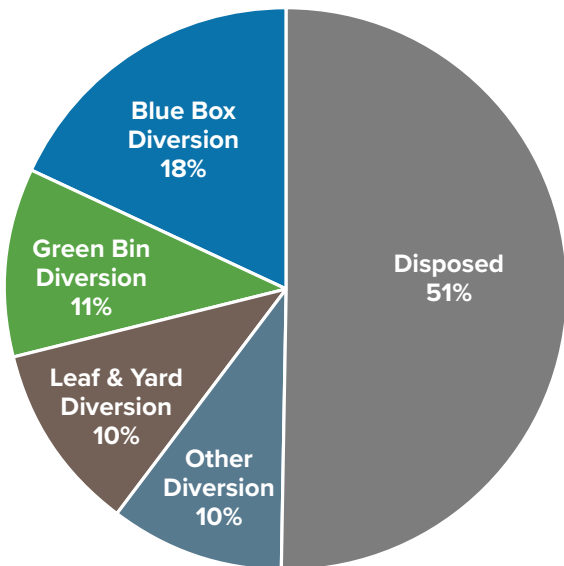
However, Ontario's general waste diversion rate (residential, commercial and industrial) has been stalled at below 30% over the past 15 years – meaning that over 70% of our waste materials continue to end up in landfills. Such heavy reliance on landfills will require the province to either focus on siting new landfills or look for new ways to reduce what we send to them.

While some individual municipalities and businesses have shown leadership, Ontarians

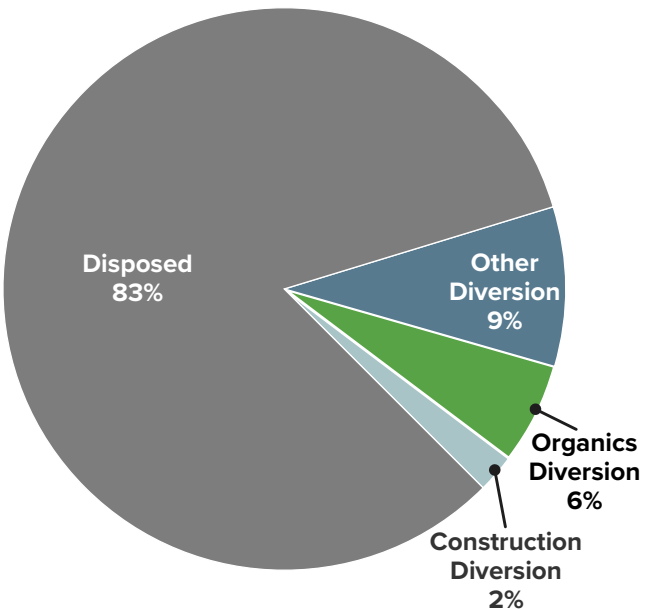
know there is still a lot more that can be done to reduce the amount of waste we produce, recover valuable resources from our waste and better manage organics.

We believe that producers should be responsible for managing the waste they produce. Placing responsibility squarely on those who produce the waste will help unleash the creative talents and energies of the private sector. Making producers responsible for the full life-cycle of their products and the waste they produce will help companies to consider what materials they use in and to package their products, and find new and innovative cost-effective ways to recycle them and lower costs for consumers. It can also make recycling easier and more accessible right across the province, keeping it clean and beautiful.

## Ontario's Residential and Industrial, Commercial and Institutional Waste Management



**Residential Waste:** Managed by municipalities. Includes waste generated by residents in single-family homes, some apartments and some small businesses. Mix of mandatory and voluntary diversion programs.



**Business Waste:** Managed by the private sector. Includes food processing sites, manufacturing facilities, schools, hospitals, offices, restaurants, retail sites and some apartments. Largely voluntary diversion programs.

Sources: Statistics Canada, Waste Management Industry Survey 2016 for non-residential data; Resource Productivity and Recovery Authority, Datacall data and residential diversion rates for residential data. Data on organic waste from 2018 study prepared for MECP by 2cg.

## Actions

### Reduce and divert food and organic waste from households and businesses

- Expand green bin or similar collection systems in large cities and to relevant businesses.
- Develop a proposal to ban food waste from landfill and consult with key partners such as municipalities, businesses and the waste industry.
- Educate the public and business about reducing and diverting food and organic waste.
- Develop best practices for safe food donation.



#### Success story: Farmers receive support for food donations

The rescue of surplus food helps ensure food does not go to waste. Ontario supports these efforts through the following mechanisms:

- The Ontario Community Food Program Donation Tax Credit for Farmers provides tax credits up to 25% to farmers who recover and donate agricultural products to eligible programs.
- The Ontario Donation of Food Act, 1994, encourages donations, with certain limitations, and protects food donors from liability as a result of injuries caused by the consumption of donated food.



#### Success story: City of Stratford turning organic waste into natural gas

Stratford, Ontario, is improving its wastewater treatment infrastructure to produce renewable natural gas from organic waste and feed it back into the local gas distribution system. Renewable natural gas is a clean, carbon-neutral energy source.

## Reduce plastic waste

- Work with other provinces, territories and the federal government to develop a plastics strategy to reduce plastic waste and limit micro-plastics that can end up in our lakes and rivers.
- Seek federal commitment to implement national standards that address recyclability and labelling for plastic products and packaging to reduce the cost of recycling in Ontario.
- Work to ensure the Great Lakes and other inland waters are included in national and international agreements, charters and strategies that deal with plastic waste in the environment.

## Reduce litter in our neighbourhoods and parks

Our environment plan reflects our government's commitment to keep our neighbourhoods, parks and waterways clean and free of litter and waste. When Ontarians walk their dog or take their children to the park they expect their time outdoors to be litter-free.

**Ontario will establish an official day focused on cleanup of litter in Ontario, coordinated with schools, municipalities and businesses, to raise awareness about the impacts of waste in our neighbourhoods, in our waterways and in our green spaces.**

- Work with municipal partners to take strong action against those who illegally dump waste or litter in our neighbourhoods, parks and coastal areas.



- Develop future conservation leaders through supporting programs that will actively clean up litter in Ontario's green spaces, including provincial parks, conservation areas and municipalities.
- Connect students with recognized organizations that encourage environmental stewardship so they could earn volunteer hours by cleaning up parks, planting trees and participating in other conservation initiatives.

### **Increase opportunities for Ontarians to participate in waste reduction efforts**

- Work with municipalities and producers to provide more consistency across the province regarding what can and cannot be accepted in the Blue Box program.
- Explore additional opportunities to reduce and recycle waste in our businesses and institutions.

### **Make producers responsible for the waste generated from their products and packaging**

- Move Ontario's existing waste diversion programs to the producer responsibility model. This will provide relief for taxpayers and make producers of packaging and products more efficient by better connecting them with the markets that recycle what they produce.

### **Explore opportunities to recover the value of resources in waste**

- Investigate options to recover resources from waste, such as chemical recycling or thermal treatment, which have an important role – along with reduction, reuse and recycling – in ensuring that the valuable resources in waste do not end up in landfills.
- Encourage increased recycling and new projects or technologies that recover the value of waste (such as hard to recycle materials).

### **Provide clear rules for compostable products and packaging**

- Ensure new compostable packaging materials in Ontario are accepted by existing and emerging green bin programs across the province, by working with municipalities and private composting facilities to build a consensus around requirements for emerging compostable materials.
- Consider making producers responsible for the end of life management of their products and packaging.



#### **Success story: Making products compostable to reduce waste**

Club Coffee makes a compostable coffee pod used by brands including Loblaw Companies Limited (President's Choice), Ethical Bean, Muskoka Roastery, Melitta Canada and Jumping Bean. Club Coffee works with municipalities so coffee drinkers can put these pods in their green bins; however they are not yet accepted in every program. We will work to support businesses that are trying to do the right thing and with leading municipalities that are working to reduce waste going to landfills. This will include working with industry and municipal partners to help ensure contamination of the Blue Box and green bin programs is minimized and that the public is provided with accurate information on how to properly manage compostable products and packaging.

## Support competitive and sustainable end-markets for Ontario's waste

- Cut regulatory red tape and modernize environmental approvals to support sustainable end markets for waste and new waste processing infrastructure.
- Provide municipalities and the communities they represent with a say in landfill siting approvals. While we work to reduce the amount of waste we produce, it is recognized that there will be a need for landfills in the future. The province will look for opportunities to enhance municipal say while continuing to ensure that proposals for new and expanded landfills are subject to rigorous assessment processes and strict requirements for design, operation, closure, post-closure care and financial assurance.

## CLEAN SOIL

Rural and urban communities benefit from healthy soil and land. Soils with contaminants need to be cleaned up to ensure new home owners or property users are safe, and contaminated soils are not relocated to farms where our food is grown. Having clear rules and standards around how extra soil from construction projects is managed, relocated and reused makes it easier for construction businesses to know what soils they can reuse and what soils need to be disposed of or treated before reusing.

Proper management of excess soil can reduce construction costs and unnecessary landfilling while ensuring soil from construction projects is safe for the environment and human health. By clarifying what soil can be reused locally, we can also reduce greenhouse gas emissions generated by trucking soil from place to place unnecessarily.



Redevelopment of underused, often contaminated sites (brownfields) also provides an opportunity to clean up historical contamination and put vacant prime land back into good use.

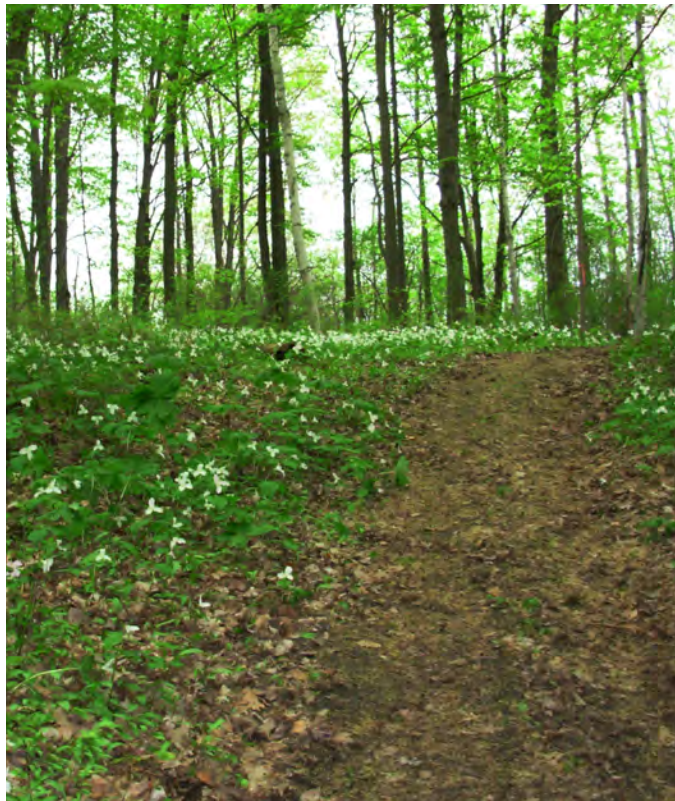
## Actions

### **Increase the redevelopment and clean-up of contaminated lands in Ontario to put land back into good use**

- Revise the brownfields regulation and the record of site condition guide to reduce barriers to redevelop and revitalize historically contaminated lands, putting vacant prime land back to good use.

### **Make it easier and safer to reuse excess soil**

- Recognize that excess soil is often a resource that can be reused. Set clear rules to allow industry to reduce construction costs, limit soil being sent to landfill and lower greenhouse gas emissions from trucking by supporting beneficial reuses of safe soils.



- Work with municipalities, conservation authorities, other law enforcement agencies and stakeholders to increase enforcement on illegal dumping of excess soil.

### **Economic benefits of reusing soil**

**Traditional excess soil management using “dig and dump” approaches is substantially more expensive than using best practices for reusing soil from construction. According to a recent industry study, projects that use excess soil management best practices for reuse experienced an average of 9% in cost savings (Ontario Society of Professional Engineers, Greater Toronto Sewer and Watermain Contractors Association, Residential and Civil Construction Alliance of Ontario). Savings are due to reduced hauling distances and diverting soils away from landfills.**

### **Improve management of hauled sewage**

- Consider approaches for the management and spreading of hauled sewage to better protect human health and the environment (including land and waterways) from the impacts of nutrients and pathogens.

# Conserving Land and Greenspace

People travel from around the world to experience the natural wonders that we often take for granted in the province of Ontario. The natural spaces across Ontario, such as forests, wetlands and parks purify our air and water, protect biodiversity and natural heritage, provide recreational opportunities and support Indigenous traditional practices.

We as Ontarians have a long history of putting a strong focus on expanding Ontario's parks and protected areas. In 1999, Ontario's Living Legacy Land Use Strategy was announced. A clear and major goal of this plan was to complete Ontario's

system of parks and protected areas. Our government remains dedicated to maintaining the natural beauty of our province.

As mentioned earlier in the plan, we know that climate change poses a serious threat to Ontario's natural areas and that conservation of these areas can play an important role in mitigating and adapting to climate change. We will protect and enhance our natural areas, support conservation efforts, continue to conserve species at risk, develop adaptation strategies, and promote the importance of healthy natural spaces for future generations to use and enjoy.



**Quick Fact: Ontario's Living Legacy commitment was one of the greatest expansions of Ontario's provincial parks and conservation reserves in recent history. Over the immediate years that followed, the commitment resulted in the creation of 58 new provincial parks and 268 new conservation reserves, a total area of 1,996,214 hectares.**

## Action Areas

### Improve the resilience of natural ecosystems

- Collaborate with partners to conserve and restore natural ecosystems such as wetlands, and ensure that climate change impacts are considered when developing plans for their protection.
- Strengthen and expand grassland habitats by implementing the province's Grassland Stewardship Initiative that supports on-farm conservation activities to benefit grassland birds at risk.
- Protect against wildland fire incidents through the ongoing development of Community Wildfire Protection Plans and update technical guidance to protect people and property from flooding and water-related hazards.

- Work with leaders in land and water conservation, like Ducks Unlimited Canada and the Nature Conservancy of Canada, to preserve areas of significant environmental and ecological importance.

#### Success story:

#### Innovative Wetland in Middlesex County protects Lake Erie



Ducks Unlimited Canada, the Municipality of Southwest Middlesex, Ontario NativeScape and the Ministry of Natural Resources and Forestry built three retention ponds to capture water draining from more than 200 acres of farmland. The wetland acts as a filter to reduce excess nutrients (such as phosphorus that can create harmful algal blooms in water) reaching the Thames River and eventually Lake Erie.

### Forest fires increase in Ontario in 2018

Prolonged dry conditions throughout Ontario made 2018 one of the most active forest fire seasons in recent years, with more than 1,300 forest fires burning over 265,000 hectares of forest, nearly double the 10-year average. While the number and intensity of fires varies greatly from year to year and it is difficult to connect any given forest fire to the effects of climate change, most research suggests that Ontario will experience more fires and longer fire seasons in the years ahead. While forest fires pose a serious threat to public safety, communities, and infrastructure, they are also an important natural process in Ontario's forest ecosystems. Managing forest fires in Ontario is about balancing the benefits of forest fires, and protecting public safety and communities.

## Support conservation and environmental planning

- Work in collaboration with municipalities and stakeholders to ensure that conservation authorities focus and deliver on their core mandate of protecting people and property from flooding and other natural hazards, and conserving natural resources.
- Look to modernize Ontario's environmental assessment process, which dates back to the 1970s, to address duplication, streamline processes, improve service standards to reduce delays, and better recognize other planning processes.
- Protect vulnerable or sensitive natural areas such as wetlands and other important habitats through good policy, strong science, stewardship and partnerships.
- Improve coordination of land use planning and environmental approval processes by updating ministry guidelines to help municipalities avoid the impacts of conflicting land uses.

**The Ontario government is committed to protecting the Greenbelt for future generations. The Greenbelt consists of over two million acres of land in the Greater Golden Horseshoe including farmland, forests, wetlands and watersheds. It includes the Oak Ridges Moraine and the Niagara Escarpment, and provides resilience to extreme weather events by protecting its natural systems and features.**





## Promote parks and increase recreational opportunities

- Support the creation of new trails across the province.
- Provide Ontario families with more opportunities to enjoy provincial parks and increase the number of Ontarians taking advantage of parks by 10% or approximately one million more visitors while protecting the natural environment.
- Look for opportunities to expand access to parks throughout the province, but ensure Ontario Parks has the tools it needs to conduct its business and create a world-class parks experience.
- Work to ensure that all fish and wildlife licence fees, fines and royalties collected in the Special Purpose Account go towards its stated purpose of conservation, with transparency for hunters and anglers in Ontario.
- Promote the link between nature and human health by supporting the worldwide movement for Healthy Parks Healthy People through

Ontario Parks' events, education, and the development of a discussion paper to engage the public.

- Review management of provincial parks and conservation reserves to ensure effectiveness by exploring internationally recognized tools and best practices.
- Share the responsibility of conserving Ontario's protected lands by continuing to partner with municipalities, conservation authorities, Indigenous communities, conservation organizations and other community groups such as trail groups.

**Conservation of Ontario's rich biodiversity and natural resources is a shared responsibility - success relies on Ontario working together with First Nation and Métis communities, hunters and anglers, conservation groups and other partners to achieve positive outcomes for our environment.**

**Quick Fact: Ontario manages and protects 340 provincial parks and 295 conservation reserves totalling 9.8 million hectares or 9% of the province – an area larger than the entire province of New Brunswick. In 2018, Ontario celebrated the 125th anniversary of the provincial parks system and of Algonquin Provincial Park.**

- Increase the use of Ontario timber in building, construction and renovation to reduce emissions and increase long-term carbon storage.

**What is carbon storage?** Carbon storage refers to capturing carbon dioxide – and other greenhouse gases in the atmosphere – through vegetation and soils. Practices that remove carbon dioxide from the atmosphere include sustainable forest management, conserving and restoring natural ecosystems, and enhancing soil carbon in agriculture.

Forests begin to emit greenhouse gases as the trees age and die, while younger forests that are growing vigorously sequester carbon from the atmosphere. Sustainable forestry practices can encourage forests to grow and to increase carbon stored in forests and harvested wood products.

### **Sustainable Forest Management**

- Work with Indigenous organizations, the forestry industry and communities involved in managing Ontario's forests under sustainable forest management plans. Ontario will support forest managers to further reduce emissions and increase carbon storage in forests and harvested wood products. Ontario's sustainable forest management provides for the long-term health of Ontario's forests by providing potential opportunities to reduce and store greenhouse gases as trees capture and store carbon dioxide.
- Promote the use of renewable forest biomass, for example, in the steel industry and as heating fuel for northern, rural and Indigenous communities.
- Improve data and information, informed by Indigenous Traditional Knowledge where offered, on greenhouse gas emissions and carbon storage from forests, the changing landscape and permafrost.

**Quick Fact: Sandbanks Provincial Park is one of the busiest parks in the province, welcoming over 750,000 visitors every summer. To meet a growing demand for camping, Ontario Parks opened a new campground in Sandbanks Provincial Park in May 2017, featuring 75 campsites.**

## Protect species at risk and respond to invasive species

- Reaffirm our commitment to protect species at risk and their habitats, as we mark the 10th anniversary of Ontario's Endangered Species Act. We are committed to ensuring that the legislation provides stringent protections for species at risk, while continuing to work with stakeholders to improve the effectiveness of the program.
- Protect our natural environment from invasive species by working with partners and other governments and using tools to prevent, detect and respond to invasions.



## Invasive species impact fish and wildlife, and hurt Ontario's economy

Invasive species like the emerald ash borer are killing our trees, phragmites (a type of grass) are taking over wetlands, and zebra mussels are clogging water intakes for industry and cottagers. Second to habitat loss, invasive species are recognized as the second leading global cause to the loss of biodiversity. In addition, invasive species are impacting our recreational opportunities such as boating, swimming, angling, and hunting, and their economic costs are staggering. A recent study estimated impacts of invasive species in Ontario at \$3.6 billion annually with municipalities spending at least \$38 million in 2017/18.

Preventing invasive species from arriving and establishing themselves is the single most effective and least costly method to manage invasive species. Ontario is working with a number of conservation partners to coordinate prevention, control, research and management activities to help address this serious threat. Raising public awareness and engaging individuals in taking preventive action is key in preventing new species from arriving and surviving.

# Next Steps

## IMPLEMENTING OUR PLAN

Ontario's environment plan presents new direction for addressing the pressing challenges we face to protect our air, land and water, clean up litter and waste, build resiliency and reduce our greenhouse gas emissions.

Our plan includes proposed incentives to stimulate growth in clean technologies, enhance leadership and collaboration to build a province-wide commitment to protecting the environment, and take action on climate change.

Our plan will help people and businesses across Ontario take actions that will save money, enhance communities, create new jobs and grow the economy.

## Next steps

As part of our work on this plan, we are also undertaking several important steps to finalize our environment actions for Ontario. Over the coming months, we will:

- **Continue to consult with the public and engage with Indigenous communities**

Throughout the environment plan we have identified areas of action and key initiatives. These are areas where we are engaging with stakeholders and Indigenous communities to develop new approaches that support our common goals for environmental and climate leadership.



- **Establish an advisory panel on climate change**

An advisory panel on climate change will be established to provide advice to the Minister on implementation and further development of actions and activities in our plan specific to climate change.

- **Begin implementing priority initiatives**

In the plan we have identified a number of priority initiatives. Some of these initiatives are already underway and we will begin implementation of the remaining initiatives following consultation.

- **Measure and report on progress**

We want Ontarians to see how our plan is helping them save money and improve the quality of their lives and communities. We are committed to reporting regularly on the progress we make on our plan and to developing key indicators of progress because we believe that transparency is important to the success of this plan. We are also committed to reviewing the environment plan every four years.

Our consultations and engagement with various stakeholders, Indigenous communities and the public will help refine our environment initiatives by incorporating valuable insights that ensure the actions we adopt reflect the needs of Ontarians.

Comments, ideas and suggestions on the actions and initiatives in Ontario's plan to protect the environment can be made on the [Environmental Registry](#).



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## **MEMORANDUM**

**WMPSC-C 10-2019**

**Subject: Proposed Producer Responsibility Framework for Waste Electrical and Electronic Equipment and Batteries**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Jennifer Mazurek, Acting Manager, Waste Policy and Planning**

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This memorandum provides an update on recent actions related to batteries and Waste Electrical Electronic Equipment (WEEE), in support of the Province's Waste Free Ontario Act, 2016 (last update in WMPSC-C 23-2018). It also provides Committee with a copy of Waste Management staff comments (attached as Appendix A) to the Ministry of the Environment, Conservation and Parks (MECP), in regards to the stakeholder consultations sessions on the Proposed Producer Responsibility Framework for WEEE and batteries (Proposed Framework).

Under the Resource Recovery and Circular Economy Act, 2016 (RRCEA), the Province is shifting to a producer responsibility framework for products and packaging, making producers and brand holders accountable for recovering resources and reducing waste associated with products. The Waste Diversion Transition Act, 2016, allows for the products and packaging managed under existing waste diversion programs to be transitioned to the new producer responsibility framework. Batteries are currently part of an existing larger waste diversion program, the Municipal Hazardous or Special Waste (MHSW) program. A revised direction letter (Appendix B) was issued on December 11, 2018 by the MECP to Stewardship Ontario (SO), instructing SO to wind up the battery portion of the MHSW program by June 30, 2020, which is the same day that the WEEE program will cease operation. SO is a not-for-profit organization that manages recycling programs in Ontario, including the MHSW and WEEE programs. It is funded and governed by industry stewards, who are the brand owners, first importers or franchisors of the products and packaging materials. SO is accountable to the Resource Productivity and Recovery Authority (RPPRA) and provides partial funding to municipalities that operate recycling programs at the local level. The change in timeline, for single-use batteries only, will allow for a coordinated policy approach as WEEE and batteries are often used together. The waste diversion program for the remaining designated wastes under MHSW will cease operation on December 31, 2020 (date unchanged). SO must develop a plan to wind up waste diversion program for all designated MHSW materials and submit to the Resource Productivity and Recovery Authority (RPPRA) by June 30, 2019. Until the respective wind up dates, programs will continue to operate without disruption.

On January 10, 2019 and January 16, 2019, the Province hosted webinars for all stakeholders on the Proposed Framework and posed a series of questions for feedback, related to policy considerations. Additionally, attendees had the opportunity to pose questions to the Province. The slides released by the Province are attached as Appendix C.


Niagara Region currently accepts WEEE for recycling at permanent public drop off depots year round (Recycling Centre, Niagara Road 12 Landfill, Humberstone Landfill and Bridge Street Residential Drop-Off Depot). Under contract, and at no cost to Niagara Region, Ontario Electronic Stewardship (OES) also provides collection service to eligible Multi-Residential properties. Additional details about this program are available in WMPSC-C 20-2016. OES is an Industry Funding Organization (IFO), operating for SO, to run the recycling program for WEEE in Ontario.

Niagara Region currently accepts MHSW, including batteries, at permanent depots year round (Niagara Road 12 Landfill, Humberstone Landfill, Thorold Yard Household Hazardous Waste Drop-off Depot and Bridge Street Residential Drop-Off Depot). Since the pilot in 2012, Niagara Region has also offered an annual one-week curbside battery collection period. In 2018, 8,948 kg of batteries were collected curbside (WMPSC-C 27-2018) and collection will occur again in April 2019. The program operates with minimal net cost and 100% of the batteries collected are recycled.

Staff will advise Council accordingly if funding models change for any of our current collection programs with the transition to a producer responsibility model. All Waste Management staff comments and answers to question from the stakeholder consultation webinars reflect previously approved comments and positions by Niagara Region Committees and Council. If additional comments are brought forward, staff will include them in the response to the MECP during the next formal review period.

It is recommended that Niagara Region support the Provincial transition to a producer responsibility framework for management of WEEE and batteries, subject to the comments that were submitted to the MECP. Staff will continue to be active participants in future consultations related to the Proposed Framework and related guides and regulations, and will report back to Committee with updates. At minimum, the Province estimates there will be an EBR posting related to the Proposed Framework released in spring of 2019. Staff will also continue to be involved in industry/municipal associations that play a role in shaping the Proposed Framework.

Respectfully submitted and signed by,



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Jennifer Mazurek  
Acting Manager, Waste Policy and Planning

### **Appendices**

- Appendix A Niagara Region letter to Ministry of The Environment Re: Proposed Producer Responsibility Framework for Waste Electrical and Electronic Equipment and Batteries
- Appendix B Ministry of the Environment, Conservation and Parks Direction Letter
- Appendix C Ministry of the Environment, Conservation and Parks Slides for Stakeholder Consultation Sessions

**Public Works**

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Telephone: 905-980-6000 Toll-free: 1-800-263-7215 Fax: 905-687-8056  
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February 6, 2019

**VIA EMAIL**

Trevor Craig, Policy Advisor  
Ministry of the Environment, Conservation and Parks  
[trevor.craig@ontario.ca](mailto:trevor.craig@ontario.ca)

**RE: Proposed Producer Responsibility Framework for Waste Electrical and Electronic Equipment and Batteries**

Dear Mr. Craig,

Niagara Region is submitting the comments below in response to the stakeholder consultation sessions held January 10, 2019 and January 16, 2019 on the Proposed Producer Responsibility Framework for Waste Electrical and Electronic Equipment (WEEE) and batteries. Due to the timing of the consultation period, the comments will be included in a memo to Niagara Region's Waste Management Public Works Steering Committee (WMPSC) on February 25, 2019 and will subsequently be approved by Council on March 28, 2019 and any resulting amendments, if applicable, will be forwarded to the Ministry.

We thank you for the opportunity to share our municipal perspective and look forward to working with the Province to develop a framework that ensures a smooth transition to a producer responsibility model for management of WEEE and batteries.

Regards,

A handwritten signature in black ink, appearing to read "L. Torbicki".

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Lydia Torbicki  
Acting Director, Waste Management Services

Encl.

**Niagara Region Comments on Proposed Producer Responsibility Framework for  
Waste Electrical and Electronic Equipment and Batteries**  
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## 1. Designating Materials

a. *Key Question:* What WEEE materials beyond the existing list of 44 materials and what types of single-use and rechargeable batteries should be designated?

- The list should be allowed to grow as technology advances. A mechanism for the Province to easily add materials to the program as new technologies are developed must be available. Attendees at the consultation session flagged new items such as 3D printers, in-home smart devices, carbon monoxide and smoke detectors (could also be part of MHSW), and EV batteries, but this list will change frequently with the pace of development.
- The list should include anything with a cord or batteries, to expand the scope. This would include small appliances, microwaves, exercise equipment, etc.
- Power sources for these electronics (batteries, chargers) should be managed. This would reduce confusion for residents. The material is being received now and counted as contamination, but there are precious metals that can be recovered (e.g. copper).

b. *Additional Question:* Should the regulation include embedded electronic equipment and batteries?

- Embedded electronic items are becoming more prevalent (e.g. toys, smart appliances, etc.) and should be included.
- Small items such as toys with an electronic component cannot be reasonably handled under any other programs right now and these should be included.
- Large items (e.g. fridges) will continue under white goods program but the Province may wish to look at percentage of electronic to the greater volume of the good.
- Components that are not recyclable after dismantling should remain the responsibility of the producer. The Province will need clear regulations to determine if the cost should be at the expense of the producer of the main “good” or of the “embedded electronic”.
- Municipalities must be compensated for management of materials that end up in landfill or that are illegally dumped if producers avoid responsibility due to confusion surrounding the definition of “responsible producer”.

c. *Additional Question:* Should the regulation include primary packaging, convenience packaging or transport packaging associated with electrical and electronic equipment and/or batteries?

**Niagara Region Comments on Proposed Producer Responsibility Framework for  
Waste Electrical and Electronic Equipment and Batteries**  
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- Niagara Region's position when responding to other EBR postings is that producers should be responsible for all packaging (whether it is recyclable, compostable or neither) and that producers should pay for management of designated materials regardless of the stream in which they end up. Packaging is part of the product and the "experience" with the purchase of new technology (i.e. purchasing a new phone and the sleek packaging used) and as such, producers should be held responsible.
- The regulation should include the requirement to limit use of excess packaging in order to acquire product visibility in the retail sector (e.g. producers must avoid larger packaging just to get shelf space in a store).

## **2. Defining Responsible Persons**

- a. *Key Question:* How should the hierarchy be defined?
- The online retail sector is particularly challenging and must be included in the regulation. As M3RC notes in their response, with respect to online sellers, Canada and the United States are members of the Organization for Economic Cooperation and Development (OECD). Niagara Region feels that these best practices as defined by OECD would benefit Ontario consumers by: (i) a mechanism to report free-riders (sellers that do not pay their EPR fees); (ii) the development of a register of producers; and (iii) a requirement that sellers display their Producer Responsibility Organization (PRO) registration online. The Province should consider adapting and implementing these tools.
- b. *Key Question:* Should there be different hierarchies for different classes of materials?
- Niagara Region has no comment at this time.
- c. *Key Question:* Should the hierarchy define responsible persons for embedded productions, for both WEEE and batteries?
- Niagara Region has no comment at this time.
- d. *Additional Question:* Should the regulation include a de minimus for small producers?
- There should be a minimum target for small producers. The process for measuring progress must be clear and transparent to ensure compliance.

**Niagara Region Comments on Proposed Producer Responsibility Framework for  
Waste Electrical and Electronic Equipment and Batteries**  
**Page 3 of 6**

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e. *Additional Question:* If so, how should it be set and what requirements should be considered?

- Niagara Region has no comment at this time.

### **3. Collection**

a. *Key Question:* What accessibility requirements are needed to ensure Ontarians have convenient collection opportunities?

- Rural consumers must be considered and their needs accommodated. For example, the regulation could require producers to offer return shipping options. Consumers who purchase and ship items on-line should have the option to return them the same way.
- Consumer options for returning WEEE must be at least as convenient as those that are currently offered so there is no loss (or perception of loss) of service to Ontario residents.
- Niagara Region has not observed communication between producers and collection partners. Producers need to be engaged as soon as possible.
- With respect to the multi-residential sector, collection partners must be engaged.

b. *Key Question:* Should there be a collection target to drive producers to collect a certain amount of WEEE/batteries relative to what they put into the market? If so, how should it be set?

- Niagara Region encourages inclusion of positive incentives to go beyond minimum targets, in addition to penalties for producers not meeting targets. Targets should be re-assessed on defined schedule and progress monitored to ensure continual improvement.

c. *Additional Question:* Would some designated materials benefit from specific collection requirements (e.g. cellphones or certain types of batteries?)

- Niagara Region has no comment at this time.

d. *Additional Question:* Do some producers (e.g. small producers, e-tailers) need specific collection requirements?

- Niagara Region has no comment at this time.

e. *Additional Question:* Should new materials have collection requirements in early years?

**Niagara Region Comments on Proposed Producer Responsibility Framework for  
Waste Electrical and Electronic Equipment and Batteries  
Page 4 of 6**

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- New materials should be regularly assessed and included in the schedule of accepted items as noted in question 1a about designated materials.

#### **4. Management**

- a. *Key Question:* How should the management target be set?
- There should be a hierarchy with reuse and refurbishment preferred over recycling. Targets should emphasize and support this direction.
  - b. *Additional Question:* Should there be multiple management targets phased in over time?
- Once targets are set, producers should be held to standard of continual improvement.
  - c. *Additional Question:* What type of processor standard(s) should be required in the regulation?
- Niagara Region has no comment at this time.
  - d. *Additional Question:* Should new materials have management targets in early years?
- Yes, per the response in question 1a above, a mechanism for materials to be easily added to the list with defined targets should exist. Technology advances rapidly and if producers are aware that there will be management targets, product design can reflect this from the earliest versions.

#### **5. Waste Reduction**

- a. *Key Question:* What waste reduction initiatives should be addressed in the proposed regulation? Possible waste reduction initiatives include: Right To Repair, Expected Lifespan Labelling, Minimum Warranties, Recycled Content, Data Destruction Standards (*descriptions for each available on slide and also consider others beyond this list*)
- Niagara Region supports all of the reduction initiatives mentioned, as they promote the reuse and refurbish options preferred over recycling and disposal.

**Niagara Region Comments on Proposed Producer Responsibility Framework for  
Waste Electrical and Electronic Equipment and Batteries**  
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- As a municipality, we have observed that residents are concerned about privacy and it can be a barrier to recycling electronic items. Producers should be regulated to ensure that the data destruction standards are enforceable. Furthermore, the process for data destruction on products should be transparent to consumers.
- Producers should be prohibited from developing products with “Planned Obsolescence” in mind.

## **6. Promotion and Education**

- a. *Key Question:* Should the regulation require P&E beyond collection, reuse/recycling and visible fees?
  - Niagara Region currently funds several P&E campaigns for collection of WEEE but would not continue when the onus is on the producers.
  - Municipalities will experience costs related to illegal dumping, landfilling materials (hidden in garbage as one example), responding to questions and calls from residents, etc. and compensation should be provided. Costs to reimburse municipalities could be minimized if producers fund the P&E appropriately to educate residents on management of designated materials.
  - P&E should emphasize the preferred options in hierarchy (reduce and refurbish over recycling).
  - P&E should include contact information for appropriate PRO (or representing organization.)
- b. *Key Question:* Are there options to streamline P&E for consumers?
  - Niagara Stakeholders require further information to provide informed comment here.

## **7. Registration, Record Keeping, Reporting and Auditing**

- a. *Key Question:* Who, beyond producers, should be subject to registration, reporting, auditing and record keeping requirements?
  - There should be a mechanism for municipalities to report improperly managed designated materials (i.e. material that is illegally dumped or otherwise disposed of improperly).

**Niagara Region Comments on Proposed Producer Responsibility Framework for  
Waste Electrical and Electronic Equipment and Batteries**  
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- There should be a mechanism for municipalities to report the amount of time required for municipalities to manage illegally dumped materials and time spent providing support of residents for designated material (e.g. managing support phone calls about disposal). Producers must compensate municipalities for these costs.
- Currently, Niagara Region maintains internal records related to weights of material collected but is not involved in record keeping or reporting specific to Provincial diversion programs.
  - b. *Key Question:* What information should be required as part of registration, reporting, auditing and record keeping in order to support the Authority's compliance/enforcement activities and data clearinghouse function so that a level playing field and transparency are achieved?
- See note above for question 7a.
- Standard templates or reporting mechanism should be developed and standards for frequency of reporting requirement should be established for easier management and analysis of data.
  - c. *Key Question:* Who should be permitted as an auditor and what qualifications should they have?
- The regulation should specify that any auditor meets a defined minimum level of certifications. Niagara Region does not have a comment on these certifications.
  - d. *Key Question:* What reporting and auditing requirements should be included for producers of certain newly designated materials – sales data and management activities (i.e. amount of material being supplied into Ontario, amount of material being diverted and what end-markets used)?
- New materials should have the same requirement as previously identified materials. Clear requirements for reporting of materials originating from on-line resellers and retailers (i.e. that are not easily identified by any producer group, or brand manufacturers first importers) must be established or the amount of material being diverted cannot be properly measured.
  - e. *Key Question:* Should historical OES and SO data be used to satisfy the reporting requirement under the regulation related to sales data?
- If historical data is of benefit it should be used in addition to new data.

Ministry of the Environment,  
Conservation and Parks

Ministère de l'Environnement,  
de la Protection de la nature et des  
Parcs

Office of the Minister

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357-2018-1692

DEC 11 2018

Mr. John Coyne  
Chair  
Stewardship Ontario  
1 St. Clair Ave. West, 7<sup>th</sup> Floor  
Toronto ON M4V 1K6

Dear Mr. Coyne:

In response to comments I have received from stakeholders and pursuant to Section 14 of the *Waste Diversion Transition Act, 2016* (WDTA), I am amending the timelines set out in the direction to wind up the waste diversion program for municipal hazardous or special waste (MHSW) issued to Stewardship Ontario (SO) on April 12, 2018.

The following timelines will apply to the wind up of the waste diversion program for MHSW, which include a new timeline for single-use batteries:

- SO must develop a plan to wind up the waste diversion program for MHSW for all designated wastes and submit it to the Resource Productivity and Recovery Authority (the Authority) for approval no later than June 30, 2019.
- The waste diversion program in respect of single-use batteries will cease operation on June 30, 2020.
- The waste diversion program for the remaining designated wastes under the waste diversion program for MHSW will cease operation on December 31, 2020.

Given that batteries are often used with or embedded in electrical and electronic equipment, this change will allow for a coordinated policy approach in winding up the waste diversion programs for MHSW and waste electrical and electronic equipment, and in regulating the management of the materials under the producer responsibility framework provided in the *Resource Recovery and Circular Economy Act, 2016*.

All other elements included in the direction to wind up the waste diversion program for MHSW on April 12, 2018 remain unchanged except as necessary to implement this direction.

...2

Mr. John Coyne  
Page 2.

I am also directing SO to make publicly available on SO's website this amending wind-up direction letter in addition to the April 12, 2018 direction letter, as well as the policy direction letter issued to the Authority on April 12, 2018.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rod Phillips', with a stylized flourish at the end.

Rod Phillips  
Minister

- c: Mr. Serge Imbrogno, Deputy Minister  
Ministry of the Environment, Conservation and Parks  
Ms. Glenda Gies, Chair, Resource Productivity and Recovery Authority  
Mr. Mark Kurschner, President, Product Care Association  
Mr. Robert Budgeon, CFO, SodaStream Canada  
Mr. David Pearce, Managing Director, Automotive Materials Stewardship



## **Resource Recovery and Circular Economy Act, 2016**

# **Proposed Producer Responsibility Framework for Waste Electrical and Electronic Equipment and Batteries**

Ministry of the Environment, Conservation and Parks

***Stakeholder Consultation Sessions***

January 2019

**Draft for Discussion Purposes Only**

# Purpose

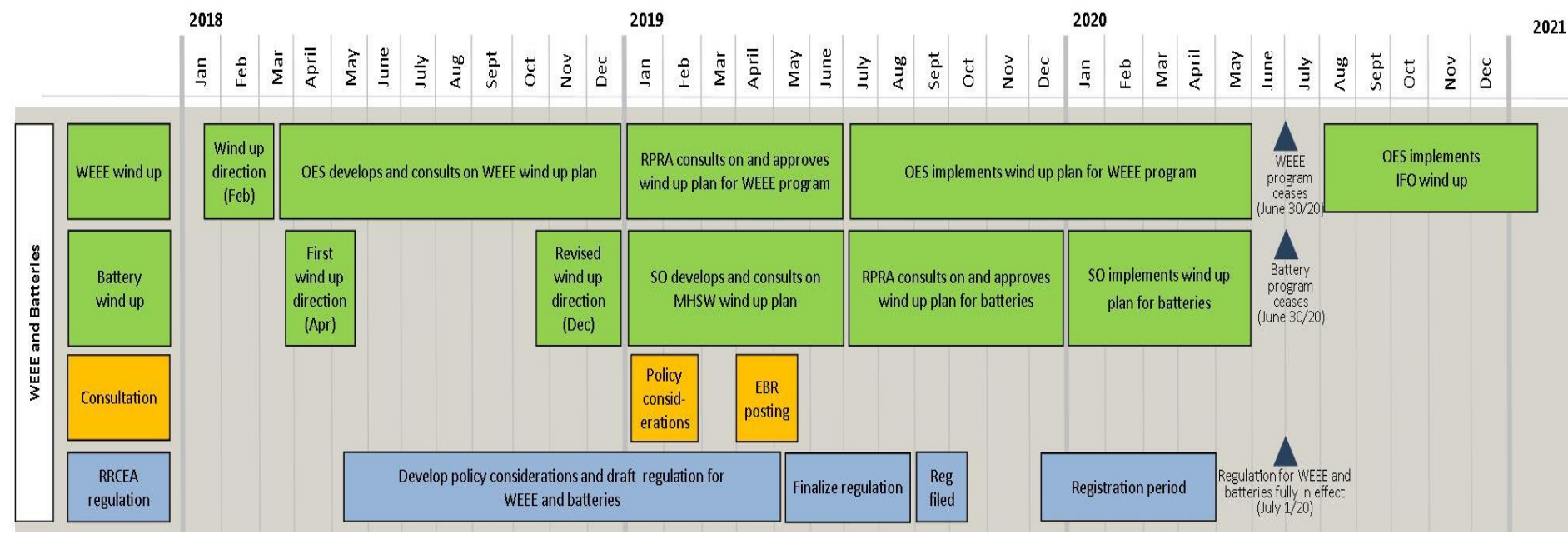
- Outline the initial policy considerations for the proposed regulation for Waste Electrical and Electronic Equipment (WEEE) and batteries under the Resource Recovery and Circular Economy Act, 2016 (RRCEA).
- Provide opportunity for stakeholders to contribute input as part of the policy development process.

# Transition Process

Transition includes two concurrent steps:

- 1. Winding up the existing waste diversion programs and industry funding organizations (IFOs) under the Waste Diversion Transition Act, 2016 (WDTA).
- 2. Putting in place regulations under the RRCEA to make producers fully responsible.

The new producer responsibility regulations will be fully implemented on the day each of the existing waste diversion programs wind up.



# Goals of Producer Responsibility for WEEE/Batteries

## Improved Environmental Outcomes

- Ensure that waste is properly managed at end-of-life in order to increase diversion and keep toxics (e.g. heavy metals, brominated flame retardants (BFRs) in plastics, etc.) out of the environment.
- Increase waste diversion, recover resources currently being lost in landfills, reduce reliance on virgin materials and reduce greenhouse gas emissions.

## Economic Growth

- Create jobs and grow Ontario's infrastructure for reuse, refurbishment and recycling industries.
- Encourage demand and sufficient supply to support the reuse and refurbishment markets.

## Consistency, Ease, Cost Efficiency and Reduced Burden

- Encourage a sustainable system for industry and consumers by ensuring consistency, ease of use and low costs.
- Support the principle of reducing taxpayer burden by shifting responsibilities and costs to producers and consumers.
- Support competition, innovation and better product design.

# Key Pillars of the Producer Responsibility Framework

## Part IV, RRCEA – Resource Recovery and Waste Reduction Responsibilities

- **Producers are accountable** for recovering resources and reducing waste associated with their products and packaging sold or made available in Ontario, in an efficient and effective manner.
- **Government designates** the material to be collected and managed (e.g. product, product packaging or convenience and transport packaging).
- **Government defines** who the producer is for a designated product or packaging (e.g. brand holder, person with a commercial connection to the designated material).
- **Government sets** requirements that producers and others (who engage in resource recovery and waste reduction activities) must meet.
- **Producers choose** how best to meet the requirements – on their own or by joining with others to obtain services for the collection and management of the materials.
- **Producers have control** over costs by deciding how to meet requirements.
- **Authority undertakes** compliance and enforcement by using a full suite of tools to ensure obligations are met. Non-compliance may be subject to consequences.

# Complementary Measures and Tools

## **RRCEA requirements that could support the producer responsibility framework:**

- A regulation for Administrative Penalties (AP) as a compliance tool to encourage a level-playing field among the regulated companies.
- Include dispute resolution provisions in agreements between producers and others regarding services to collect and manage designated materials.
- Impose a sales ban on designated materials in extraordinary circumstances.
- Prepare a policy statement to further resource recovery or waste reduction.

## **EPA requirements that could support the producer responsibility framework:**

- Impose disposal bans on materials designated under Part IV of the RRCEA.
- Exempt low risk activities from approvals and administrative requirements.
- Register medium risk activities on environmental activity & sector registry (EASR).
- Develop a processing/management standard for all companies that manage WEEE and batteries regardless of whether they manage material as part of a producer's network.
- Develop a labelling requirement for WEEE or batteries that contain hazardous materials (e.g. lead in batteries).

## **OPS Procurement Policies that could support the producer responsibility framework:**

- Review OPS Procurement and IT Asset Disposal policies to measure and improve reuse and refurbishment outcomes.

# Designating Materials

- Regulations can designate a class of materials that producers would be given responsibility to manage for the purpose of resource recovery and waste reduction.
  - A class of materials can be any combination of a product, primary packaging associated with a product, convenience packaging or transport packaging.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• The WEEE Program began in April 2009, and currently collects 44 types of electronics, including desktop and portable computers, printers, televisions, copiers, telephones and audio-visual equipment, such as cell phones.<ul style="list-style-type: none"><li>• Program includes e-waste from residential and industrial, commercial and institutional (IC&amp;I) sources.</li><li>• The WEEE Program does not include large and small appliances, power tools, electronic toys, lighting, etc.</li></ul></li><li>• Ontario Electronic Stewardship (OES), the industry funding organization, is responsible for managing these materials in accordance with the program plan.</li></ul>	<ul style="list-style-type: none"><li>• The Municipal Hazardous or Special Waste Program (MHSW) began in July 2008 and currently collects nine materials, one of which is single-use batteries.<ul style="list-style-type: none"><li>• Program includes single-use batteries of all chemistries that are equal to or less than 5 kilograms from both residential and IC&amp;I sources.</li><li>• Rechargeable and automotive batteries are not included the program.</li></ul></li><li>• Stewardship Ontario (SO), the industry funding organization, is responsible for managing the MHSW materials in accordance with the program plan.</li></ul>

# Designating Materials

<b>Policy Objective</b>	<ul style="list-style-type: none"><li>• Provide a clear definition of classes of materials captured, including WEEE and batteries, from both residential and IC&amp;I sectors.</li><li>• It is anticipated that the regulation will include all WEEE materials that are currently managed, and also include both single-use and rechargeable batteries.</li><li>• The Ministry is considering additional WEEE materials, such as products related to the existing list (e.g. headphones, routers), large and small appliances, power tools and lighting, to the regulation.</li></ul>
<b>Key Consultation Question</b>	<ul style="list-style-type: none"><li>• What WEEE materials beyond the existing list of 44 materials and what types of single-use and rechargeable batteries should be designated?</li></ul>
<b>Additional Questions</b>	<ul style="list-style-type: none"><li>• Should the regulation include embedded electronic equipment and batteries?</li><li>• Should the regulation include primary packaging, convenience packaging or transport packaging associated with electrical and electronic equipment and/or batteries?</li></ul>

# Defining Responsible Persons

- Regulations can identify the persons (i.e. producers) responsible for carrying out the requirements for a designated class of materials.
  - Could be a brand holder (known as brand owners under current programs) or person who has a commercial connection to a class of materials.
  - Commercial connection includes importing, wholesaling, leasing, retailing or distributing a product in a designated class, or other prescribed criteria.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• WEEE Program uses the following hierarchy: resident brand owners, resident importers, assembler; does not include original equipment manufacturers (OEMs) for vehicles.</li><li>• Stewards pay fees and report to OES who is responsible for managing the WEEE.</li><li>• No other obligations on stewards.</li></ul>	<ul style="list-style-type: none"><li>• MHSW Program uses the following hierarchy: resident brand owners, resident importers.</li><li>• Stewards pay fees and report to SO who is responsible for managing the batteries.</li><li>• No other obligations on stewards.</li></ul>

# Defining Responsible Persons

<b>Policy Objective</b>	<ul style="list-style-type: none"><li>• Provide a clear hierarchy of responsible persons that facilitates compliance and enforcement.</li><li>• The Ministry is considering a hierarchy of responsible persons resident in Ontario that facilitates compliance and enforcement but may limit ability to influence product design.</li></ul>
<b>Key Consultation Questions</b>	<ul style="list-style-type: none"><li>• How should the hierarchy be defined?</li><li>• Should there be different hierarchies for different classes of materials?</li><li>• Should the hierarchy define responsible persons for embedded products, for both WEEE and batteries?</li></ul>
<b>Additional Questions</b>	<ul style="list-style-type: none"><li>• Should the regulation include a de minimus for small producers?</li><li>• If so, how should it be set and what requirements should be considered?</li></ul>

# Collection

- Regulations can require producers to establish and operate a collection system for designated materials.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• Program sets collection targets in the program plan. No consequences for missed targets.</li><li>• Program publishes a kg-per-capita collection metric as a measure of performance.</li><li>• Program has developed two streams to collect WEEE – collection sites/event and processor incentive.</li><li>• No rural or northern-focused requirements; OES reports on percentage of Ontario population within 10/25/50km of a collection site.</li><li>• Collection is free of charge.</li></ul>	<ul style="list-style-type: none"><li>• Program sets collection targets in the program plan.</li><li>• Targets are weight-based.</li><li>• Program uses an incentive model to encourage transporters to set up collection networks. Higher incentives are paid for rural/northern areas.</li><li>• Collection is free of charge.</li></ul>

# Collection

<b>Policy Objective</b>	<ul style="list-style-type: none"><li>• Accessibility and/or collection targets can be used as drivers to require producers to establish a robust collection network.</li><li>• Could require and/or define acceptable collection channels, which may include but are not limited to: curbside, depot, return-to-seller, deliver-back, or special collection events.</li><li>• Northern and rural Ontario have access to collection services.</li><li>• Collection must be free of charge (RRCEA legislative requirement).</li></ul>
<b>Key Consultation Question</b>	<ul style="list-style-type: none"><li>• What accessibility requirements are needed to ensure Ontarians have convenient collection opportunities?</li><li>• Should there be a collection target to drive producers to collect a certain amount of WEEE/batteries relative to what they put into the market? If so, how should it be set?</li></ul>
<b>Additional Questions</b>	<ul style="list-style-type: none"><li>• Would some designated materials benefit from specific collection requirements (e.g. cellphones or certain types of batteries)?</li><li>• Do some producers (e.g. small producers, e-tailers) need specific collection requirements?</li><li>• Should new materials have collection requirements in early years?</li></ul>

# Management

- Management can include recycling, reuse and refurbishment.
- Regulation can require producers to establish a management system for one or more designated materials.
  - Producers can choose to do this themselves or hire others to obtain services.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• Minimum recycling targets (kg/capita, tonnes, %) based on a percentage of WEEE available for collection; reused or refurbished electronics are not captured in recycling targets.<ul style="list-style-type: none"><li>• In 2017, the recycling efficiency rate (recycled/collected) was 84% and more than 2,600 tonnes of reuse/refurbishment activity was reported.</li></ul></li><li>• OES offers recyclers a processing incentive which has been successful in driving tonnage.</li><li>• Reuse/refurbishment processors provided with minimal incentives (\$2/unit).</li><li>• Program uses standards for recycling and reuse/refurbishment.<ul style="list-style-type: none"><li>• Energy from waste (EFW) is permitted in the standard for some materials but not counted as diversion in Ontario.</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Battery Program includes a recycling performance target which is based on weight of batteries collected and a recycling efficiency target which is based on weight of batteries available for collection.</li><li>• Program uses a standard developed by Stewardship Ontario.</li><li>• End-markets that count toward diversion include land application of nutrients; EFW and slag are not counted.</li></ul>

<b>Policy Objective</b>	<ul style="list-style-type: none"><li>• Provide a clear set of expectations to maximize the recovery of resources and reduction of waste by requiring or encouraging recycling, as well as reuse and refurbishment of materials while identifying practices that do not count as diversion (e.g. disposal in landfills).</li><li>• The regulation can include management standard(s) and target(s).</li><li>• The management target may be achieved by including both recycling and reuse/refurbishment.</li></ul>
<b>Key Consultation Question</b>	<ul style="list-style-type: none"><li>• How should the management target be set?</li></ul>
<b>Additional Questions</b>	<ul style="list-style-type: none"><li>• Should there be multiple management targets phased in over time?</li><li>• What type of processor standard(s) should be required in the regulation?</li><li>• Should new materials have management targets in early years?</li></ul>

# Waste Reduction

- Regulation can seek to reduce waste by affecting changes in product design, and/or addressing waste generated during production and a product’s end-of-life.
  - Waste reduction initiatives can be complementary to producer responsibility.
  - Development of some initiatives may need specific expertise and consultation.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• Minimal waste reduction and reuse measures.</li><li>• Program does not affect design changes in products.</li></ul>	<ul style="list-style-type: none"><li>• Does not include waste reduction measures.</li><li>• Program does not affect design changes in products.</li></ul>
<p><b>Policy Objective:</b></p> <ul style="list-style-type: none"><li>• Recognize reduction and reuse as higher priorities than recycling in the ‘3Rs’ hierarchy.</li><li>• Strengthen the viability and growth of the reuse/refurbishment sector.</li><li>• The regulation could include one or more waste reduction initiatives in the regulation.<ul style="list-style-type: none"><li>• Consider initiatives (e.g. supporting consumer repair; or greater use of recycled content) which will enable and/or encourage reuse and reduction, and could potentially save consumers money.</li><li>• Consider incenting producers to undertake certain waste reduction initiatives (e.g. potential offsets in required collection or management targets or P&amp;E requirements).</li></ul></li><li>• Some initiatives may require regulation under the Environmental Protection Act.</li></ul>	

# Waste Reduction

Key Consultation Question	<ul style="list-style-type: none"><li>What waste reduction initiatives should be addressed in the proposed regulation?</li></ul>
<p>Possible waste reduction initiatives include:</p> <ul style="list-style-type: none"><li><b>Right to Repair:</b> Enable greater access to diagnostic/repair information, tools, parts, and software for consumers and repairers of electronics.</li><li><b>Expected Lifespan Labelling:</b> Provide information to consumers on a product’s expected lifespan, including durability and reparability.</li><li><b>Minimum Warranties:</b> Require or recognize longer-term warranties for certain products.</li><li><b>Recycled Content:</b> Recognize producers who elect to use recycled content in product design.</li><li><b>Data Destruction Standards:</b> Recognizing that end-users’ concerns over secure data destruction is a key barrier to reuse and refurbishment, require reuse/refurbishment service providers to meet certain standards; require producers to contract with service providers who meet the standards.</li></ul>	

# Promotion and Education

- Regulations can require producers to implement a promotion and education (P&E) program related to the collection and management of a designated material.
  - Others performing activities related to resource recovery and waste reduction can be required to implement a P&E program to support the collection of a designated material.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• OES undertakes voluntary educational and public awareness activities and reports on activities in their annual report.</li></ul>	<ul style="list-style-type: none"><li>• SO undertakes voluntary educational and public awareness activities and reports on activities in their annual report.</li></ul>
<p><b>Policy Objective:</b></p> <ul style="list-style-type: none"><li>• Regulation can include promotion and education requirements for producers to provide information related to collection, reuse/refurbishment or recycling of designated materials.</li><li>• Regulation can include prescribed P&amp;E requirements related to separate visible fees being charged on designated materials.</li></ul>	
<p><b>Key Consultation Questions:</b></p> <ul style="list-style-type: none"><li>• Should the regulation require P&amp;E beyond collection, reuse/recycling and visible fees?</li><li>• Are there options to streamline P&amp;E for consumers?</li></ul>	

# Registration

- Regulations can identify who needs to register and what type of information needs to be included in the registration.
  - Registry would be used to collect data/information, help ensure transparency and facilitate compliance and enforcement activities.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• No requirements for a public registry.</li><li>• The Authority runs a “Datacall” and posts OES’ annual report on website.</li><li>• Approved processors required to register with Recycling Qualification Office.</li></ul>	<ul style="list-style-type: none"><li>• No requirements for a public registry.</li><li>• The Authority runs a “Datacall” that collects aggregate data for all types of MHSW materials and posts SO’s annual report on website.</li><li>• Approved transporters and processors required to register with SO through the Battery Incentive Program.</li></ul>
<b>Policy Objective:</b> <ul style="list-style-type: none"><li>• Develop registration requirements that ensure transparency and facilitate compliance and enforcement activities.</li></ul>	

# Record Keeping, Reporting and Auditing

- Regulations can require producers and others to create, maintain and store documents and data and submit them to the Authority.
  - Audits could be required to be submitted to the Authority to verify compliance.
- Others performing resource recovery and waste reduction activities can be required to submit annual reports related to those activities.

WEEE Program under the WDTA	Battery Program under the WDTA
<ul style="list-style-type: none"><li>• OES is required to keep records and provide reports to the Authority.</li><li>• Stewards and service providers required to keep records and provide information to OES.</li><li>• Approved processors are audited by a third-party.</li></ul>	<ul style="list-style-type: none"><li>• SO is required to keep records and provide reports to the Authority.</li><li>• Stewards and service providers required to keep records and provide information to SO.</li><li>• Approved processors are audited by a third-party.</li></ul>
<p><b>Policy Objective:</b></p> <ul style="list-style-type: none"><li>• Develop record keeping, reporting and auditing requirements that ensure transparency and facilitate compliance and enforcement activities.</li><li>• The regulation can include reporting, auditing and record keeping requirements.<ul style="list-style-type: none"><li>• Reporting and record keeping requirements may apply to producers and persons engaged in resource recovery and waste reduction activities.</li><li>• Audit requirements may apply to sales data, collection, management and P&amp;E activities, and specify who is qualified to undertake audits.</li></ul></li></ul>	

# Registration, Record Keeping, Reporting and Auditing

## Key Consultation Questions:

- Who, beyond producers, should be subject to registration, reporting, auditing and record keeping requirements?
- What information should be required as part of registration, reporting, auditing and record keeping in order to support the Authority's compliance/enforcement activities and data clearinghouse function so that a level playing field and transparency are achieved?
- Who should be permitted as an auditor and what qualifications should they have?
- What reporting and auditing requirements should be included for producers of certain newly designated materials – sales data and management activities (i.e. amount of material being supplied into Ontario, amount of material being diverted and what end-markets used)?
- Should historical OES and SO data be used to satisfy the reporting requirements under the regulation related to sales data?

# Next Steps

- Receive stakeholder feedback on initial policy considerations by **February 6, 2019**.
  - Comments can be emailed to [Trevor.Craig@ontario.ca](mailto:Trevor.Craig@ontario.ca)
- Finalize draft policy proposal based on feedback received.
- Develop the draft regulation under the RRCEA.
- Post the final draft regulation on the Environmental Registry in Spring 2019 for further consultation.

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- To provide feedback to the Ministry’s broader Environment Plan, visit <https://ero.ontario.ca/notice/013-4208>, and submit comments by January 28, 2019.

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## **MEMORANDUM**

**WMPSC-C 11-2019**

**Subject: Closed-top Recycling Containers**

**Date: Monday, February 25, 2019**

**To: Waste Management Planning Steering Committee**

**From: Sherri Tait, Associate Director, Collection & Diversion Operations**

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The purpose of this memorandum is to respond to the Councillor Information Request made at the January 8, 2019 Public Works Committee meeting that staff consider closed-top containers as an option for recycling collection.

### **Current Initiatives**

Residents are able to purchase closed-top containers for recycling, parallel to the closed-top containers used for garbage collection. Residents may also use any other rigid, reusable container for curbside collection as long as it meets the size and weight restrictions and contents are clearly identifiable as acceptable materials.

The size limitations for alternate containers are listed below and residents are encouraged to contact the Waste-Info line (905-356-4141 or 1-800-594-5542 toll-free) for more information on acceptable containers for curbside collection.

- Height: 91 cm (36")
- Diameter: 61 cm (24") roundness
- Weight: 22.7 kg (50 lbs) when full

Similarly, residents may wish to purchase and utilize a lid/cover that fits their own recycling container. Provision is made in the collection contract that the contractor must remove covers with care, so not to cause damage to them. If covers are completely removed by the Contractor, the covers must be placed inside empty boxes and returned to the original set out location.

In summary, Niagara Region's current approach to dealing with wind-blown litter is doing the following:

- Providing recycling boxes with a larger capacity of 83 litres (approximate increase of 30%) to minimize the overfilling of recyclables
- Allowing clear bags and containers with a lid that is clearly marked 'Recycling' as an alternative recycling container
- Advising residents that they are able to purchase and use their own recycling box covers/lids

- Reminding residents that there are no limits to the quantity of recyclables that they are allowed to place at the curbside and advising them to consider holding on to their recycling for set out the following week when conditions are more favourable (i.e. not windy).
- Using social marking and outreach initiatives to encourage good recycling box set-out practices and anti-litter campaigns

### **Research and Investigation of Closed-top Container Options**

Niagara Region has been actively researching and gathering information on lids/covers for recycling containers (i.e. Blue and Grey Boxes) and reducing litter for a number of years and continue to do so. In addition, Niagara Region has also researched and considered recycling cart collection for the current contract and the upcoming contract which is scheduled to start in 2021.

### **Recycling Container Lids/Covers**

The last update on recycling container lids/covers (lids) and options to reduce windblown litter were presented to Waste Management Planning Steering Committee on June 25, 2017 (WMPSC-C 25-2017) and is found in Appendix A. In 2018, Niagara Region also completed another update to the WMPSC memo regarding other municipalities' use of recycling container lids and current manufacturers of lids along with those that are no longer making them. This information is found in Appendix B.

As mentioned in WMPSC-C 2017 and in the 2018 update, municipalities that allow recycling container lids or have performed pilot studies have indicated that they have received complaints from some residents concerning drivers throwing containers, and complaints from collection contractors of lids not coming off. The studies also found that properties using recycling box lids increased the amount of collection time at each stop by the contractor having to remove lids, residents would overfill their containers so that material would spill when the lid was removed (generally with mesh style lids), suppliers going out of business, or difficulties removing frozen lids from the containers during winter.

Niagara Region does allow residents to use lids for recycling containers and some lid options are available on the market including one local manufacturer; however, historically Niagara Region has purchased recycling containers through a competitive process from different manufacturers and all the lids available in the market may not fit properly onto recycling containers of different shapes.

## Recycling Carts

Another option to reduce the potential for wind-blown litter is through cart-based recycling collection programs as also noted in WMPSC-C 25-2017. The concerns related to cart based collection are primarily the costs and increased contamination rates.

### Current Contract

Cart-based collection was investigated for implementation for the current contract (PWP 21-2008). A consultant was engaged to review various collection methods including cart-based collection for all streams. The impact of this option from a systems perspective was evaluated. This evaluation included collection, processing and revenue implications in addition to best practices considerations.

The conclusion at that time was that this option was not considered cost effective. The estimated 10 year cost was approximately \$4.6 million higher than under a system without carts (i.e. Blue/Grey Box, Green Bin, kraft bags for leaves, bags/cans for garbage).

### Next Collection Contract

Niagara Region also investigated the option of switching over to cart-based collection for the next contract as per the report PW 3-2019 on the proposed base collection services which went to Public Works Committee on January 8, 2019. As per that report:

*“Under the Province’s Environmental Plan, waste diversion programs, such as the Blue Box Program, may be moving to the producer responsibility model. As a result, Niagara Region would no longer be responsible for providing collection and processing of Blue Box materials. This would be the responsibility of the Blue Box industry stewards. Therefore, at this time, staff did not believe implementing major program changes was advisable.*

*Also, based on the experiences of other municipalities that implemented a cart-based collection program, this option was not recommended for further consideration for the following reasons:*

- 1) Significant capital costs to purchase and distribute the carts*
- 2) On-going annual maintenance and replacement costs associated with the carts*
- 3) Higher contamination rates of the recycling and organics streams associated with the use of carts. As a result, there would be a decrease in the Region’s revenues and difficulty with marketing the recyclables.*
- 4) Additional costs associated with retrofitting Niagara Region’s Materials Recycling Facility from the current two-stream operation to a single-stream operation, if all recyclables are collected in one cart.”*

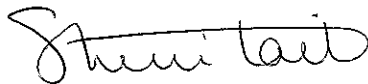
Other potential concerns include the following:

- Storage Space and Capacity
  - While carts can offer additional storage capacity, which can contribute to increased participation in recycling programs, there may be potential issues for residents with limited space to store carts.
- Street Parking
  - Parked cars can be problematic for cart collection. Some municipalities have areas that cannot be serviced by fully automated cart collection vehicles.
- Narrow Streets and Lanes
  - Narrow streets impact the ability of automated collection vehicles to access carts.
- Weather
  - Snow and ice can create difficulty for wheeling carts as well as create issues with cart placement.

### **Next Steps**

Niagara Region will continue to monitor the situation regarding lids for recycling containers and other options to reduce wind-blown litter. Niagara Region will be meeting with a local recycling box supplier who has just recently developed a new lid to determine compatibility with existing recycling containers. Discussion will continue with other municipalities who are also looking into this issue to share information as it becomes available.

Respectfully submitted and signed by



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Sherri Tait  
Associate Director, Collection & Diversion Operations

### **Appendices**

**Appendix A - WMPSC-C 25-2017 Blue and Grey Box Cover/ Lid Options**

**Appendix B - 2018 Update on Recycling Box Covers**

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## MEMORANDUM

**WMPSC-C 25-2017****Subject: Blue and Grey Box Cover/ Lid Options****Date: Monday, June 26, 2017****To: Waste Management Planning Steering Committee****From: Alexis Stupich, Waste Management Services Advisor**

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The purpose of this memorandum is to provide Waste Management Planning Steering Committee members with information on options to reduce wind-blown litter as a result of recyclables set out for collection in open top recycling boxes. The below information will also address the feasibility of using recycling boxes with lids, which was raised at the April 24, 2017 City of St. Catharines Council meeting.

### History

Blue and Grey Box lids and/or covers have been suggested as a mitigation measure to reduce the potential for litter resulting from wind-blown recycling. Staff have previously investigated potential options to reduce wind-blown recyclables in past memorandums to members of the Waste Management Planning Steering Committee, and this memo serves to update members on the availability of suppliers and new studies and pilots completed by other municipalities since the last memo in 2014 (WMPSC-C 28-2014).

### Options for Reducing Wind Blown Litter

The three municipalities in Ontario that currently provide recycling box covers to residents (sold at a cost in each case) include Oxford County, Simcoe County and City of Greater Sudbury (see Appendix A for more details). These municipalities have indicated that they have received complaints from some residents regarding drivers throwing the covers, and complaints from the collection contractors which include the covers not coming off.

Many municipalities including the City of Markham, the City of Kingston, Town of Richmond Hill, Halton Region and the Region of Peel have conducted pilot studies into the practicality of using covers on recycling boxes to contain recycling materials and have opted to not offer residents this option. A full list of the findings from these municipalities' studies can be found in Appendix B. In general, these studies found that properties using recycling box covers increased the amount of collection time at each stop by the contractor to remove lids and/or covers. Other findings from these studies included that residents would overfill their containers so that material would spill when the cover was removed, suppliers of the recycling box lids went out of business, and

contractors had issues removing 'frozen' covers from the recycling boxes during the winter.

Another option to reduce the opportunity for wind-blown litter is through cart based recycling collection programs. Some municipalities including the City of Guelph, Peel Region, and the City of Toronto have implemented cart-based recycling collection program, which reduces wind-blown litter as all carts are equipped with lids. However, there is a concern with increased rates of contamination in cart based recycling programs. According to the Continuous Improvement Fund's 2016 report ([www.thecif.ca](http://www.thecif.ca)), Automated Cart Collection: a Study of Municipal Collection and Operations in Ontario, Ontario municipalities using an automated cart based recycling program have an average of 24% contamination in their recycling program, while municipalities using boxes have an average contamination rate of only 13% in their recycling stream. Seven cart based municipalities were included in this study, of which the majority had single stream recycling, and this may be another contributing factor. For reference, Niagara's two stream recycling box system had a 2015 contamination rate of 4.5%.

### **Recycling Box Cover Considerations**

There are some lid options available on the market to use as a cover for recycling box contents, however they are not in widespread use, and are generally not available at retail outlets. Appendix C provides a list of various recycling box cover manufacturers.

Historically, Niagara Region has purchased recycling boxes through a competitive process from different manufacturers, which come in a variety of shapes. Not all covers available for purchase through local manufacturers may properly fit onto recycling boxes of different shapes.

Several local manufacturers of recycling box covers/lids are also no longer producing this product. A list of manufacturers that no longer offer recycling box covers is outlined in Appendix D.

### **Current Initiatives**

#### **1. Larger Capacity Boxes and Clear Bags to Minimize Overfilling and Reduce Wind-Blown Litter**

Niagara Region has also been providing residents with Blue and Grey Boxes with a larger capacity of 83 litres (approximate increase of 30%) to minimize the overfilling of recyclables by residents and reduce the potential for wind-blown litter. In addition, residents are permitted to use clear plastic bags or a container with a lid that is clearly marked 'Recycling', as an alternative recycling container. As there are no

limits to the quantity of recyclables that residents are able to place curbside, residents are also advised to consider that they can hold their recycling boxes for set out to the following week when conditions may be more favourable.

## 2. Residents May Use Recycling Box Covers

Residents are also advised on the Regional website that they are able to purchase their own recycling box covers for use on their recycling boxes to prevent materials from blowing out.

## 3. Anti-Litter Campaigns to Encourage Proper Set-Out Practices

Niagara Region has ongoing anti-litter campaigns designed to encourage proper set-out practices for residents. The following social marketing and outreach initiatives are currently being used to encourage good recycling box set-out practices by residents:

- Articles on proper set outs were placed in Green Scene;
- Helpful hints are placed in the collection calendars and the Regional website;
- Waste Management By-Law staff issuing friendly reminder notices
- Letters are delivered to targeted neighbourhoods; and
- Information is made available to residents during special events and at public displays.

## Summary

As previously presented to the Waste Management Planning and Steering Committee on July 7, 2014, municipal-wide provision of recycling box covers is not a recommended practice largely based on the research performed by other municipalities and associated challenges which were reported. However, as one part of the overall strategy to combat wind-blown litter from recycling boxes, Niagara does allow residents to purchase and use lids/covers.

Respectfully submitted and signed by



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Alexis Stupich,  
Waste Management Services Advisor

**Appendix A- Municipalities Currently Offering Covers/Lids for Recycling Containers**

Municipality	Manufacturer/ Cover Type	Completed Studies/Pilots	Method of Purchase	Additional Comments
Oxford County (population: 106,000)	<ul style="list-style-type: none"> <li>- Peninsula Plastics</li> <li>- Hard plastic cover</li> <li>- Fits 16 and 22 gallon boxes</li> </ul>	Informal pilot – a report will not be completed	<ul style="list-style-type: none"> <li>- The covers are sold at municipal offices only</li> <li>- Sold for \$1.50 each (price not subsidized)</li> </ul>	<ul style="list-style-type: none"> <li>- Contractor has issues with covers not coming off</li> <li>- Some residents have complained about drivers throwing covers</li> <li>- Staff recommends that covers should be introduced at beginning of a new contract, as it will affect contract pricing and create operational issues, if introduced part way through an existing contract</li> </ul>
Simcoe County (population: 284,000)	<ul style="list-style-type: none"> <li>- Orbis Canada</li> <li>- Hard plastic cover</li> <li>- Fits 22 gallon box</li> </ul>	No studies or pilots were completed	<ul style="list-style-type: none"> <li>- Resident can call their Customer Service line to purchase for \$5.00</li> </ul>	<ul style="list-style-type: none"> <li>- Lids available for sale, but not many lids have been purchased by residents</li> <li>- Will provide them for free, if necessary, for escalated issues to help defuse a situation</li> </ul>
City of Greater Sudbury (population: 160,000)	<ul style="list-style-type: none"> <li>- Busch Systems</li> <li>- “Big Blue” round 32 gal. blue can with cover (single stream)</li> </ul>	Pilot study completed in 2008	<ul style="list-style-type: none"> <li>- Can and cover are sold for \$10 at various City facilities</li> </ul>	<ul style="list-style-type: none"> <li>- The lids can break in extremely cold temperatures</li> <li>- Standard Blue Boxes with no lids/covers are also available to residents at no cost</li> </ul>

## Appendix B- Municipalities Which Considered Using Recycling Box Covers

Municipality	Reasons for Not Pursuing Recycling Box Covers
Town of Markham (population: 332,000)	<p>The Town decided not to provide recycling box covers for the following reasons:</p> <ol style="list-style-type: none"> <li>1) The contractor found the blue box covers unsuitable, as residents tended to overfill them and material would spill when cover was removed; and</li> <li>2) In winter, the covers became sticky from residue and material would stick to them, especially if snowing and freezing.</li> </ol> <p>The Town of Markham does not allow residents to use blue bags for recycling, as the York Region MRF will not accept bags.</p>
Region of Peel (population: 1,300,000)	<p>The Region decided not to provide recycling box covers for the following reasons:</p> <ol style="list-style-type: none"> <li>1) The areas with the blue box covers had the highest collection time with an increase in up to 5 seconds per household, in comparison with a standard recycling box;</li> <li>2) Improper use of netted recycling boxes including overloaded netted boxes;</li> <li>3) Significant annual increase in collection costs for mesh nets and plastic bonnets (\$3.6 million); and</li> <li>4) Covers were least favourite of three container type options (other two were 121 litre container and blue plastic bags) by collection staff.</li> </ol> <p>The Region of Peel switched over to a cart-based collection system in 2016, and no longer accepts recycling boxes at the curb.</p>
City of Kingston (population: 125,000)	<p>The City tested three types of covers in a 2013 pilot of 100 households:</p> <ol style="list-style-type: none"> <li>1) Peninsula Plastics snap-on cover, which can only be used with Peninsula Plastic brand recycling boxes;</li> <li>2) The EnviroWeb mesh net, which can be used on most standard curbside recycling boxes; and</li> <li>3) The KITEE fabric cover, produced by a local resident, which can be used on most standard curbside recycling boxes.</li> </ol> <p>Based on the results of this pilot, it was determined that it would not be feasible to introduce the covers due to the extra time that would be added to collection routes and the potential for increased costs for collection. The City would not consider allowing covers as part of their next contract.</p>
Region of Halton (population: 520,000)	<p>The Region considered doing a pilot project in 2010, but decided against it for the following reasons:</p> <ol style="list-style-type: none"> <li>1) The research the Region did on available covers at the time was not conclusive; and</li> <li>2) The cost and time involved in doing a study was prohibitive.</li> </ol>

Municipality	Reasons for Not Pursuing Recycling Box Covers
	Instead, the Region decided to focus on P&E measures to educate residents on how to avoid litter issues.
Richmond Hill (population: 190,000)	<p>Completed pilot in 2014 using Busch 32 Gallon Recycling cans, and PenPlast vented covers. Opted not to offer this service to residents due to the following reasons:</p> <ul style="list-style-type: none"> <li>1) The lids were problematic as they blew away from the containers and often went missing; and</li> <li>2) The collection contractor had issues with the Busch round containers as they did not work well with their side-loading vehicles.</li> </ul> <p>•</p>
City of Kawartha Lakes (population: 75,000)	The City of Kawartha Lakes used to offer hard metal recycling box covers to residents for purchase for \$5. The City stopped offering this service as their supplier (Green Marketing Co.) for the hard metal covers stopped producing this product. The City of Kawartha Lakes noted that there was minimal interest from residents in purchasing these lids.

**Appendix C- Current Recycling Box Cover/Lid Manufacturers**

Product	Manu- facturer	Where	Cost/ Unit	Cover Description	Distribution e.g. On-line or Retail	Warranty
Orbis Recycling Box Cover (NPL 254)	Orbis Corporation	Rexdale	\$2.55 plus freight and taxes (wholesale)	- Fits 12, 16, and 22 gal. Orbis boxes only	- Not available retail, only by order - Packaged 25 per box	5 Year
Orbis Recycling Box Cover (NPL 266)	Orbis Corporation	Rexdale	\$3.60 plus freight and taxes (wholesale)	- Fits 18 gal. Orbis box only	- Not available retail, only by order - Packaged 20 per box	5 Year
Busch Recycling Box Cover	Busch Systems	Barrie	\$4.99/lid when ordered by the skid \$6.00/lid individually	- Will only fit Busch 18 gallon bins	Not available retail, only by order	1 year
PenPlast Recycling Box Cover (Vented)	Peninsula Plastics Ltd.	Fort Erie	\$1.90/lid (wholesale)	- Fits PenPlast 16/22 gallon bins Vented lid with opening on top so material can be placed in bin with lid on.	Wholesale and retail (sold at Home Hardware and soon Home Depot)  Packaged in boxes containing 10 lids/box or 300 lids/pallet	Dependent on contract (must purchase PenPlast recycling bins)
PenPlast Recycling Box Cover (Solid)	Peninsula Plastics Ltd.	Fort Erie	\$2.30/lid (Wholesale)	Fits PenPlast 16/22 gallon bins  Solid lid, snaps on and off	Wholesale  Packaged in boxes containing 10 lids/box or 300 lids/pallet	Dependent on contract (must purchase PenPlast recycling bins)

\*Lids and covers available for purchase may not fit all recycling boxes distributed through Niagara Region

# **Appendix D- Manufacturers no Longer Supplying Recycling Box Covers**

Product	Manufacturer	Where	Cover Description	Extent of Use
Recycle Bin Bungee Cord & Cover	Orbis Corporation	Rexdale	<ul style="list-style-type: none"> <li>- Bungee cord was made up of several components, which are made off shore and assembled into kits for ORBIS</li> <li>- Cover snaps onto recycling bin</li> </ul>	Not used extensively due to potential for injury when removing bungee cord
Blue Box Bonnet	Lowry Textile	Essex	<ul style="list-style-type: none"> <li>- Light weight UV coated plastic cover with elastic band and plastic handle</li> <li>- No assembly required</li> </ul>	<ul style="list-style-type: none"> <li>- Pilot in Town of Okotoks, Alberta</li> <li>- Used in Peel pilot, but Region did not go with them</li> </ul>
Mack Cap	Lowry Textile	Essex	<ul style="list-style-type: none"> <li>- Polyethylene plastic cover called 'blue box bonnet', 1.5ml thick, UV inhibitors, construction grade,</li> <li>- No assembly required: A grommet is placed over hole and then tied with a cord</li> </ul>	Used in Peel pilot, but Region did not go with them
Ranger Metal	Green Marketing Co.	Guelph	<ul style="list-style-type: none"> <li>- Metal with a plastic coating</li> <li>- No assembly required – cover is placed over blue box and stays secure</li> </ul>	Used to be distributed in City of Kawartha Lakes
Green Net	Finalli	Alberta and Ontario	<ul style="list-style-type: none"> <li>- Knitted polyester mesh cover with metal snap</li> <li>- Assembly required: The resident must drill a hole through the recycling box then affix the snap. The cover is then attached to the recycling box by securing the snap</li> </ul>	Not used in pilots
Recycle Net	NUCOVE	Nova Scotia and Ontario	<ul style="list-style-type: none"> <li>- Stretchable polypropylene mesh cover with rigid plastic end pieces</li> <li>- Assembly required: One end piece is clamped on to one end of the recycling box with two clamps and screws. The other end piece is hooked under the lip at the other end of recycling box</li> </ul>	Used in Town of Markham pilot and distributed to rural residents, at no charge
VIP	YY	China	Nylon mesh	Used in Peel Region

Product	Manufacturer	Where	Cover Description	Extent of Use
Distribution 2000 Inc. - Enviro Web	Everblooming International			pilot, but Region did not go with them
Scepter Recycling Box Cover	Scepter	Scarbor-ough	Fits Scepter box only - Product not normally stocked by company	None

## Appendix B – 2018 Update on Recycling Box Covers

Table 1: Municipalities Currently Using Recycling Blue Box Covers

Municipality	Manufacturer/ Cover Type	No. Covers in Use	Completed Studies/ Pilots	Method of Purchase	Additional Comments
<b>Oxford County</b> (population: 110,862)	<ul style="list-style-type: none"> <li>- Peninsula Plastics</li> <li>- Hard plastic cover</li> <li>- Fits 16 and 22 gallon boxes</li> </ul>	~500	Informal pilot – a report will not be completed	<ul style="list-style-type: none"> <li>- The covers are sold at municipal offices only</li> <li>- Sold for \$1.50 each (price not subsidized)</li> </ul>	<ul style="list-style-type: none"> <li>- Contractor has issues with covers not coming off</li> <li>- Some residents have complained about drivers throwing covers</li> <li>- Staff recommends that covers should be introduced at beginning of a new contract, as it will affect contract pricing and create operational issues, if introduced part way through an existing contract</li> <li>- County ordered 1,000 covers, but only 500 have been purchased</li> </ul>
<b>Richmond Hill</b> (population: 201,125)	<ul style="list-style-type: none"> <li>- Busch 32 gal. bin &amp; cover</li> </ul>	<ul style="list-style-type: none"> <li>- Covers available for all residents</li> </ul>	Pilot ran 6 months, ended in Nov. 2014	<ul style="list-style-type: none"> <li>- Bins with lids available for \$39.95</li> <li>- No warranty</li> </ul>	<ul style="list-style-type: none"> <li>- Preliminary results indicate a 60% usage by pilot homes</li> <li>- Only 3 homes opted out</li> <li>- A survey will be given to all pilot homes at end of Nov. to determine which box and lid is preferred</li> <li>- After pilot, Town will deliver a box and lid to all homes, free of charge</li> <li>- Planning on offering lid separately for sale in 2019.</li> </ul>

Municipality	Manufacturer/ Cover Type	No. Covers in Use	Completed Studies/ Pilots	Method of Purchase	Additional Comments
<b>Simcoe County</b> (population: 305,516)	<ul style="list-style-type: none"> <li>- Orbis Canada</li> <li>- Hard plastic cover</li> <li>- Fits 22 gallon box</li> </ul>	Unknown but limited	No studies or pilots were completed	<ul style="list-style-type: none"> <li>- Residents can purchase at the Simcoe County Administrative Centre for \$5.00 or from retail outlets</li> <li>- County subsidizes remaining amount, which is \$2</li> </ul>	<ul style="list-style-type: none"> <li>- Make the lids available for sale, but not many lids have been purchased by residents. County does not advertise availability, reserve for escalated situations.</li> <li>- Will provide them for free, if necessary, for escalated issues to help defuse a situation</li> </ul>
<b>City of Greater Sudbury</b> (population: 161,531)	<ul style="list-style-type: none"> <li>- Busch Systems</li> <li>- "Big Blue" round 32 gal. blue can with cover (single stream)</li> </ul>	Unknown	Pilot study completed in 2008	<ul style="list-style-type: none"> <li>- Can and cover are sold for \$10 at various City facilities and at 2 truckload sales in City</li> <li>- City subsidizes remaining amount, which is \$2.81</li> <li>- Replacement lids sell for \$11.50 each (no subsidy)</li> </ul>	<ul style="list-style-type: none"> <li>- The lids can break in extremely cold temperatures</li> <li>- Blue Boxes are still available for free, but have no cover</li> </ul>
<b>Ottawa Valley</b>  (Town of Petawawa: population 17,187)  (Township of Laurentian Valley: population 9,387)	<ul style="list-style-type: none"> <li>- VIP Group Enviroweb Mesh Nets</li> </ul>	Unknown	Unknown	<ul style="list-style-type: none"> <li>- Available for sale at Ottawa Valley Waste Recovery Centre for \$6.00 and through municipalities for \$5.00. Also, sell at special events.</li> </ul>	

Municipality	Manufacturer/ Cover Type	No. Covers in Use	Completed Studies/ Pilots	Method of Purchase	Additional Comments
(Pembroke: population 13,882)					

Table 2: Municipalities Which Considered Using Recycling Box Covers

Municipality	Reasons for Not Pursuing Recycling Box Covers
<b>Town of Markham</b> (population: 328,966)	<p>The Town decided not to provide recycling box covers for the following reasons:</p> <ol style="list-style-type: none"> <li>1) The contractor found the blue box covers unsuitable, as residents tended to overfill them and material would spill when cover was removed; and</li> <li>2) In winter, the covers became sticky from residue and material would stick to them, especially if snowing and freezing.</li> </ol> <p>The Town will also not be allowing residents to use blue bags for recycling, as the York Region Material Recovery Facility will not accept bags.</p>
<b>Region of Peel</b> (population: 1,382,000)	<p>The Region decided not to provide recycling box covers for the following reasons:</p> <ol style="list-style-type: none"> <li>1) The areas with the blue box covers had the highest collection time with an increase in up to 5 seconds per household, in comparison with a standard recycling box;</li> <li>2) Improper use of netted recycling boxes including overloaded netted boxes;</li> <li>3) Significant annual increase in collection costs for mesh nets and plastic bonnets (\$3.6 million); and</li> <li>4) Covers were least favourite of three container type options (other two were 121 litre container and blue plastic bags) by collection staff.</li> </ol> <p>The Region of Peel switched to a bi-weekly cart-based collection system as part of its new collection contract, which commenced in 2016.</p>
<b>City of Kingston</b> (population: 129,653)	<p>The City tested three types of covers in a 2013 pilot of 100 households:</p> <ol style="list-style-type: none"> <li>1) Peninsula Plastics snap-on cover, which can only be used with Peninsula Plastic brand recycling boxes;</li> <li>2) The EnviroWeb mesh net, which can be used on most standard curbside recycling boxes; and</li> <li>3) The KITEE fabric cover, produced by a local resident, which can be used on most standard curbside recycling boxes.</li> </ol> <p>Based on the results of this pilot, it was determined that it would not be feasible to introduce the covers due to the extra time that would be added to collection routes and the potential for increased costs for collection. The City would not consider allowing covers as part of their next contract.</p>

Municipality	Reasons for Not Pursuing Recycling Box Covers
<b>Region of Halton</b> (population: 548,435)	<p>The Region considered doing a pilot project in 2010, but decided against it for the following reasons:</p> <ol style="list-style-type: none"> <li>1) The research the Region did on available covers at the time was not conclusive; and</li> <li>2) The cost and time involved in doing a study was prohibitive.</li> </ol> <p>Instead, the Region decided to focus on promotion and education measures to educate residents on how to avoid litter issues.</p>
<b>City of Kawartha Lakes</b> (population: 190,000)	<p>The City of Kawartha Lakes used to offer hard metal recycling box covers to residents for purchase for \$5. The City stopped offering this service as their supplier (Green Marketing Co.) for the hard metal covers stopped producing this product. The City of Kawartha Lakes noted that there was minimal interest from residents in purchasing these lids.</p>
<b>County of Essex</b> (population: 181,53)	<p>The County of Essex conducted a 3 month pilot project on 200 houses in the County and City. The pilot tested using the plastic, elasticized Bonnet to cover the Blue Box. The project was completed in 2008. At the time the product was not available by retail and cost approximately \$4.50 for a package of three. The County of Essex does not currently offer Blue Box covers or lids.</p>
<b>Region of Durham</b> (population: 645,862)	<p>In June of 2018, Region staff recommended a pilot project to reduce Blue Box related litter through a combination of education and the provision of additional bins to residents. Staff recommended against Blue Box lids for the following reasons:</p> <ol style="list-style-type: none"> <li>1) Blue box lids have not worked in the past as the lids come off and become part of the litter problem.</li> <li>2) Attached lids present a pinch point hazard to recycling collectors</li> <li>3) Mesh covers encourage residents to overfill boxes, leading to increased litter when the cover is removed by the collector and the compacted recycling falls out of the container.</li> </ol>

Table 3 – Current Manufacturers of Recycling Box Covers

Product	Manu- facturer	Where	Cost/ Unit	Cover Description	Distribution e.g. On-line or Retail	Warranty	Extent of Use
<b>Orbis Recycling Box Cover (NPL 254)</b>	Orbis Corporation	Rexdale	\$2.55 plus freight and taxes (wholesale)	Solid plastic cover fits 12, 16, and 22 gal. Orbis boxes only	Package 25 per box available by order from manufacturer  Lid for 16 gallon and 26 gallon container also available at Canadian Tire \$6.99	Direct from manufacturers - limited 12 month warranty to Purchaser (but not to purchasers of the product from the Purchaser)  1 year warranty through Canadian Tire	Simcoe County
<b>Orbis Recycling Box Cover (NPL 266)</b>	Orbis Corporation	Rexdale	\$3.60 plus freight and taxes (wholesale)	Solid plastic cover fits 18 gal. Orbis box only	Not available retail, only by order for packages 20 per box	Limited 12 month warranty to Purchaser (but not to purchasers of the product from the Purchaser)	None
<b>Recycle Bin Bungee Cord &amp; Cover</b>	Orbis Corporation	Rexdale	Unavailable	Bungee cords that attach to container and fits a variety of sizes	No longer available through retailers Canadian Tire and Amazon Available through manufacturer	Unavailable	Unavailable
<b>Recycling Bin Cover Net</b>	Green-Net	Canada	\$13.99 plus tax (online)	Mesh net with 1/8 inch polypropylene elastized cord with snap fastener; snaps to bin and fits any shape medium sized container	Available online through Amazon.ca (\$13.99+tax and shipping) and Amazon.com (\$11.99 + tax and shipping)	Unavailable	Unavailable

Product	Manufacturer	Where	Cost/Unit	Cover Description	Distribution e.g. On-line or Retail	Warranty	Extent of Use
<b>Busch Recycling Box Cover</b>	Busch Systems	Barrie	14 & 16 gal. - \$5.00  18, 21 & 24 gal. - \$6.00  32 gal. - \$11.00 (wholesale)	Solid, hard plastic cover only fits Busch bins (i.e. 14, 16, 18, 21, 24, and 32 gal.)	Not available retail, only by order	1 year	Richmond Hill had a 6 month pilot of 469 homes for the 32 gal. bin, with cover.  Sudbury, Petawawa, Pembroke are also using the 32 gal. bin and cover
<b>PenPlast Recycling Box Cover</b>	Peninsula Plastics Ltd.	Fort Erie	\$1.75-\$1.85 / unit (wholesale)	Vented or solid, hard plastic only fits 16 gal. and 22 gal. PenPlast container and is snapped on and off	Home Hardware at \$6.99 each	Dependent on contract (must purchase PenPlast recycling bins)	Currently distributed to Oxford County residents for \$1.50 each  Richmond Hill had a 6 month pilot with 600 homes
<b>VIP Distribution 2000 Inc. - Enviro Web</b>	YY Everblooming International	China VIP Group distributes from Vaughan	\$4.05/ unit (wholesale)	Nylon mesh	Not available retail or on-line; must contact company to place order	None	Used in Peel Region pilot, but Region did not go with them -Ottawa Valley Waste Recovery Centre sells them for \$6 each
<b>Blue Box Cover</b>	Unavailable	Orillia	\$9.99 (on-line price)	Unavailable	Available online only	None	Unavailable
<b>Catch It-Caught It</b>	Jeff Hyde	Water-down	\$4.99 plus tax (online)	Mesh fabric with bungee cord woven into edge	Available on Amazon.ca (\$4.99) and Amazon.com (\$6.98)	Unavailable	Unavailable

Table 4 - Manufacturers No Longer Making Recycling Box Covers

Product	Manufacturer	Where	Cover Description	Extent of Use
<b>Blue Box Bonnet</b>	Lowry Textile	Essex	<ul style="list-style-type: none"> <li>- Light weight UV coated plastic cover with elastic band and plastic handle</li> <li>- No assembly required</li> </ul>	<ul style="list-style-type: none"> <li>- Pilot in Town of Okotoks, Alberta</li> <li>- Used in Peel pilot, but Region did not go with them</li> </ul>
<b>Mack Cap</b>	Lowry Textile	Essex	<ul style="list-style-type: none"> <li>- Polyethylene plastic cover called 'blue box bonnet', 1.5ml thick, UV inhibitors, construction grade,</li> <li>- No assembly required: A grommet is placed over hole and then tied with a cord</li> </ul>	Used in Peel pilot, but Region did not go with them
<b>Oscarnet</b>	Oscarnet Inc.	China	<ul style="list-style-type: none"> <li>- Three types of polypropylene cover available for garbage cans, blue boxes and green bin</li> <li>- No assembly required: Net is pulled over container and fastened together with a buckle, and then an elastic band is pulled tight to secure cover</li> </ul>	Unknown
<b>Ranger Metal</b>	Green Marketing Co.	Guelph	<ul style="list-style-type: none"> <li>- Metal with a plastic coating</li> <li>- No assembly required – cover is placed over blue box and stays secure</li> </ul>	Currently only used in City of Kawartha Lakes
<b>Green Net</b>	Finalli	Alberta and Ontario	<ul style="list-style-type: none"> <li>- Knitted polyester mesh cover with metal snap</li> <li>- Assembly required: The resident must drill a hole through the recycling box then affix the snap. The cover is then attached to the recycling box by securing the snap</li> </ul>	Not used in pilots

Product	Manufacturer	Where	Cover Description	Extent of Use
<b>Recycle Net</b>	NUCOVE	Nova Scotia and Ontario	<ul style="list-style-type: none"> <li>- Stretchable polypropylene mesh cover with rigid plastic end pieces</li> <li>- Assembly required: One end piece is clamped on to one end of the recycling box with two clamps and screws. The other end piece is hooked under the lip at the other end of recycling box</li> </ul>	Used in Town of Markham pilot and distributed to rural residents, at no charge
<b>Scepter Recycling Box Cover</b>	Scepter	Scarborough	<ul style="list-style-type: none"> <li>-Hard plastic lid</li> <li>-Fits Scepter box only.</li> <li>-Fits 59L and 90L containers</li> </ul>	Unknown