



Long-Term Waste Management Plan

Draft

Region of Durham

September 9, 2021



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Glossary and Abbreviations

Glossary Term	Definition
Anaerobic Digestion	A process that uses bacteria but no oxygen to break down organic material producing biogas and digestate.
Biogas	A mixture of methane and carbon dioxide produced by the bacterial decomposition of organic waste which can be used as a fuel.
Blue Box Recycling	Designated paper and packaging products collected at the curb in blue boxes; currently managed by Region but transitioning to Extended Producer Responsibility.
Bulky Goods	Material disposed of by residents that is too large for garbage bags and is collected by the Region by appointment; Oshawa and Whitby operate bulky good programs that differ slightly from the Region-run program; examples include mattresses and furniture; these items are also dropped off at Waste Management Facilities. These materials are typically not recyclable.
Datacall	The source of data used by the RPRA to determine Blue Box program costs and funding for municipalities. Municipalities must provide data annually on their waste management programs to receive funding. The RPRA also uses this information to determine waste diversion rates by program.
Digestate	The residuals from anaerobic digestion which can be either liquid or solid. It can be used for soil amendments or fertilizers.
Diversion Rate	A calculation that measures (usually by weight) the portion of waste not disposed. The RPRA diversion rate calculation includes diversion attributed to Blue Box recycling, Green Bin materials, Leaf and Yard Waste, reuse and credits for backyard composting, and grasscycling.
Durham York Energy Centre	An energy-from-waste facility located in Durham Region that produces energy from the combustion/ burning of garbage that remains after all diversion programs.
Electrical and Electronic Equipment	As defined by the RPRA, consists of information technology, telecommunications, audio-visual equipment such as computers, printers, telephones, cell phones, speakers, cameras etc. Does not include small and large appliances, power tools, motor vehicles, children's toys.

Glossary Term	Definition
Extended Producer Responsibility	The responsibility producers, importers and brand owners have to reduce the environmental impact of their products and packaging. It extends across the product lifecycle and is also known as cradle-to-grave management.
Facility Separated Organics	Organic material that has been separated from other materials through mechanical means (i.e. at the Region's Mixed Waste Pre-sort and Anaerobic Digestion Facility).
Garbage	Material with no recycling options that is placed at the curb for disposal by the Region (i.e. the black garbage bag). Still may contain some divertible material (e.g. recyclables or organics) along with non-divertible materials (e.g. diapers, plastic bags, Styrofoam, coffee cups etc.).
Grasscycling	The practice of leaving grass clippings on the lawn after mowing to act as a natural fertilizer.
Green Bin Organics	Materials accepted by the Region in its Green Bin program that include food waste, some paper products and other compostable items such as dryer lint, houseplants, etc.
Greenhouse Gases	Gases in the Earth's atmosphere that trap heat; typically refers to carbon dioxide (CO ₂), methane (CH ₄) and nitrous oxide (N ₂ O). Often measured in carbon dioxide equivalents (CO ₂ e) which is a way to describe different greenhouse gases in a common unit. A quantity of GHG can be expressed as CO ₂ e by multiplying the amount of the GHG by its global warming potential (the amount of warming a gas causes over a given period of time). For example, one kilogram of methane causes 25 more times warming over a 100-year period compared to one kilogram of CO ₂ , so if one kilogram of methane is emitted, it can be expressed as 25 kg CO ₂ e.
Hazardous and Special Products	Consumer products that are hazardous to the environment if not disposed of properly; includes items like paints, solvent, pesticides, and compressed gas cylinders.
Leaf and Yard Waste	Material collected at the curb that is generated from outdoor maintenance of trees, bushes, and gardens, includes fall leaf clean-up material but does not include grass clippings.
Local Area Municipalities	Refers to the eight municipalities comprising Durham Region: Town of Ajax, Township of Brock, Municipality of Clarington, City of Oshawa, City of Pickering, Township of Scugog, Town of Whitby, Township of Uxbridge.

Glossary Term	Definition
Material Recovery Facility	A facility that sorts Blue Box recycling into different material streams (e.g. aluminum, steel, glass) for marketing.
Mixed Waste Pre-sort and Anaerobic Digestion Facility	The Region's planned facility which will separate recyclables in garbage from organic waste and other residual material that can be processed at the DYEC. Organics will be processed at the anaerobic digestion facility.
Municipal Hazardous or Special Waste or Household Hazardous Waste	Consumer products that are hazardous to the environment if not disposed of properly; includes items like paints, solvent, pesticides and compressed gas cylinders. Now termed Hazardous and Special Wastes.
Organics	Food waste, plant materials, other designated organic material; includes source separated organics (SSO) (i.e. Green Bin materials) and facility separated organics (FSO) (i.e. organics extracted at the Mixed Waste Pre-Sort Facility).
Producer Responsibility Organization	A person or organization retained by a producer to establish or operate a collection or management system, prepare and submit reports.
Renewable Natural Gas	A fuel derived from a biogas that has been cleaned up to remove impurities.
Residual Materials	Non-divertible material remaining after processing Blue Box recycling at the MRF or garbage material at the Mixed Waste Pre-sort and Anaerobic Digestion Facility that is disposed at the DYEC.
Resource Productivity and Recovery Authority	The regulator mandated by the Government of Ontario to enforce the Province's circular economy laws and oversee the producer responsibility programs.
Single-Use Items	Items that are used only once and may or may not be recyclable. Examples include plastic water bottles, single serve coffee pods, paper coffee cups, paper plates, etc.
Single-Use Plastics	Plastic items intended to be used for a short period before disposal such as straws, shopping bags, cutlery, plastic water bottles. The federal government is expected to ban plastic grocery bags, straws, stir sticks, six-pack rings for beer, cutlery, foodware made from hard-to-recycle plastics.

Glossary Term	Definition
Source Separated Organics	Organic materials placed into the Green Bin by residents for collection by the Region.
Waste	All materials collected from residences and businesses generally consisting of garbage, Blue Box recycling, leaf and yard waste, source separated organics, scrap metal, electronics, hazardous and special products and bulky goods.
Waste Management Facility	A facility that accepts materials such as appliances, recyclable materials, carpet, drywall, garbage, scrap metal, wood for a fee. There are five waste management facilities in Durham Region.

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Abbreviation	Definition
AD	Anaerobic Digestion
BIAs	Business Improvement Areas
CCAP	Corporate Climate Action Plan
DAAC	Durham Agriculture
DEAC	Durham Environmental
DRRCC	Durham Region Roundtable on Climate Change
DSEA	Durham Strategic Energy Alliance
DYEC	Durham York Energy Centre
EEE	Electrical and Electronic Equipment
EFW-WMAC	Energy from Waste – Waste Management Advisory Committee
EPR	Extended Producer Responsibility
FSO	Facilitated Separated Organics
GHG	Greenhouse Gas
HSP	Hazardous and Special Products
IC&I	Industrial, Commercial and Institutional
IPR	Individual Producer Responsibility
ITT/AV	Information Technology Telecommunications and Audio-Visual
LAM	Local Area Municipality
LTWMP	Long Term Waste Management Plan 2021 - 2040
LTWMSP	Long Term Waste Management Strategy Plan 2000 - 2020
LYW	Leaf & Yard Waste
MECP	Ministry of Environment Conservation and Parks
MRF	Material Recovery Facility
PRO	Producer Responsibility Organization
P&E	Promotion and Education
Region	Durham Region
RFPQ	Request for Pre-Qualification
RNG	Renewable Natural Gas
RPRA	Resource Productivity and Recovery Authority

Abbreviation	Definition
RRCEA	Resource Recovery and Circular Economy Act
SSO	Source Separated Organics
SUP	Single-Use Plastic
tCO ₂ e	Tonnes of Carbon Dioxide Equivalents
U.S.	United States
WMF	Waste Management Facility
5Rs	Rethink, Reduce, Reuse, Recycle, Recover

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1 Introduction

Durham Region (Region) developed its initial Long-Term Waste Management Strategy Plan (LTWMSP) in 1999 to cover the 20 years to 2020. The Region is now undertaking the development of the next Long-term Waste Management Plan (LTWMP or Waste Plan) for the next approximately 20 years (2021 to 2040). As part of this exercise, the Region is focusing on maximizing the diversion of materials from waste and recovering waste as resources to optimize its existing and planned disposal and processing infrastructure and minimize the need for disposal.

The approved Guiding Principles, Vision and Objectives will remain consistent throughout the life of the Waste Plan without further review and updating. Action Plans, with measurable targets and accompanying actions for the following timelines – short-term (2022 to 2026), mid-term (2027 to 2033) and long-term (2034 to 2040) will be reviewed and updated (if required) every five years to ensure alignment with corporate direction and associated legislation.

2 Waste Plan Development

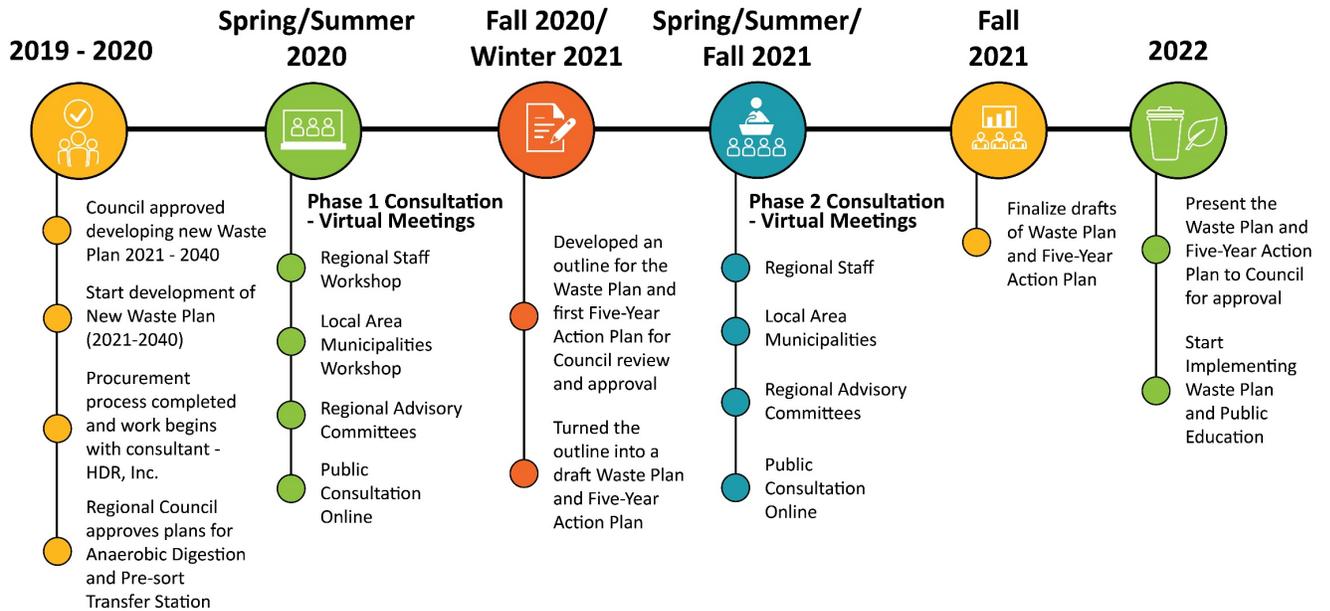
Development of the Waste Plan included a significant consultation component to ensure feedback from various stakeholders, including the public, is considered. Starting in the late spring through fall 2020, four groups of consultation were held which included Regional staff, Local Area Municipalities (LAMs), Regional Advisory Committees and the public to get feedback on current and future waste management challenges as well as the proposed vision and objectives of the Waste Plan.

The Region, like municipalities across the world, was impacted by the COVID-19 pandemic, starting in 2020. Consultation activities pivoted from in-person to virtual and the Region experienced disruptions in service delivery, continuing into 2021.

Following the initial consultation meetings, an outline and draft of the Waste Plan and a first Five-Year Action Plan was developed throughout the Fall of 2020 and Winter of 2021. Once the drafts were completed, during the spring/summer of 2021, a second round of consultation was undertaken to collect feedback to better understand the expectations of the Waste Plan and the first Five-Year Action Plan. Once the drafts were finalized, these Plans were presented to Council for approval. In 2022, it is expected that the Waste Plan and public education will begin the implementation phase.

Figure 1 outlines the consultation timeline.

Figure 1: Consultation Timeline



3 Guiding Principles, Vision and Objectives

As part of the development of the Waste Plan, the Region undertook consultation with stakeholders to get input on the guiding principles, vision and objectives (see Section 12 for a description of consultation activities) during 2020. Feedback from these consultation activities was considered in the development of the following guiding principles, vision statement and objectives that will guide the Region’s waste management programs and services over the planning period. Durham Region Council approved the guiding principles, vision and objectives at the January 27, 2021 meeting.

3.1 Guiding Principles

1. Emphasize rethink, reduce and reuse principles as the first steps in reducing waste generation.
2. Deliver cost effective waste management services to a rapidly growing and diverse population.

3. Work with producers and importers of designated products and packaging to implement “Extended Producer Responsibility” and adjust Region waste programs as required.
4. Apply innovative approaches to Region waste streams to manage them as resources in a circular economy.
5. Demonstrate leadership in sustainability to address the climate crisis by reducing greenhouse gas emissions from waste management activities.

3.2 Vision



Together, with our residents, we will reduce the amount of waste we create and manage the generated waste as a resource. We will build an innovative system, balancing financial needs and environmental sustainability.

3.3 Objectives

1. Engage with residents to build an understanding and awareness of the 5Rs (Rethink, Reduce, Reuse, Recycle, Recover) and the Region's waste management programs and services.
2. Reduce the quantity of waste we create.
3. Increase diversion of waste from disposal and support the circular economy.
4. Support the Region's greenhouse gas reduction and climate change mitigation efforts.
5. Protect or improve water, land, and air quality in Durham Region.



4 Alignment with Corporate Strategies

The Waste Plan will need to align with Corporate Strategies. Highlights of relevant Corporate Strategies are presented in the following sections.

4.1 Strategic Plan

Durham Region's new Strategic Plan was endorsed by Regional Council in March 2020. The Strategic Plan encompasses five main goals:

1. Environmental Sustainability
2. Community Vitality
3. Economic Prosperity
4. Social Investment
5. Service Excellence

While aspects of the Waste Plan touch on all of the goals of the Strategic Plan in some fashion, the goal most relevant to the Waste Plan relates to environmental sustainability. Of the five aspects related to environmental sustainability, the following three aspects are directly associated with waste management.

Environmental Sustainability Goal

1.1. Accelerate the adoption of green technologies and clean energy solutions through strategic partnerships and investment - Durham Region will accelerate the transition to a clean energy economy through collaborations that optimize the economic, environmental, health and social benefits for our community. Working in partnership with area municipalities, local utilities and other organizations we will invest in programs to improve energy efficiency, encourage renewable energy sources and green technologies, and advance vehicle electrification initiatives.

1.2 Increase waste diversion and resource recovery - The Region will continue to invest in programs that divert waste from landfill, while increasing resource recovery from existing waste through innovative technologies and solutions.

1.4 Demonstrate leadership in sustainability and addressing climate change - Recognized across Canada as a municipal leader in sustainability, Durham Region will respond to the climate emergency by embedding climate change considerations across all elements of Regional business. We will concentrate

efforts to reduce greenhouse gas (GHG) emissions, and ensure Durham is positioned for sustainability through projects that promote resilient infrastructure, build community capacity, and raise awareness of the need for collective action.

4.2 Climate Change Action Plan

Durham Region has developed a Corporate Climate Change Action Plan (CCAP) to propose a comprehensive approach to reducing greenhouse gas (GHG) emissions from the Region of Durham's corporate operations. The CCAP responds to Regional Council's declaration of a climate emergency in January 2020. Five priority actions have been identified that can be embedded into Regional operations:

1. Incorporate a carbon budget management framework into the Region's capital investment planning and forecasting process, and annual monitoring and reporting of progress against Council-approved emissions reduction targets.
2. Implement a governance framework to build corporate capacity, align priorities, and share accountability in meeting the Region's targets.
3. Develop zero carbon asset portfolio standards and transition plans in facilities and fleet; pursue pace-setter pilot projects across corporate GHG-emitting sectors to close the gap to near and mid-term corporate GHG targets.
4. Develop a Climate Financing Strategy to identify mechanisms for funding actions emerging from the carbon budget management framework including leveraging senior government and private sector funding and using innovative municipal financing approaches.
5. As part of the re-development of the Durham Strategic Energy Alliance (DSEA), lead the creation of a Corporate Energy Managers community of practice to share successes and lessons learned across Durham-based organizations with a low carbon or net zero mandate.

The CCAP has identified the following key objectives related to GHG reductions in waste management operations over the next 20 years.

- Increase diversion of organic waste from single-family homes and multi-residential buildings (apartments and condos). Diversion targets set by the Province as part of the Ontario Food and Organic Waste Policy Statement, are 70 per cent diversion of organic waste from single-family homes by 2023, 50 per cent diversion of organic waste from multi-residential buildings by 2025.

- Construct and operate a Mixed Waste Pre-sort and Anaerobic Digestion facility to manage organic waste.
- Continue to manage GHG emissions from legacy closed landfills through innovative approaches.
- Explore ways to mitigate corporate GHG increases associated with the planned increase in the Durham York Energy Centre (DYEC) capacity and population growth over the coming decade.

Further considerations and direction to work towards meeting the corporate climate change objectives and actions are discussed in Section 7.

5 Background

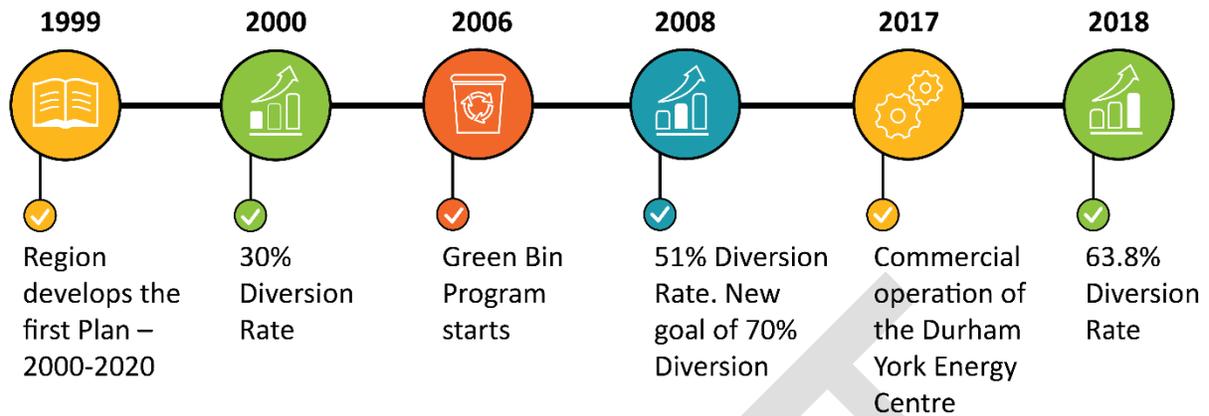
The following sections provide an overview of waste management in Durham Region, programs and services provided, waste management facilities, future initiatives, financing, current and future quantities of materials managed, performance and waste composition.

5.1 History of Waste Management in Durham Region

The Region has made numerous investments into waste management infrastructure, responded to legislation changes and implemented new programs such as implementing the Green Bin Program across all municipalities, developed By-law 46-2011 and By-law 33-2002 to manage waste within the Region. In 1999, Council directed that “no new landfill site(s) be established in the Region of Durham which resulted in the construction of the Durham York Energy Centre.

Below, in Figure 2, is a summary of major events that occurred throughout the lifetime of the LTWMSP 2000-2020 (this does not include all activities and events that the Region has completed).

Figure 2: Durham Region Past Accomplishments



Since 1999, the Regional Municipality of Durham has heavily invested in waste management systems and strategies. The Region has successfully met the committed diversion goals from the Long-Term Waste Management Strategy Plan: 2000 to 2020 (LTWMSP 2000-2020 or Waste Strategy Plan) in various creative ways. The Region continues to demonstrate leadership in innovative waste management strategies. As an example, the Region was the first municipality to launch curbside battery recycling, and in the first year of the program, collected a record setting amount of batteries (see Figure 3).

The following table lists the goals and achievement timelines for the Region’s previous Waste Strategy Plan.

Figure 3: Guinness World Record for Battery Collection (2012)



Table 1: LTWMSP 2000-2020 Goals and Achievements

LTWMSP 2000-2020 Goal	Achievement
To divert at least 50 per cent of the residential waste from disposal by the year 2007 or earlier	Achieved in 2008; diversion target reset to 70 per cent
To secure an alternate source for the disposal of residential waste, when the City of Toronto’s Keele Valley Landfill Site is closed	Achieved in 2002
To implement an integrated residential waste management system for the collection, processing and disposal of: (1) Blue Box recyclables, (2) Food and Yard waste compostables, (3) residual garbage waste, and (4) special wastes	Achieved with ongoing enhancements to the Blue Box program, launch of the Green Bin in 2003 and Region-wide expansion in 2006, development of the DYEC (2000-2017), expansion of special waste collections.
To consider an “Energy From Waste” type facility for the disposal of residual garbage waste	Achieved full-year commercial operation of the DYEC in 2017

5.2 About Durham Region

As an upper tier municipal government, Durham Region provides programs and services to approximately 678,985 residents¹ in 2020 within eight local area municipalities (LAM) including:

- The Town of Ajax
- The Township of Brock
- The Municipality of Clarington
- The City of Oshawa
- The City of Pickering
- The Township of Scugog
- The Town of Whitby
- The Township of Uxbridge

¹ RPRA 2019 Datacall

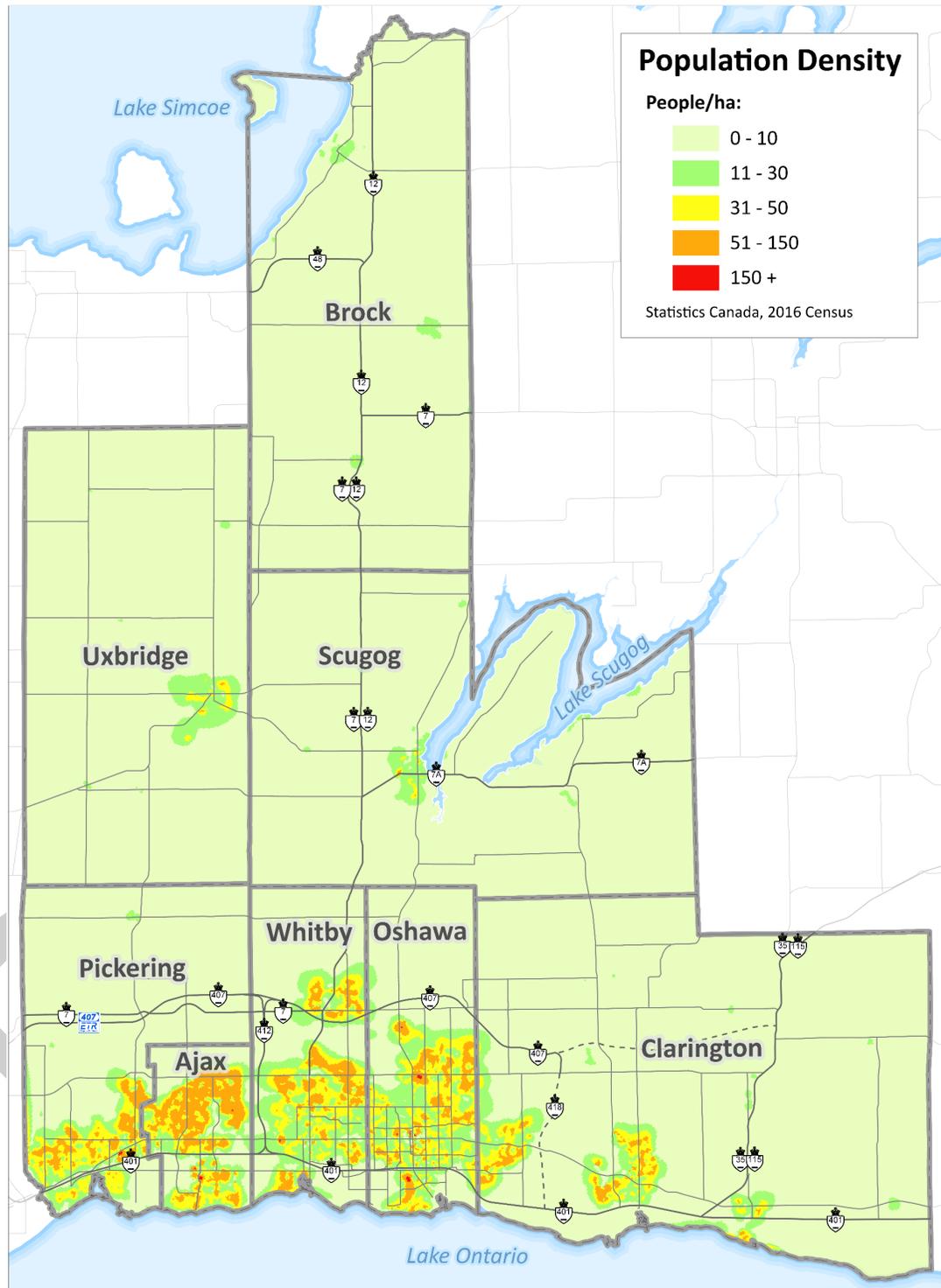
The Region provides service to over 237,081 households - 211,935 single-family households and 25,146 multi-family households according to 2019 Resource Productivity and Recovery Authority (RPRA) Datacall. Oshawa continues to be the largest municipality by population, followed by Whitby and Ajax.

Durham Region is one of the fastest growing regions in Canada. By 2041, Durham Region's population is expected to almost double, increasing to 1.2 million people.²

The focus of growth in Durham has been predominately in Urban Settlement Areas, with the greatest concentration of population in the lakeshore municipalities of Pickering, Ajax, Whitby, Oshawa and Clarington as shown in Figure 4. Low-density (specifically single-detached) housing continues to be the most common form of housing, but there has been a clear shift towards more medium- and high-density forms of housing in recent years, including townhouses and apartments.

² Envision Durham Proposed Policy Directions, March 2021

Figure 4: Durham Region Population Density



Source: Envision Durham. (June 2019). Growth Management Urban System – Discussion Paper

5.3 Current Waste Management System

Durham Region has various systems to collect and process waste from curbside collection to drop-off events to waste transfer stations. The following sections provide an overview of collection, other services provided, promotion and education, the Region's waste management facilities and special events. It should be noted that delivery of some of these services were impacted by the response to COVID-19 which caused some operational changes. It is anticipated that once the pandemic resolves, the Region will return to the same level of service pre-COVID-19 or an enhanced level of service with the implementation of the Waste Plan.

5.3.1 Collection Services

The Region provides the following collection services to single-family homes:

- Curbside collection of residential Blue Box recycling, Green Bin organics, leaf and yard waste and garbage in Ajax, Brock, Clarington, Pickering, Scugog and Uxbridge,
- Curbside collection of Blue Box recycling only in Whitby and Oshawa, but partnerships with both municipalities ensure uniform collection programs Region-wide,
- Curbside collection of bulky items (furniture and other large items), metal goods and large appliances, waste electrical and electronic equipment (EEE), batteries and porcelain bathroom fixtures in Ajax, Brock, Clarington, Pickering, Scugog and Uxbridge,
- Curbside collection of Christmas trees in Ajax, Brock, Clarington, Pickering, Scugog and Uxbridge.

The Region provides the following collection services to apartments and townhouses:

- Containerized collection of garbage and Blue Box recycling from approximately 400 multi-residential buildings and townhouses.
- Collection of EEE and batteries at qualifying properties.
- Coordinates textile collection in partnership with local charities for approximately 25 multi-residential buildings.

5.3.2 Other Services Provided

The Region provides other services intended to promote reuse, reduction and recycling including:

- Sale of Backyard Composters
- Hosting drop-off events for residents to donate reusable items
- Hosting events, in partnership with LAMs, for residents to dispose of used EEE and household hazardous waste
- Hosting free compost giveaway events in partnership with LAMs

5.3.3 Promotion and Education

The Region provides promotional and educational (P&E) information through its website, in-person outreach activities, social media (Twitter, Facebook, LinkedIn and YouTube), Waste app and through mail-outs of waste collection calendars.

The Region has been promoting a multi-year campaign to reduce food waste. The P&E program focused its targeted messaging to reduce residential food waste through behavioral change, called the Buy It, Eat It program.

Messaging focused on the following issues:

- Maximizing the value of food waste – managing food waste as a resource
- Debunking the myths or misconceptions around the Green Bin - odours, animals, inconvenience
- Reducing Barriers - highlighting tips to reduce common Green Bin issues - fruit fly prevention, kitchen catcher liner bag breakage, etc.

P&E efforts also focused on the need to increase use of the Green Bin. It is estimated that the Region's Green Bin participation rate is approximately 60 per cent. Recent waste audits also confirm that the garbage bag contains approximately 30 per cent organics which could be diverted through the Green Bin.

Going forward, the P&E program is incorporating a new plan that engages residents with consistent messaging across multiple media platforms. The results of these new and refocused efforts will be realized over the coming years and will include new strategies to continue keeping Durham Region's growing communities engaged in its waste management programs.

Durham Region participated in the following community outreach initiatives in 2019³ alone:

³ Durham Region, 2019 Annual Report

- Eight spring compost giveaway events, one in each local area municipality.
- Four special waste electrical and electronic equipment drop-off events and household hazardous waste drop-off events.
- Eight reuse drop-off events were held from March to October, partnering with local charities.
- Promotion of waste diversion programs during National Public Works Week.
- The Works Department's external newsletter called "Durham Works" was distributed twice annually to approximately 220,000 households in the Region. In 2019, it featured information on food waste reduction, household hazardous waste, Durham York Energy Centre, landfill mining, two-stream recycling, upcoming waste projects and waste collection safety.
- Exchanged or replaced damaged boxes, containers and bins: 7,240 Blue Boxes, 836 kitchen food waste containers and 6,136 curbside Green Bins.
- Sold 4,648 new Blue Boxes, 654 kitchen food waste containers, 1,202 curbside Green Bins and 121 backyard composters.
- Responded to more than 47,000 telephone calls and almost 22,000 emails regarding waste programs.
- Over 60,000 Durham Region Waste app downloads with 70,000 weekly waste setout reminders.
- Launched an online waste management survey with over 3,200 responses from across the Region.

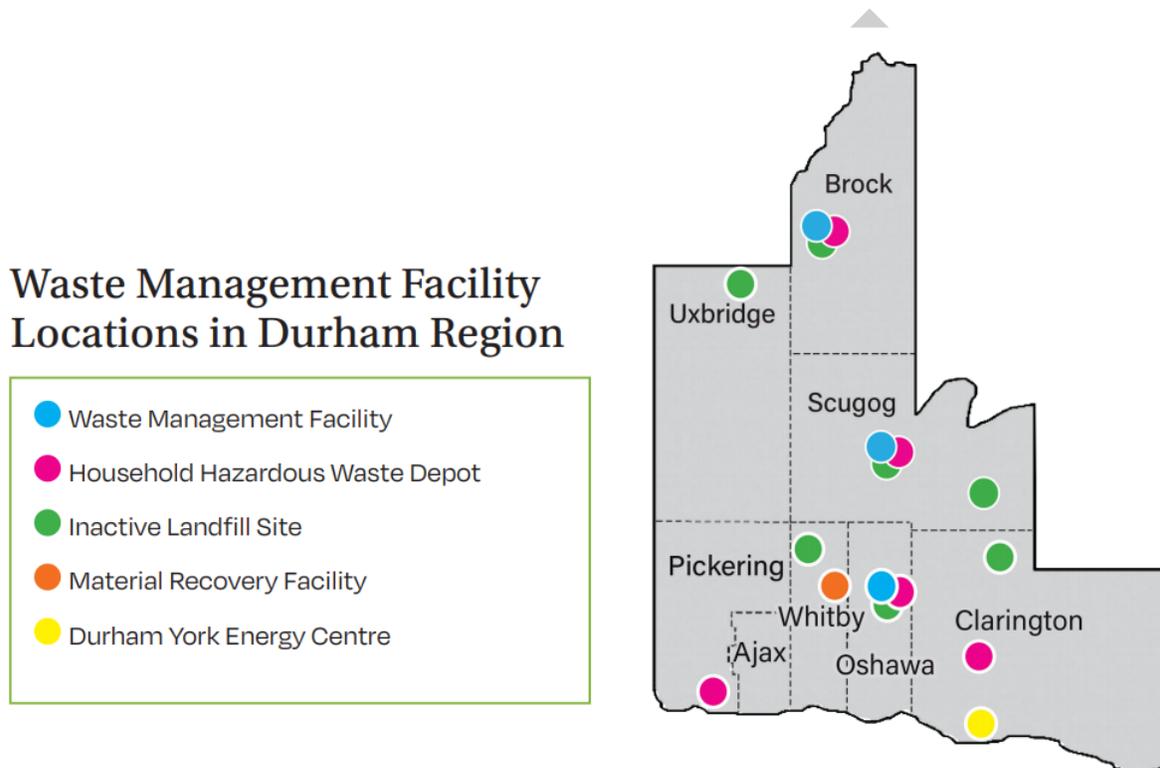
In 2019, Durham's school curriculum program reached over 2,650 students across Durham's communities. Most programs were delivered to children and youth from Kindergarten to Grade 12 via the school outreach program. Overall, 30 schools (88 classes) were visited from January to June 2019. In addition, Durham Region's Waste Management staff provided education programming at four school board events.

In 2020 and 2021, COVID-19 pandemic resulted in changes to the Region's typical waste management related P&E and outreach programs. In-person events and drop-off events were cancelled, and the Region shifted its focus to COVID-19 protocol education and focused on providing essential services and associated messaging.

5.3.4 Waste Management Facilities

There are five Waste Management Facilities (WMF) for household hazardous waste, bulky good and/or garbage drop-off. The locations of these facilities are presented in Figure 5.

Figure 5: Waste Management Facility Locations in Durham Region



There are five Waste Management Facilities (WMF) or Household Hazardous Waste Depots within the Region.

- Oshawa Waste Management Facility
- Port Perry Waste Management Facility
- Brock Waste Management Facility
- Clarington Household Special Waste Depot
- Pickering Private Waste Disposal Facility

Port Perry, Brock and Oshawa facilities receive garbage, appliances, carpet/underlay, drywall, furniture, porcelain bathroom fixtures, wood & brush, yard wastes, scrap metal, tires, Blue Box materials, electronics, and household hazardous wastes. The Region hauls the materials to various locations for composting, recycling, re-use, energy recovery or landfill

disposal. The Oshawa WMF has a Paint Reuse Centre for residents to drop off or pick up good re-usable paints and stains for free.

The current hours (as of March 2021) are presented in Table 2.

Table 2: Waste Management Facility Hours

Waste Facility	Hours
Oshawa Waste Management Facility	Tuesday to Saturday: 8am to 4pm (open until 6pm on Tuesdays only between May and October) Sunday, Monday: CLOSED Holidays: CLOSED
Port Perry Waste Management Facility	Tuesday to Saturday: 8am to 4pm (open until 6pm on Tuesdays only between May and October) Sunday, Monday: CLOSED Holidays: CLOSED
Brock Waste Management Facility	Tuesday to Saturday: 8am to 4pm Sunday, Monday: CLOSED Holidays: CLOSED
Clarington Household Special Waste Depot	Tuesday to Saturday: 8am to 4pm (open until 6pm on Tuesdays only between May and October) Sunday, Monday: CLOSED Holidays: CLOSED
Pickering Private Hazardous Waste Facility (Region-contracted)	Monday to Friday: 7am to 6pm Saturday: 7am to 4pm Sunday: CLOSED

All Region-owned Waste Management Facilities accept the same materials except those that only accept hazardous waste (e.g. Clarington and the Pickering Private Hazardous Waste Facility). In addition, fees at all facilities are the same and charged based on the type of materials/loads that are being accepted. Garbage, chargeable materials and mixed loads (containing both free and chargeable items) are subject to fees. At the Pickering Private Hazardous Waste Facility only household hazardous waste is accepted free of charge on behalf of the Region. All other waste is subject to the rates and hours posted by Miller Waste Durham at its private transfer station on the same property.

Long-Term Waste Management Plan

In March 2021, the general fees for most of the materials accepted were as follows:

- \$5 flat rate for loads up to 40 kilograms
- \$1 for every eight kilograms greater than 40 kilograms
- \$125 per 1,000 kilograms
- Fill material disposal is charged differently. This includes soil, dirt, brick, gravel, rubble, sand, cement and concrete. Fees for these are charged at \$250 per 1,000 kilograms

The following table presents the fees charged for materials accepted (as of March 2021) at Region-owned Waste Management Facilities.

Table 3: Materials Accepted and Fees Charged at Region Owned Waste Management Facilities (as of March 2021)

Type of Material	Fee Charged	
Appliances	\$5 flat rate for loads up to 40 kilograms (88lbs) \$1 for every eight kilograms greater than 40 kilograms \$125 per 1,000 kilograms	
Blue Box recyclables		
Cardboard		
Carpet and underlay		
Furniture		
Garbage		
Leaf, brush, and yard waste		Mixed loads containing both free and chargeable items are subject to payment for the entire weight.
Porcelain bathroom fixtures		
Wood		
Drywall		
Scrap metal		
Bulky white polystyrene (Styrofoam)	No Charge for loads containing only these materials	
Electrical and Electronic Equipment (EEE)		
Hazardous and Special Products (HSP)		
Tires	No Charge (up to 10 tires per vehicle)	

5.3.5 Closed Landfills

Durham Region maintains seven closed landfill sites. All sites are monitored regularly and inspected at least twice a year and maintained as needed. Maintenance activities include groundwater monitoring well repairs, soil erosion control, site grading and landscaping. All of the closed landfills have individual monitoring programs for groundwater, surface water and/or landfill gas that are tailored for each site. Annual reports are prepared and submitted to the Ministry of Environment, Conservation and Parks for review. There are seven closed landfills in the Region's perpetual care program:

- Blackstock/Cartwright Landfill
- Brock Landfill
- Darlington Landfill
- Oshawa Landfill
- Scott Landfill
- Scugog Landfill
- Whitby Landfill

5.3.6 Durham York Energy Centre

The Durham York Energy Centre (DYEC) is an energy from waste facility that produces energy from the combustion/ burning of garbage that remains after all diversion programs. The facility was developed in partnership with York Region, permitted to process 140,000 tonnes per year of residential garbage. This facility is the primary disposal facility for Durham Region, processing 110,000 tonnes annually of post-diversion residential garbage. York Region sends 30,000 tonnes annually of post-diversion residential garbage to DYEC.

5.3.7 Special Waste Events

The Region collects materials not only through its curbside collection services and the Waste Management Facilities, but also through special waste events held throughout the year.

Electronic and Electrical Equipment and Household Hazardous Waste Collection Events are hosted by the Region for residents to drop off unwanted items for free. Typically, four events are hosted annually that rotate between the eight local area municipalities.

The Region's Reuse Days accept reusable items free of charge. In 2019 there were a total of eight drop-off events. The Region has partnered with

various charities such as Diabetes Canada, Habitat for Humanity and Salvation Army Thrift Store to collect various items such as:

- Clothing, shoes and accessories
- Games, toys, puzzles and sporting goods
- Home décor, bedding and linens
- Worn out textiles and scraps of fabric

Compost Giveaway Events are hosted every spring for all Durham Region residents, where each household can collect compost that is generated from the Green Bin organics and leaf and yard waste collected from residents throughout the year.

5.4 Financing

The Region's waste management system is funded primarily through property taxes as approved by Regional Council each year. Additional funding is derived from user fees collected at Waste Management Facilities and curbside garbage bag tag fees. Funding from producers of products and packaging managed in the Blue Box pays for approximately 50 per cent of net Blue Box program costs and revenue is received from selling Blue Box products and packaging to recyclers. Finally, revenue is received from the sale of electricity and scrap metal from the DYEC.

The Waste Management Division participates in the Region's annual budget process that includes 10-year capital spending forecasts. This process establishes spending priorities for the coming year and provides information on long-term financial needs. The waste management budget will be informed by the approved Waste Plan and 5-year Action Plans. Examples of items that will impact the budget in the near-term include the transition of the Blue Box program to producer financial and operational responsibility and the construction and commissioning of the Mixed Waste Pre-sort and Anaerobic Digestion Facility. The actions identified under this plan will be subject to Council approval of any necessary funding.

5.5 Tonnes of Waste by Material Type

Table 4 presents the tonnes of garbage, Green Bin organics, Blue Box materials, Leaf and Yard Waste (LYW), and other divertible materials that contribute to the Region's diversion rate. Note that 2020 tonnages reflect the impact of COVID-19 (e.g. people working from home and generating more waste at home, rather than at work and school).

Table 4: Tonnes Collected by the Region (2015-2020)

Material Type	2015	2016	2017	2018	2019	2020*
Garbage	110,498	107,887	115,271	119,716	120,637	129,926
Organics	26,796	27,612	28,318	28,446	28,522	33,031
Blue Box	48,254	47,923	47,839	43,139	41,738	41,944
Leaf & Yard Waste	27,554	24,730	25,082	27,330	26,646	30,140
Other Materials	7,231	10,837	6,887	6,712	6,553	6,585
Total	220,333	218,989	223,397	225,343	224,096	241,626

Source: Durham Region, 2019 Annual Report, 2020 Waste Tonnage Summary

*2020 diversion data presented is unverified by RPRA.

5.6 Tonnes of Waste Managed by Sector

The following tables present a comparison of the tonnes of residential waste managed at the curb and the tonnes of waste managed at Waste Management Facilities and Special Events in 2019 and 2020. The impact of COVID-19 can be seen on the increased quantities of garbage, Green Bin organics, bulky/other goods and other diversion programs as residents worked from home and had more time for clearing out unwanted goods, yard work, etc. It is unknown if these trends will continue or if waste generation will go back to pre-COVID rates.

Table 5: Tonnes of Residential Waste Managed at the Curb (2019-2020)

	Single-family				Multi-residential		Other	
	Garbage	Blue Box Recycling	Green Bin Materials	Leaf and Yard Waste	Garbage	Blue Box Recycling	Bulky/ Other Goods Disposal	Other Diversion Programs ⁴
2019	79,322	39,084	28,522	24,375	13,892	2,048	1,755	388
2020	84,317	39,506	33,031	29,133	14,220	1,827	1,905	469

Source: 2019 and 2020 Waste Tonnage Summary

Table 6: Tonnes of Waste Managed at Waste Management Facilities and Special Events (2019-2020)

	Waste Management Facilities				Special Events		
	Garbage	Leaf and Yard Waste	Blue Box Recycling	Other Diversion Programs ⁴	Hazardous Waste	Electrical and Electronic Equipment	Re-use
2019	25,667	2,271	606	6,121	17	9	18
2020	29,483	1,006	610	6,116	No events held due to COVID-19		

Source: 2019 and 2020 Waste Tonnage Summary

⁴ Includes re-use, metal goods recycling, HSP and EEE recycling programs.

5.7 Projected Tonnes to be Managed

Estimating future waste tonnages requires consideration of many factors such as population growth, housing types, household sizes, and other economic indicators such as employment and income. Most recently, waste projections were developed as part of the Mixed Waste Pre-sort and Anaerobic Digestion Facility. Projections required consideration of:

- Increasing population - Durham Region's population is anticipated to almost double by 2041.
- Shrinking household size - the average household size has decreased from 3.5 persons in 1976 to 2.8 people per household in 2016.
- Increased densification - more townhomes and apartment units are being constructed which can accommodate smaller households.
- Employment growth - anticipated to continue to increase over time, along with average household income. Employment and income are tied to waste generation.

The following Table 7 presents the projected tonnes of Green Bin material (from single-family) and garbage (from single-family and multi-residential) that will require management by Durham Region. These projections were developed for the Mixed Waste Pre-sort and Anaerobic Digestion Facility, prior to the COVID-19 pandemic and do not reflect the changes to waste generation that have resulted or future impacts post-COVID-19 (e.g. working from home etc.).

The projections also do not include Blue Box recyclables as the Region will no longer be responsible for managing these materials once the proposed Blue Box Regulation is finalized and producers take responsibility for Blue Box collection and management.

Table 7: Projected Tonnes of Curbside Green Bin Material and Garbage (to 2045)

	2020	2025	2030	2035	2040	2045
Curbside Green Bin Material	28,700	35,100	41,700	45,700	49,200	52,600
Garbage	96,200	115,100	135,200	148,100	159,200	170,400
Single-family	82,200	98,800	116,500	127,700	137,300	147,000
Multi-residential	14,000	16,300	18,700	20,400	21,900	23,400

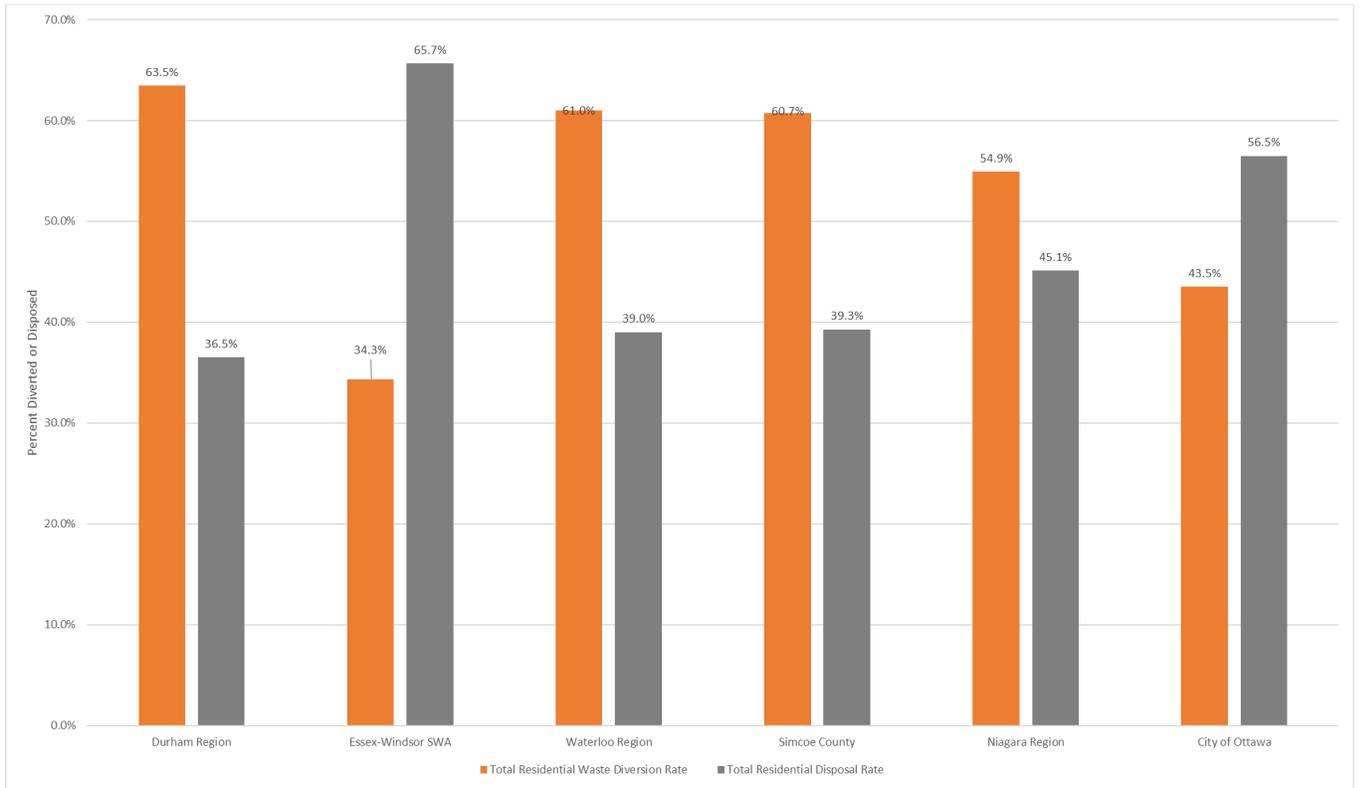
Source: RFPQ for Mixed Waste Presort and Anaerobic Digestion Facility

5.8 Performance

Durham Region is classified as Urban Regional by the Resource Recovery and Productivity Authority (RPRA), along with Essex-Windsor Solid Waste Authority, Waterloo Region, Simcoe County, Niagara Region and City of Ottawa. This municipal grouping includes municipalities with a population greater than 250,000 and a population density less than 4 residents per hectare (based on 2011 Datacall). In 2019, Durham Region had the second highest population in this category and the second highest waste generation rate (next to Ottawa). The Region also had the highest residential waste diversion rate.

Figure 6 presents a comparison of the 2019 diversion and disposal rates for the Urban Regional municipal grouping.

Figure 6: Durham Region 2019 Diversion and Disposal Rates Compared



Source: RPRA 2019 Datacall

Table 8 presents the Region’s 2019 tonnages grouped as per the 2019 RPRA Datacall submission and illustrates the tonnes considered as “Diverted” and “Disposed”. In 2019, the Region’s diversion rate was 63 per cent as verified by RPRA.

Table 8: 2019 Diversion Rate (RPRA)

Category	Method of Management	Tonnes
Diverted	Residential Diversion and Reuse (On-property Management, Deposit/Return)	24,454
	Recyclable Material Diverted (Curbside, WMF, DYEC)	80,868
	Organic Material Diverted (Curbside, WMF)	54,272
	HSP Diverted (Recycled and Reused)	1,295
	Total Diverted	160,889
Disposed	DYEC ¹	61,132
	Landfill (Garbage, Ash, Processing Residues)	31,414
	Total Disposed	92,545
Generated	Total Generated	253,434
	Diversion Rate	63%

Source: 2019 RPRA Datacall Submission

¹ Tonnage reflects mass reduction due to combustion process.

Many municipalities are starting to report on the total amount of waste generated, which typically includes garbage, Blue Box recycling, Green Bin organics, Leaf and Yard Waste (LYW) and other materials. This may be reported on a per capita basis (i.e. per person) to give a better indication of how these rates are changing from year to year. This metric gives a truer picture of all materials that municipalities must manage, rather than just reporting on what was diverted.

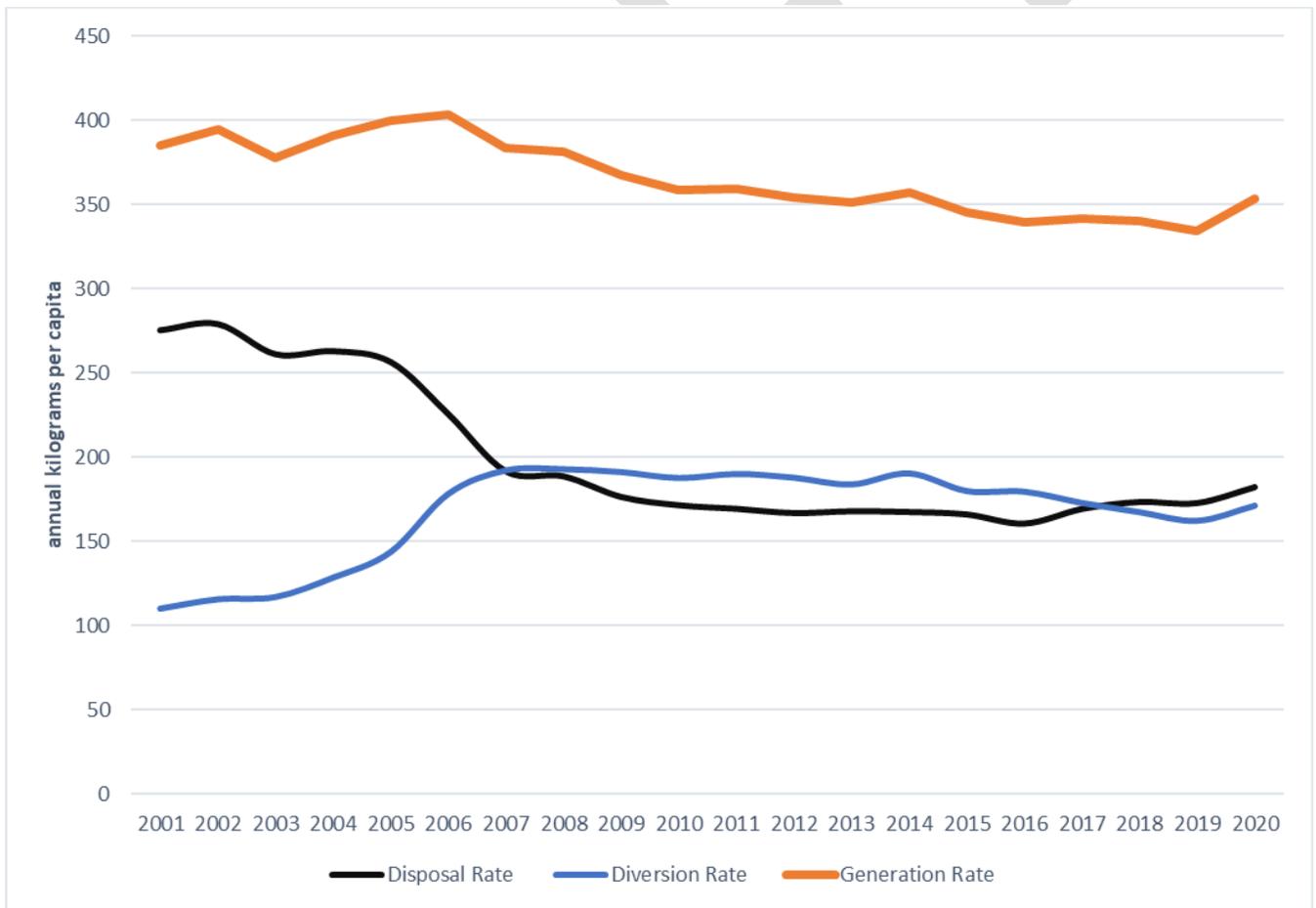
Figure 7 presents the historical per capita waste generation, disposal and diversion rates for Durham Region from 2001 to 2020. Waste generation rates have been trending downwards since 2006. The higher generation rate in 2020 reflects the impact of residents staying at home during the COVID-19 pandemic.

Diversion rates include tonnages attributed to Blue Box recycling, Green Bin materials, LYW, reuse and credits for backyard composting and grasscycling.

The impact of the introduction of the Green Bin program being offered across the Region can clearly be seen in 2007 with a large increase in waste diverted. Diversion rates peaked in 2008 and show an overall downward trend until 2020, when the COVID-19 pandemic hit. It should be noted that diversion rates can be impacted by factors such as weather (for LYW), consumer behaviour (e.g. reading newspapers online instead of printed versions), light weighting (thinner, lighter packaging) and packaging choices (e.g. stand-up pouches instead of metal or glass). All of these factors are outside the Region’s control.

Disposal rates continued to show a downward trend until around 2017 when rates started to increase again. Disposal rates in 2020 reflect the impact of COVID-19.

Figure 7: Per Capita Waste Generation Rate (2001-2020)



Source: Durham Region, Actual Tonnes 2001-2020

Table 9 presents a snapshot of the last three years of the materials collected and marketed in Durham Region’s recycling program. Tonnes of paper and metal have decreased while tonnes of plastic and glass have increased. Overall tonnes of materials marketed have decreased by five per cent and each year the tonnages of recyclables marketed from each household has decreased. As discussed above, this may be due to light weighting (i.e. packaging becoming thinner and lighter), changes in packaging materials (e.g. changes from glass or metal to stand-up pouches which are not currently recyclable), and changes in consumer behaviour (e.g. reading newspapers online).

Table 9: Tonnes of Recyclables Marketed by Durham Region (2017-2019)

	Paper	Plastic	Metal	Glass	Total Marketed	Tonnes/ household
2017	32,738	4,241	2,232	4,295	43,507	0.19
2018	31,932	4,864	1,921	4,561	43,278	0.18
2019	29,739	4,866	1,901	4,701	41,207	0.17

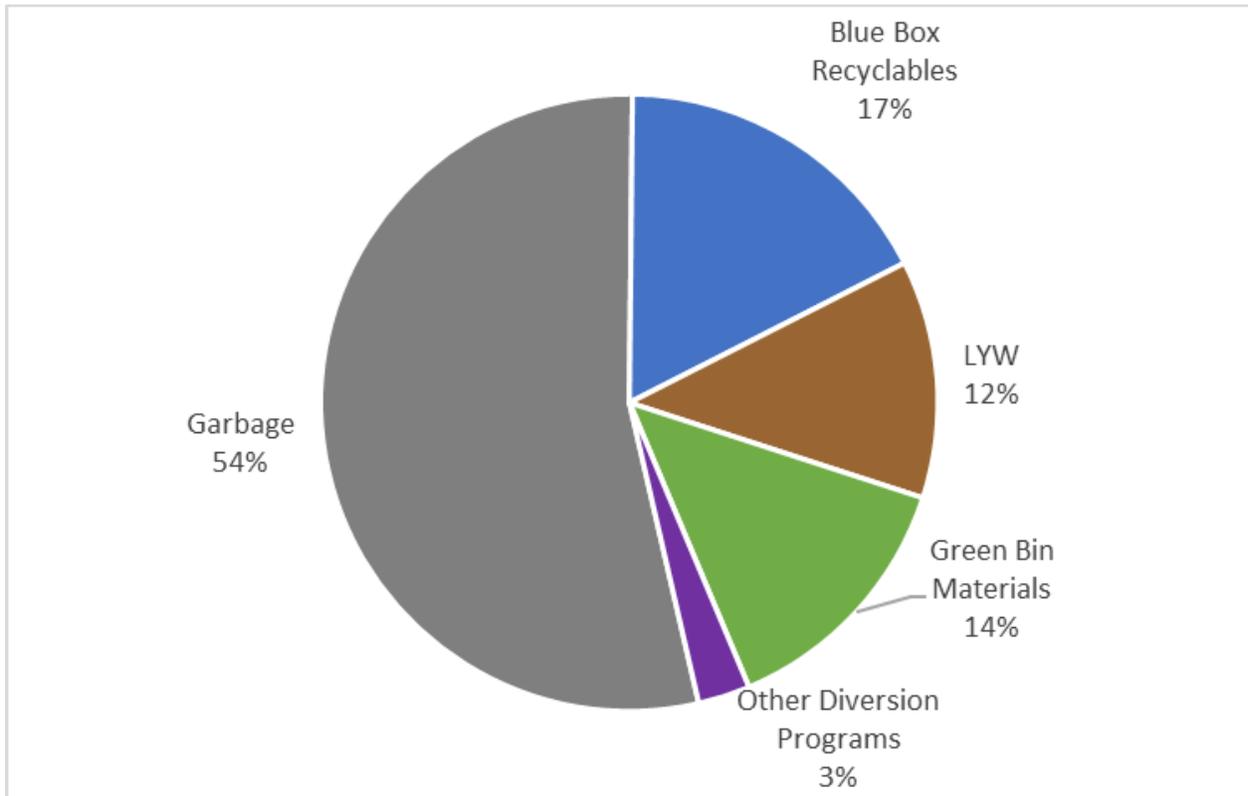
Source: RPRA Tonnage

5.9 Waste Composition

As shown in Figure 8, in 2020, over half of the residential waste collected at the curb and at the WMFs consisted of garbage. Approximately, 17 per cent of residential waste consists of Blue Box recyclables. Another 14 per cent of residential waste consists of Green Bin materials and 12 per cent is leaf and yard waste. The remaining three per cent is managed through other diversion programs (e.g. for electronics, tires, scrap metal, porcelain etc.).

Note that these values represent what is collected by the Region at the curb and at Waste Management Facilities and does not represent what is truly diverted. The Region’s 63 percent diversion rate, as calculated by RPRA (see Section 5.8) reflects tonnes marketed (i.e. does not include the residue/contamination that would be reported in the tonnes collected), diversion credits (e.g. for grasscycling and backyard composting), and counts additional diversion from DYEC for bottom ash, metals recovered from ash and mass reduction from the combustion process.

Figure 8: Composition of Residential Waste Managed (2020)



Source: 2020 Waste Tonnage Summary

5.9.1 Garbage Composition

A Garbage Composition Study (the Study) was conducted in 2018 and was intended to:

1. Demonstrate the reliability of mixed waste processing to consistently recover digester and composting-ready organics, valuable metals and rigid plastics for recycling.
2. Provide informational value to assist in future decisions on the viability of mixed waste processing to aid in increasing diversion.
3. Understand whether garbage originating from single-family residential homes has the same or different diversion potential than garbage originating in multi-residential dwellings.

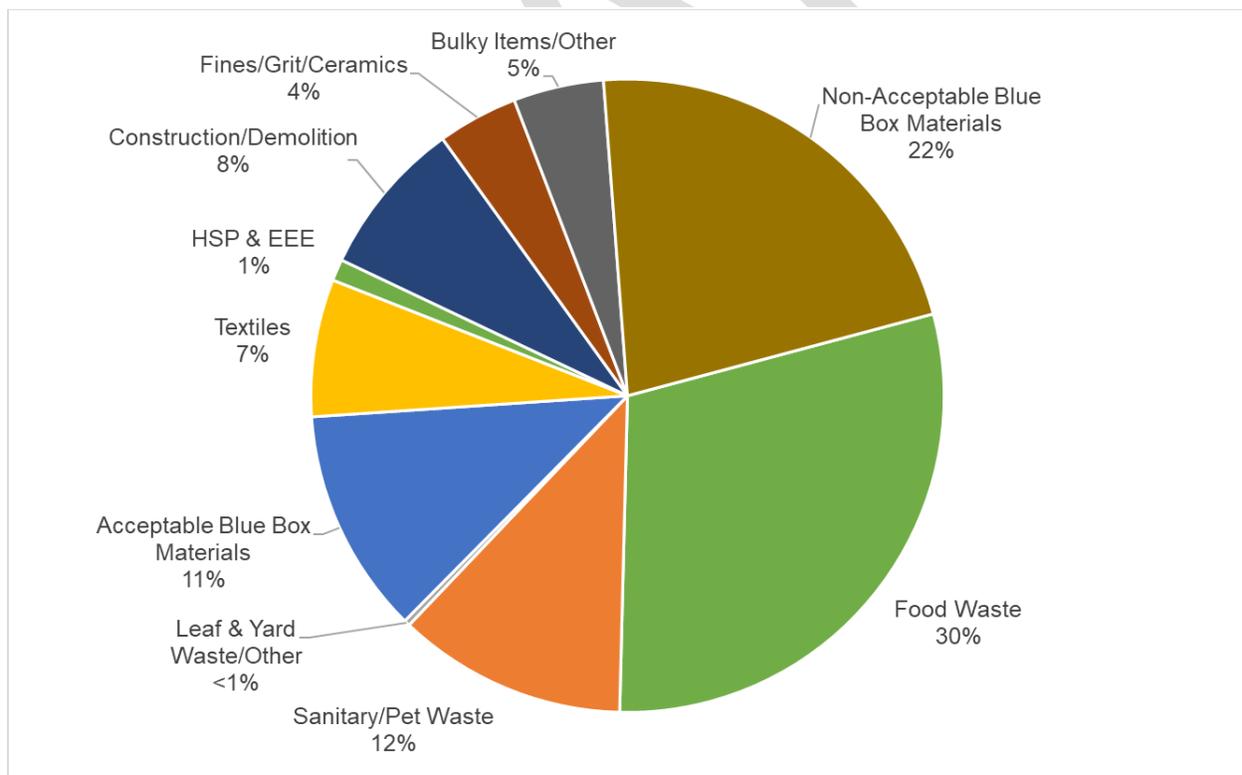
Single-family Garbage Composition

The 2018 Garbage Composition Study confirmed that approximately 50 per cent of materials disposed of in the garbage was organic material including food waste (30 per cent of total disposed), sanitary products and pet waste (12 per cent of total disposed), and soiled paper (8 per cent of total disposed). About 12 per cent of garbage consisted of Blue Box recyclables. About 12 per cent of materials disposed were non-combustible garbage such as concrete, rubble, ceramics/porcelain, grit and glass.

In the Region's current programs, approximately 42 per cent of materials in the garbage stream could be diverted through existing program/service offered by the Region (e.g. food waste, Blue Box program, HSP, EEE etc.), 39 per cent of materials cannot be diverted in current programs (e.g. Non-Blue Box materials, construction/demolition materials, bulky items etc.), and 19 per cent consists of sanitary/pet waste and textiles that could be diverted with future programs.

Figure 9 presents the composition of single-family garbage.

Figure 9: Single-family Garbage Composition (2018)



Source: 2018 Waste Composition Study – Single-family

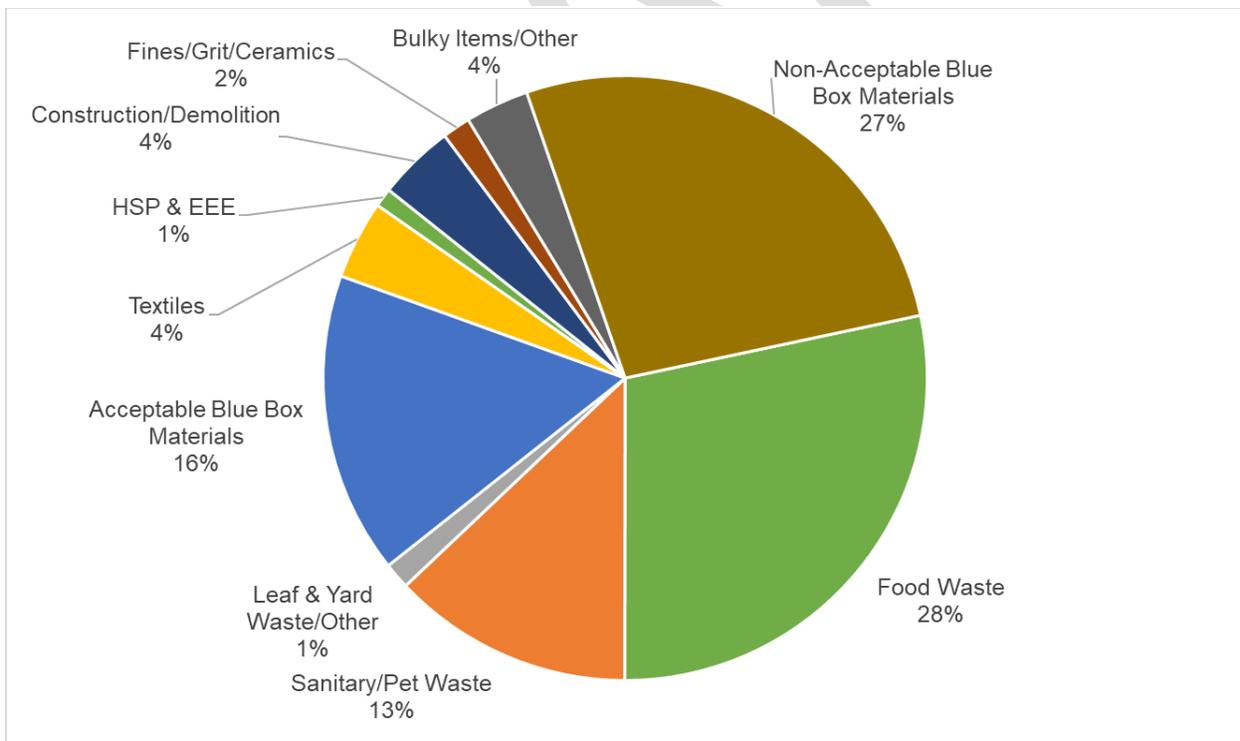
Multi-residential Garbage Composition

The 2018 Garbage Composition Study confirmed that about 51 per cent of materials disposed of in the garbage was organics that could be processed in an anaerobic digester such as food waste (28 per cent of total disposed), sanitary products and pet waste (13 per cent of total disposed), and soiled paper (10 per cent of total disposed). About 16 per cent of garbage was Blue Box materials such as paper fibers (10 per cent of total disposed), and plastic/glass and metal containers (6 per cent of total disposed).

In the Region’s current programs, approximately 47 per cent of materials in the garbage stream could be diverted in an existing program/service offered by the Region (e.g. food waste, Blue Box program, LYW, HSP, EEE etc.), 36 per cent of materials cannot be diverted in current programs (e.g. Non-Blue Box materials, construction/demolition materials, bulky items etc.), and 17 per cent consists of sanitary/pet waste and textiles that could be diverted with future programs.

Figure 10 presents the composition of multi-residential garbage.

Figure 10: Multi-residential Garbage Composition (2018)



Source: 2018 Waste Composition Study – Multi-residential

In summary, the waste profiles of single-family and multi-residential garbage are quite similar, with the largest component of garbage consisting of food

waste (which was found in almost equal proportions for each sector). Multi-residential garbage had higher quantities of Blue Box fibres, likely consisting of cardboard (e.g. boxes from moving, online shopping, meal kits etc.). Single-family garbage had larger quantities of textile waste and fewer Blue Box materials.

6 Regulatory Review

The regulatory landscape with regards to waste management and environmental protection in Ontario will be undergoing significant changes in the next five to ten years. The following sections outline the current and proposed regulations applicable to this Waste Plan. The Regulations with the greatest impact to the Region's waste management system will be Extended Producer Responsibility (particularly for Blue Box materials) and the Food and the Food and Organic Waste Framework which will impact how and what organic materials will be managed. There are other federal initiatives targeting plastic that will impact the types and quantities of plastic requiring management. The Durham York Energy Centre is also subject to greenhouse gas reporting regulations and air emissions regulations.

6.1 Durham Region Solid Waste By-law

Durham Region's primary Solid Waste Management By-law is [By-law 46-2011](#): *"A By-law to Regulate the Provision of the Waste Management Services Under the Jurisdiction of The Regional Municipality of Durham"*. This By-law addresses waste management service requirements for single-family dwellings, multi-residential dwellings and privately-owned roads. It also describes the rules for waste management facilities owned by the Region, fees and rates, and enforcement of non-compliance.

This By-law defines the eligible properties to be collected:

1. Any single-family residential dwelling, including houses, semi-detached houses, duplexes, townhouses (inclusive located on private property), or any multi-dwelling building deemed eligible by the Region, and/or
2. Any townhouse on private property and multi-residential apartment or condominium buildings deemed compliant by the Region with the "Technical and Risk Management Guidelines for Waste Collection Services", and/or
3. Small business deemed by the Region to conform to the provisions of residential collection or being part of a designated Business Improvement Area.

This By-law defines a Multi-Residential Property as a high-rise apartment building, condominium property, townhouse property, co-op property or other similar residential property containing more than six (6) self-contained dwelling units. It provides details on collection requirements including:

1. General waste collection requirements
2. Requirements for high rise buildings
3. Requirements for townhouse properties

Schedule O defines each waste stream’s collection schedule, limitations, and requirements for each of the eight Local Area Municipalities.⁵ Waste streams included are:

1. Recycling
2. Green Bin
3. Garbage
4. Leaf & Yard
5. Bulky Goods
6. Metal Goods/Appliances
7. EEE & Porcelain Bathroom Fixtures

The By-law outlines the requirements of each waste stream’s set out times, weight restrictions, materials accepted and not accepted, etc.

6.2 Ontario Policy Changes

The two policy changes that will have the greatest impact on the Region’s waste management system within the next five years are the Resource Recovery and Circular Economy Act and the Food and Organic Waste Framework, particularly the Food and Organic Waste Policy Statement that sets out the municipal obligations regarding organics management. Regulatory obligations under the Greenhouse Gas Emissions: Quantification, Reporting and Verification regulation, the Air Pollution – Local Air Quality regulation and, to a lesser extent, the Greenhouse Gas Emissions Performance Standard regulation could also impact the DYEC.

⁵ Note that the Region only collects recycling (no other stream) for the Town of Whitby and City of Oshawa.

6.2.1 Resource Recovery and Circular Economy Act (RRCEA), 2016

The RRCEA provides the framework for Individual Producer Responsibility (IPR) regulations in Ontario and includes tires, information technology, telecommunications and audio-visual (ITT/AV) equipment, lighting equipment, single-use batteries, hazardous or special products and Blue Box materials. The objective of these regulations is to shift the responsibility of waste management (this includes financial, operational and regulatory responsibilities) from municipalities to producers of the materials and encourage producers to invest towards improving their products and packaging through product design. Ontario transitioned its tires program in 2019, single-use battery program in 2020 and plans to transition hazardous and special products (HSP) and electrical and electronic equipment (EEE) in 2021. The Blue Box Program is expected to transition over three years starting in 2023. Table 10 presents the timing of the transition of EPR programs.

Table 10: EPR Transition Timing

EPR Program	Existing Program End Date	New Program Start Date
Used Tires	December 31, 2018	January 1, 2019
Single-use Batteries	June 30, 2020	July 1, 2020
Electrical and Electronic Equipment (EEE)	December 31, 2020	January 1, 2021
Hazardous and Special Products (HSP)	June 30, 2021	October 1, 2021
Blue Box	December 31, 2022	July 1, 2023 – December 31, 2025

Durham Region has transitioned its programs for tires, batteries and electronics and is planning for upcoming transitions of HSP and Blue Box materials.

Blue Box Program Transition

The regulation makes producers of designated products and packaging recycled in the Blue Box fully responsible for operating and financing the Blue Box program, including providing collection services to local communities, managing Blue Box materials and achieving diversion targets to improve diversion, address plastic waste and recover resources for use in a circular economy.

Producers (i.e. brand-owners, importers, marketers of products in Ontario) will be responsible for managing designated materials (e.g. paper products, packaging, packaging-like products and possibly single serve food and beverage service products). Producers will work with Producer Responsibility Organizations (PROs) to manage these materials and ensure the provincially mandated obligations are met.

Producers can meet their diversion targets through reuse, recycling (mechanical or chemical), composting or anaerobic digestion, use of materials as aggregate (e.g. road building – limited to a certain percentage). Landfilling, landfill cover, incineration and energy from waste will not count towards achieving diversion targets. Use of materials to generate energy or fuel is not considered diversion but is proposed to be allowed for waste that cannot be recycled (e.g. Blue Box residuals).

Durham Region's Blue Box Program will transition to full EPR on July 1, 2024. There is uncertainty regarding the future role of the Region's Material Recovery Facility (MRF) and other involvement the Region may have with the transition such as with promotion and education or call centres. It is unknown how the PROs will be collecting recyclables (single stream or dual stream), what containers may be used (Blue Boxes, carts or other), how materials may be processed, or who will be doing the collecting.

The regulation includes all single-family residences and multi-residential buildings, schools, not-for-profit long-term care and retirement homes and municipal public spaces/parks currently receiving municipal garbage collection as part of the initial transition. In 2026 and beyond, non-serviced multi-residential buildings, schools, long-term care homes can request to be added to the service. Business Improvement Areas will not be eligible to receive free collection under the producer-run system. The Region may be responsible for collection of recyclables from some sectors until at least 2026, at which point the PROs may assume collection.

At this time, it is unknown how or if the Region will be paid for Blue Box recyclables should it elect to continue offering recycling collection services to ineligible sources (such as businesses located in BIAs) after the Region

transitions out of the Blue Box program in 2024. After transition PROs may not pay for recycling services provided to or recycling materials collected from sources deemed ineligible under the new Blue Box regulation.

Hazardous and Special Products Transition

The Hazardous and Special Products (HSP) regulations will be in effect on October 1, 2021. At that time, most materials managed in the existing program will be transitioned to the new producer responsibility regime. Select mercury-containing devices will be added to the program, but there is no expansion of the existing program. Producers are required to implement a P&E program soon after the regulation effective date. Products to be managed include:

- Category A Products – non-refillable pressurized containers and oil filters
- Category B Products – Antifreeze, paints and coatings, pesticides, solvents, oil containers, refillable pressurized containers (not including refillable propane tanks)
- Category C Products – barometers, thermometers, thermostats
- Category D Products – fertilizers (not including those products used for commercial or agricultural purposes or supplied in a container greater than 30L or 30kg).
- Category E Products – refillable propane cylinders

On or before the regulation effective date, producers of Category A and B products must provide for the transition to the collection and management of HSP under the new regulation. This may include establishing, reestablishing, developing or holding an equivalent number of sites or events operated by municipalities. It appears municipalities such as Durham Region could continue to operate HSP collection events/sites in coordination with producers. Municipalities may continue to collect Category C products, for which producers will be responsible for producing a P&E campaign beginning October 1, 2021. Also at that time, producers of Category D products will also be responsible for creating P&E campaigns intended to instruct consumers to “use up, share or otherwise dispose of unused fertilizer”, and to “refrain from dropping off or delivering fertilizers to municipal depots”.

6.2.2 Food and Organic Waste Framework

The Province of Ontario is beginning to shift its legislation and economics towards a circular economy through the Strategy for a Waste Free Ontario: Building a Circular Economy and Ontario’s Food and Organic Waste

Framework. The Framework consists of two complementary components: the [Action Plan](#) which outlines the strategic commitments to be taken by the Province to address food and organic waste and the [Policy Statement](#) which provides direction to the MECP, municipalities, the Industrial, Commercial and Institutional (IC&I) sector (which includes Multi-residential Buildings), owners and operators of processing facilities and others regarding targets for waste reduction and recovery. These two components will help prevent and reduce food/organic waste, reintegrate excess food into the markets, and collect and recover food waste as a new resource. To achieve this goal, the Framework has four objectives:

- Reduce food and organic waste
- Recover resources from food and organic waste
- Support resource recovery infrastructure
- Promote beneficial uses of recovered organic resources

There are a number of proposed Actions including banning food and organic waste from disposal (anticipated to start in 2030) and imposing a mandatory organics diversion strategy. These initiatives will require municipalities to provide source separated food and organic waste collection to their residents (if they have not already done so).

Within the Policy Statement, Ontario has set targets for waste reduction and recovery by sector, as presented in Table 11.

Table 11: Waste Reduction and Resource Recovery Targets by Sector

Section Reference	Requirement	Target and Date
4.1	Municipalities that provide source separated food and organic waste collection shall maintain or expand these services to ensure residents have access to convenient and accessible collection services. Other collection methods, such as directing disposal streams to mixed waste processing, may be used to support collection of additional materials.	70 per cent waste reduction and resource recovery of food and organic waste generated in urban settlement areas by 2023.

Long-term Waste Management Plan

Section Reference	Requirement	Target and Date
4.10 to 4.13	Multi-unit residential buildings shall provide collection of food and organic waste to their residents. Source separation is preferred but like 4.1, alternatives to collecting this stream may be used if it demonstrates that provincial targets can be met. Best practices need to be implemented and buildings need to promote and educate residents to increase participation.	50 per cent waste reduction and resource recovery of food and organic waste generated at the building by 2025.
4.14 to 4.17	The Statement provides direction to certain groups (i.e. subject to <i>O.Reg.103/94</i>) under the industrial and commercial sectors (e.g., retail, office, restaurants, hotels, motels, large manufacturing) based on the quantity of food and organic waste generated each week.	Ranges from 50 per cent to 70 per cent waste reduction and resource recovery of food and organic waste depending on the quantity of food and organic waste generated in the facility by 2025.
4.14	All retail shopping establishments, retail shopping complexes, office buildings, restaurants, hotels and motels and large manufacturing establishments, subject to <i>O. Reg. 103/94</i> that generate 300 kilograms or more of food and organic waste per week <u>shall</u> source separate food and organic waste.	70 per cent waste reduction and resource recovery of food and organic waste generated in the facility by 2025.
4.15	All retail shopping establishments, retail shopping complexes, office buildings, restaurants, hotels and motels, and large manufacturing establishments, not subject to <i>O. Reg. 103/94</i> , that generate 300 kilograms or more of food and organic waste per week <u>shall</u> source separate food and organic waste.	50 per cent waste reduction and resource recovery of food and organic waste generated in the facility by 2025.

Section Reference	Requirement	Target and Date
4.16 to 4.17	<p>All other retail shopping establishments, retail shopping complexes, office buildings, restaurants, hotels and motels and large manufacturing establishments that generate less than 300 kilograms of food and organic waste per week <u>should</u> source separate food and organic waste.</p> <p>All retail shopping establishments, retail shopping complexes, office buildings, restaurants, hotels and motels, and large manufacturing establishments shall provide users of these facilities promotion and education materials that support and increase participation in resource recovery efforts.</p>	No target or date specified.
4.18	Educational institutions and hospitals, subject to <i>O.Reg. 103/94</i> , that generate more than 150 kg of food and organic waste per week <u>shall</u> source separate that stream.	70 per cent waste reduction and resource recovery generated in the facility by 2025.

The Region will be required to meet a performance target of 70 per cent waste reduction and resource recovery of food and organic waste generated by its single-family dwellings by 2023 and 50 percent waste reduction and resource recovery for any Multi-residential buildings to which it provides collection service by 2025. Durham is currently in the procurement phase of building a Mixed Waste Pre-sort and Anaerobic Digestion Facility which will augment its existing diversion strategies and further allow the Region to satisfy the requirements of the Policy Statement.⁶

⁶ Durham Region. (January 2020). The Regional Municipality of Durham report-Committee of the Whole: #2020-COW-2 https://www.durham.ca/en/living-here/resources/Documents/GarbageandRecycling/Anaerobic-Digestion-/Council-Reports/2020-COW-2_WMS_2020_SIFF.pdf

6.2.3 Other Regulations

Ontario regulates industrial air emissions under the Environmental Protection Act, Regulation 419/05 Air Pollution – Local Air Quality. Emissions from the DYEC are regulated under this regulation. Future changes to this regulation could impact obligations for the DYEC. The DYEC is also subject to the Greenhouse Gas Emissions: Quantification, Reporting and Verification regulation. The current requirements are to calculate the total greenhouse gas emissions for the facility and to report on the non-biogenic emissions each year. The DYEC is not currently subject to the pricing mechanisms in place for carbon emissions in Canada or Ontario. As efforts to reduce greenhouse gas emissions increase at the federal and provincial level, there is a possibility that DYEC emissions will become subject to carbon pricing over the life of the Waste Plan.

6.2.4 Other Relevant Initiatives

There are several initiatives that have been introduced to reduce and/or eliminate plastics, particularly single-use plastics. These regulations and initiatives have the potential to alter the composition of waste managed by the Region, although the impact may not be felt for a number of years.

Canada-wide Action Plan on Zero Plastic Waste

On October 7, 2020 the Federal government announced a federal ban of single-use plastics (SUPs) with regulations expected to be finalized by the end of 2021. This legislation will ban selected SUPs that are deemed recurring items in the environment and often cannot be recycled. The government is proposing to ban the following items:

- Plastic grocery bags
- Straws
- Stir sticks
- Six-pack rings for beer
- Cutlery
- Foodware made from hard-to-recycle plastics

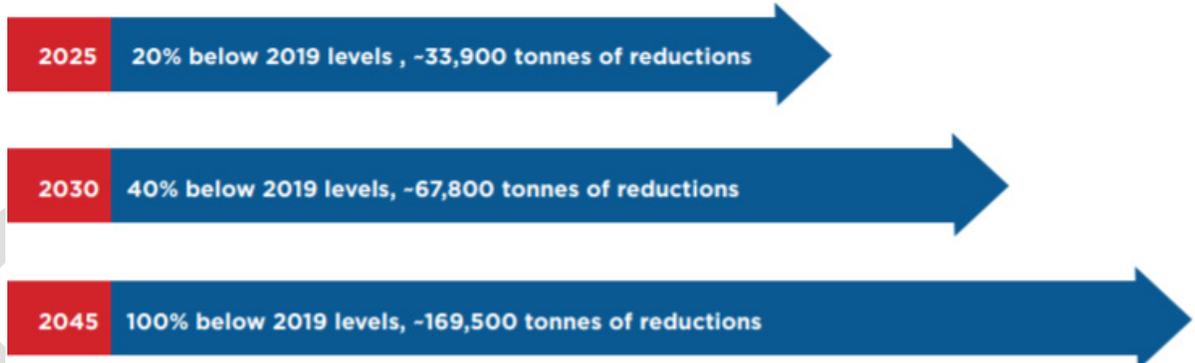
Ocean Plastics Charter and Canada Plastics Pact

In 2018, Canada adopted the Ocean Plastics Charter which brings together governments, businesses and organizations to move forward with a more sustainable approach to plastics. The Canada Plastics Pact is an initiative to

collaborate and rethink the way plastic packaging is designed, used and reused to realize a circular economy for plastic in Canada. Both initiatives include retailers who have committed to achieving a number of targets for reducing plastic waste. It is not anticipated that these initiatives will result in an immediate reduction in plastic packaging but may result in reductions in plastic packaging that has been designated as problematic or unnecessary. It may result in packaging being designed to be reusable, recyclable or compostable.

7 Commitment to Climate Change

In 2020, Durham Region Council declared a climate emergency. Over the last 10 years, the Region has been making decisions supporting the need to focus on climate action as a critical priority. Recently, the Region developed the Corporate Climate Action Plan⁷ (CCAP) which outlines actions to reduce GHG emissions from the Region’s corporate operations. The CCAP and the following Corporate GHG emissions reductions targets were approved in March 2021. The approved emissions reductions targets are as follows:



Key waste management objectives relating to GHG reductions over the next 20 years include:

- Increasing diversion of organic waste from single-family homes
- Construct and operate a Mixed Waste Pre-sort and Anaerobic Digestion facility
- Continue to manage GHG emissions from legacy closed landfills through innovative approaches

⁷ <https://www.durham.ca/en/resources/CAO-Office/Durham-Region-Corporate-Climate-Action-Plan.pdf>

- Explore ways to mitigate corporate GHG increases associated with future increases in DYEC capacity and population growth over the coming decade.
- Explore opportunities to reduce emissions through procurement and contract management, which could include zero emissions vehicles and/or hybrid vehicles where operationally feasible.

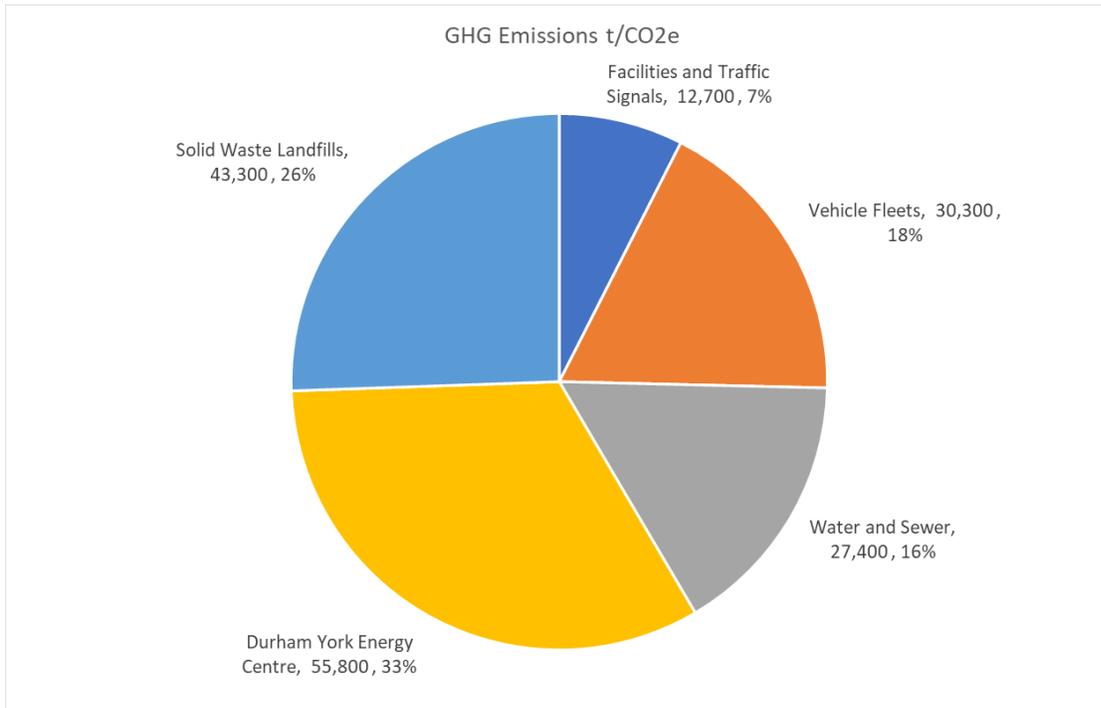
7.1 Corporate Emissions

From 2007 to 2019, corporate GHG emissions increased by 18 per cent, largely attributable to DYEC commencing operation in 2016 and through an increasing population requiring more services and supporting infrastructure. It is important to note that the Region's methodology to calculate GHG emissions does not reflect the reduction in GHG emissions associated with hauling waste to landfills⁸ or emissions from landfills (landfills are not required to calculate and report on GHG emissions under the Ontario GHG reporting program) with the use of DYEC. Lifecycle analyses using alternate calculations have estimated a net GHG reduction benefit for DYEC compared to landfill disposal.

In 2018, emissions from DYEC and landfills accounted for approximately 59 per cent of Corporate GHG emissions. Figure 11 presents the sources of the 2019 reported emissions.

⁸ These are considered Scope 3 emissions. As part of future updates to the Region's corporate GHG accounting protocol and the CCAP, opportunities to include relevant Scope 3 emissions data will be explored.

Figure 11: 2019 Reported GHG Emissions Summary

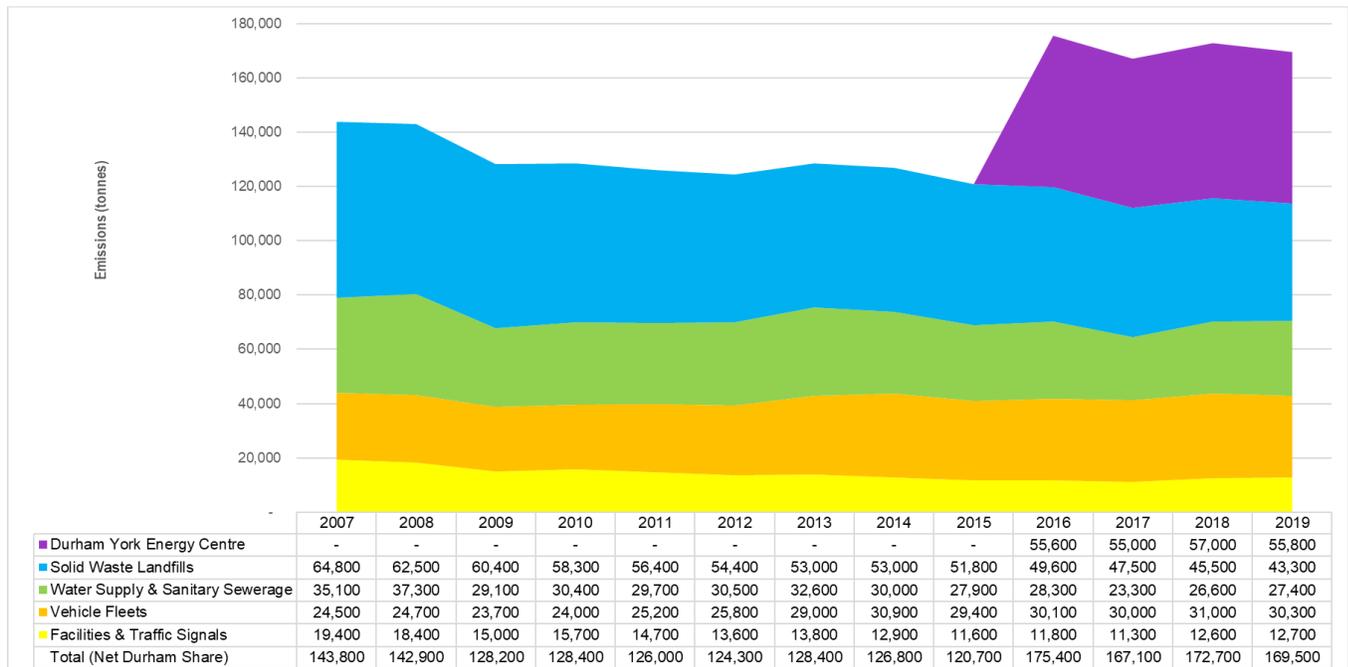


Source: Durham Region Corporate Climate Action Plan

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Figure 12 presents the Corporate GHG Emissions inventory from 2007 to 2019.

Figure 12: Corporate GHG Emissions Inventory (2007 – 2019)



Source: Durham Region Corporate Climate Action Plan

A number of waste-related opportunities to reduce these GHG emissions have been identified to support the achievement of the proposed targets.

- Increasing diversion of organic waste with the Mixed Waste Pre-sort and Anaerobic Digestion Facility and conversion of biogas to Renewable Natural Gas (RNG) is estimated to generate upwards of 4 million m³ of RNG annually which has potential to offset 7,500 tCO₂e annually through the displacement of natural gas use. In the future, as the throughput of the facility increases with increased tonnage, RNG production is anticipated to generate more than 6 million m³ annually through the end of the initial 20 year operating period which will offset more than 10,000 tCO₂e annually through the displacement of conventional natural gas usage.

- In 2019, the closed landfills managed by the Region were responsible for an estimated 43,300 tCO₂e, or 26 per cent of the Region's corporate emissions. The Region is exploring alternative landfill cover systems which have the potential to decrease methane emissions. A pilot project at the Oshawa landfill is anticipated to reduce GHG emissions by up to 12,000 tCO₂e annually.⁹ If expanded to the remaining closed landfills, it is estimated the total GHG emissions reduction may be 37,000 tCO₂e annually.¹⁰
- The Region's decision to develop the DYEC has increased its overall corporate GHG emissions but has reduced GHGs associated with long-haul waste trucking to other areas of Ontario or the U.S. and with methane leakage from landfills. The Region's methodology does not account for these reduced or avoided emissions. In the future, the Region will work to retain future carbon credits as an offset against corporate electricity-related GHG emissions inventory where financially feasible, explore the possibility of using waste heat generated at DYEC within other Regional or surrounding facilities including participation in district energy systems and continue to monitor opportunities to reduce or offset emissions through developing technologies including carbon capture and ash utilization.
- Continue to investigate the potential to utilize RNG as part of the Region's natural gas purchases.
- Investigate opportunities to influence emissions related to contracted third party emissions associated with waste haulage.
- Investigate options for low and zero carbon vehicles with a focus on fleet electrification where operationally feasible.
- Optimize waste management facility operations and haulage to minimize vehicle kilometres travelled to transport waste to disposal locations.

⁹ Based on 50 per cent of the site's emissions treated at 85 per cent efficiency. (CCAP)

¹⁰ Durham Region Corporate Climate Change Action Plan. [Durham Region Corporate Climate Action Plan](#) (accessed March 2021) (see section 9.1)

7.2 Community Targets

The CCAP also provides guidance on opportunities to reduce GHG emissions from the community at-large. Regional council endorsed the following community GHG emissions targets in March 2021:

- 10 per cent below 2019 levels by 2025
- 30 per cent below 2019 levels by 2030
- 100 per cent below 2019 levels by 2050

In 2018, waste management activities accounted for approximately three per cent of community GHG emissions. As the Region implements GHG reduction measures for waste management operations, a corresponding decrease in community GHG emissions from waste management is expected.

8 What Will Impact Future Planning Decisions?

Like many other municipalities, the Region is grappling with several issues that will impact future planning decisions, including

- Provincial regulations for Extended Producer Responsibility for tires, batteries, EEE, HSP and Blue Box materials
- Provincial direction for organics management including targets for waste reduction and resource recovery of food and organic waste
- Climate change
- Population growth
- How to effectively communicate information and educate residents
- Provision of future disposal capacity
- How to balance innovation, convenience and cost to taxpayers
- Facility development, expansion, on-going care, and closure

A series of targets and actions have been developed with consideration to these future planning decisions, as outlined in the following sections.

9 Targets and Timelines

The following table presents targets developed to meet the objectives and the proposed timing of the targets.

Table 12: Summary of Objectives, Targets and Timelines

Targets	Timeline for Targets		
	Short-term 2022-2026	Mid-term 2027- 2033	Long-term 2034- 2040
Objective 1: Engage with residents to build an understanding and awareness of the 5Rs (Rethink, Reduce, Reuse, Recycle, Recover) and the Region’s waste management programs and services.			
Target 1A: Increase public engagement on the 5Rs through partnerships, increased accessibility, and different media.	x	x	x
Objective 2: Reduce the quantity of waste we create			
Target 2A: Support residents in making behavioural changes to reduce food waste.	x	x	x
Target 2B: Support residents in making behavioural changes to reduce the amount of waste generated.	x	x	x
Objective 3: Increase diversion of waste from disposal and support the circular economy.			
Target 3A: Increase diversion of organics from disposal.	x	x	x
Target 3B: Revise Waste Management By-law 46-2011 to reflect changes to Regional collection and processing programs and services.	x		
Target 3C: Develop a transition plan that supports EPR programs.	x		
Target 3D: Advocate for the expansion of existing EPR programs and for additional EPR programs to manage more materials.	x	x	x

Targets	Timeline for Targets		
	Short-term 2022-2026	Mid-term 2027- 2033	Long-term 2034- 2040
Objective 4: Support the Region’s greenhouse gas reduction and climate change mitigation efforts.			
Target 4A: Develop initiatives to offset or reduce GHG emissions from solid waste that contribute to Corporate GHG emissions.	x	x	x
Objective 5: Protect or improve water, land, and air quality in Durham Region.			
Target 5A: Optimize the operation and utilization of Waste Management Facilities.	x	x	
Target 5B: Increase accessibility of waste management programs and services.	x	x	x
Target 5C: Explore options to reduce environmental impacts of closed landfills and potential for future community use.	x	x	x

10 Targets and Actions

The Waste Plan consists of a series of short, mid and long-term actions that have been developed to assist with meeting the targets developed and will enable oversight of how the Waste Plan is being implemented. Being able to measure progress in meeting the stated objectives is critical to assess whether the objectives and targets are being met. For each target developed, a metric has been developed so the Region can assess the progress of meeting the targets. Completing the actions developed for each target will contribute to meeting the targets.

10.1 Objective 1 Targets and Actions

Target 1A is to provide the tools and content necessary for residents to develop an understanding of the 5Rs and to incorporate these principles into their everyday lives. There are many residents who have embraced the concept of waste reduction, and others who are just starting to learn about waste reduction. The Region plans to increase the scope of public engagement to reach more residents to encourage a new way of thinking about waste. The actions below will be initiated and enhanced throughout the life of the Waste Plan.

Objective 1: Engage with residents to build an understanding and awareness of the 5Rs (Rethink, Reduce, Reuse, Recycle, Recover) and the Region’s waste management programs and services.

Target 1A: Increase public engagement on the 5Rs through partnerships, increased accessibility, and different media

Measurement: Year over year increase (from 2018 or action start date) measured through metrics below

Actions throughout life of Waste Plan

<ul style="list-style-type: none"> • 1A1: Collaborate with Eco-Schools program to increase rethink and reduce activities in schools. Work with schools and school boards to provide educational content 	# of classrooms using Region content (41 schools in 2018)
<ul style="list-style-type: none"> • 1A2: Transition to the Region’s central access point for residents to obtain waste management information (e.g.myDurham311). Evaluate opportunities to integrate waste management information sources into the myDurham311 platform 	# of contacts regarding waste management handled by myDurham311
<ul style="list-style-type: none"> • 1A3: Undertake a promotion and education campaign to increase Waste app subscribers. 	# of subscribers (50,000 in 2018)
<ul style="list-style-type: none"> • 1A4: Provide information on reduction and reuse by adding a dedicated section to the Region’s webpage 	# of visits to webpages
<ul style="list-style-type: none"> • 1A5: Investigate technical feasibility of enhancements to Waste app to include locations of donation centers including cost and maintenance implications 	Evaluation of technical feasibility of enhancements
<ul style="list-style-type: none"> • 1A6: Create and deliver content for digital and/or in-person engagement, including live online meetings for residents, how-to videos, tours of waste management facilities. Investigate collaborations with community groups 	# of views, # of meetings and/or tours, # of people attending meetings and/or tours
<ul style="list-style-type: none"> • 1A7: Work with Diversity, Equity and Inclusion Department to determine additional languages for publications, promotion and education materials and outreach events such as multi-cultural groups and clubs 	Increased # of languages available

10.2 Objective 2 Targets and Actions

Results of the consultation process clearly underscored the importance of waste reduction. The actions below were developed to support residents in making the behavioural choices needed to reduce waste quantities. These actions would be complemented by the increased public engagement described above, along with the Region’s current promotion and education activities.

Objective 2: Reduce the quantity of waste we create.
Target 2A: Support residents in making behavioural changes to reduce food waste.
Measurement: Reduce quantities of food waste in the garbage by XX% (2018 baseline is 30% food waste in single-family garbage - 2018 Composition Study)
Short-term Actions
<ul style="list-style-type: none"> • 2A1: Continue with the Region’s “Buy it, Eat it” food waste reduction campaign and develop additional themes for next iteration of the campaign
Target 2B: Support residents in making behavioural changes to reduce the amount of waste generated.
Measurement: Reduce quantities of materials generated such as durable goods, textiles and single-use plastics by XX% as a per cent of all waste streams (2018 baseline of 7% textiles in single-family garbage; additional measures to be established in audit program)
Short-term Actions
<ul style="list-style-type: none"> • 2B1: Measure annual generation rates of garbage (kg per capita) to track progress in reducing garbage disposed. (2018: 173.1 kg garbage disposed/capita) • 2B2: Develop a monitoring program to measure waste setouts and composition on a regular basis to determine quantities of food waste, durable goods, textiles, single-use plastics, etc. through audits of garbage, curbside SSO and FSO
Mid-term Actions
<ul style="list-style-type: none"> • 2B3: Evaluate partnerships with local charities on common messaging, sharing platforms and other circular economy opportunities • 2B4: Partner with local area municipalities on a common message and approach to textile diversion and single-use item reduction in support of federal action to ban some single-use plastics

10.3 Objective 3 Targets and Actions

Waste reduction is primarily a result of decisions made by the Region’s residents, through their choices of purchasing and consumption of goods. The Region can facilitate diversion of more materials from disposal through the development of the Mixed Waste Pre-sort and Anaerobic Digestion Facility, transitioning EPR programs for Blue Box materials and HSP, and advocating for additional or enhanced EPR programs. The Region will also support this transition through increased public engagement (Objective 1) and other P&E activities.

Objective 3: Increase diversion of waste from disposal and support the circular economy.

Target 3A: Increase diversion of organics from disposal

Measurement: Increase Green Bin organics diversion by XX% by 2026 (2018: 41.1 kg Green Bin organics collected/capita)

Short-term Actions

- **3A1:** Develop, commission, and operate the Mixed Waste Pre-sort and Anaerobic Digestion Facility to divert organics from garbage, primarily from multi-residential buildings and also from single-family residences
- **3A2:** Launch an enhanced Green Bin program for single-family residences
- **3A3:** Encourage backyard composting by providing information about successful composting practices and promoting the Region’s sale of subsidized composters
- **3A4:** Expand collection services to more Regional facilities such as Long-Term Care homes to divert more organics

Mid-term Actions

- **3A5:** Increase the number of multi-residential buildings being serviced by the Region to divert more material

Target 3B: Revise Waste Management By-law 46-2011 to reflect changes to Regional collection and processing programs and services.

Measurement: Revise By-law by 2026

Short-term Actions

Objective 3: Increase diversion of waste from disposal and support the circular economy.

- **3B1:** Revise By-law to reflect transition of EPR programs and changes to the Region’s responsibilities regarding collection of materials such as Blue Box, EEE, HSP, batteries, definition of recycling receptacles, use/operation of the Material Recovery Facility, schedules, etc.
- **3B2:** Revise By-law to include a new section for the Mixed Waste Pre-sort and Anaerobic Digestion Facility and its operation/use
- **3B3:** Review options to service denser developments (e.g. smaller trucks, alternative collection containers, collection on one side of street, central collection areas etc.) to better service the multi-residential sector and make any necessary amendments to By-law and collection contracts as required

Target 3C: Develop a transition plan that supports EPR programs.

Measurement: Successful transition to EPR in 2024

Short-term Actions

- **3C1:** Work with producers to understand how programs will be rolled out and the impact on the Region
- **3C2:** Develop promotion and education campaigns, in collaboration with the producers, to inform residents of the programs’ transitions and educate them on changes to the programs
- **3C3:** Transition the program(s) to producers and make any required modifications to areas remaining under the Region’s responsibilities
- **3C4:** Explore opportunities to reuse or recycle materials not covered under the regulations for HSP (e.g. refillable propane cylinders, or fertilizer)
- **3C5:** Assess options for the Region’s MRF building and equipment
- **3C6:** Evaluate if changes to accepted materials or handling practices are required at WMFs to adapt to EPR regulations
- **3C7:** Evaluate if the Region will continue to provide recycling collection service to ineligible sources (i.e. small businesses in BIAs and other small businesses currently serviced in the curbside collection program)

Target 3D: Advocate for the expansion of existing EPR programs and for additional EPR programs to manage more materials.

Measurement: Number of advocacy efforts (e.g. letters, conversations, participation in related webinars/feedback sessions) towards new or expanded EPR programs for materials such as compostable packaging, mattresses, carpets, furniture, appliances, textiles, hard plastics, fertilizers, appliances, etc.

Short-term Actions

Objective 3: Increase diversion of waste from disposal and support the circular economy.

- **3D1:** Continue participation in the solid waste management committees of municipal advocacy organizations including Association of Municipalities in Ontario, the Regional Public Works Commissioners of Ontario, Municipal Waste Association, Circular Innovation Council, Canadian Biogas Association and Ontario Waste Management Association
- **3D2:** Continue to participate in consultation opportunities for proposed federal and provincial waste management changes

Mid to Long-term Actions

- **3D3:** Advocate to the Federal and Provincial governments for implementation of new producer responsibility programs to divert more materials from disposal
- **3D4:** Advocate for existing programs to be expanded (e.g., recycling, hazardous waste, electronics)
- **3D5:** Provide comments on any proposed producer responsibility programs to ensure Durham Region’s considerations are included in the development of regulations

10.4 Objective 4 Targets and Actions

The Region has developed a plan to reduce GHGs and the impact of climate change. Actions have been identified that will contribute to reducing the impact of waste management activities to the Region’s Corporate GHG emissions. Through municipal leadership, the Region will work with its partners to reduce GHG emissions.

Objective 4: Support the Region’s greenhouse gas reduction and climate change mitigation efforts.

Target 4A: Develop initiatives to offset or reduce GHG emissions from solid waste that contribute to Corporate GHG emissions.

Measurement: Annual actions to implement initiatives to reduce GHG emissions to contribute to the Corporate GHG emissions reduction target of 40 per cent below 2019 levels by 2030 (and 100 per cent below 2019 levels by 2045)

Short-term Actions

Objective 4: Support the Region’s greenhouse gas reduction and climate change mitigation efforts.

- **4A1:** Explore opportunities for a pilot program to convert contracted collection fleet vehicles to alternative fuels in advance of contract expiry
- **4A2:** Identify opportunities for conversion of biogas to RNG at Region-owned facilities (e.g., Mixed Waste Pre-sort and Anaerobic Digestion Facility, Water Pollution Control Plant)
- **4A3:** Identify additional methodologies which could be used to determine GHG emission reductions and avoidance associated with waste reduction, reuse, recycling and recovery that are not currently reflected in the Corporate GHG inventory
- **4A4:** Undertake additional analyses such as heat balance between Anaerobic Digestion Facility, Water Pollution Control Plant and DYEC and a review of better or higher uses of materials such as wood waste received at the Waste Management Facilities (WMFs)

Mid to Long-term Actions

- **4A5:** Develop a carbon emissions management plan in partnership with the Region’s Sustainability group
- **4A6:** Work with other Divisions (e.g., Purchasing, Facilities, Legal, Sustainability Office) to leverage the Region’s buying power to develop in-house circular economy initiatives
- **4A7:** Explore options for wind/solar installation at WMFs
- **4A8:** Explore opportunities to convert some or all fleet vehicles to alternative fuels in advance of contract expiry
- **4A9:** Assess material management from WMFs to evaluate operational practices (e.g., compaction, transfer) at WMFs that would reduce emissions from transportation

10.5 Objective 5 Targets and Actions

While it is envisioned that all of the actions described above would contribute to protecting or improving water, land and air quality in the Region, specific actions have been identified for the Waste Management Facilities and closed landfills in the Region.

Objective 5: Protect or improve water, land, and air quality in Durham Region.

Target 5A: Optimize the operation and utilization of Waste Management Facilities (WMFs).

Measurement: Annual actions to optimize operations at WMFs

Objective 5: Protect or improve water, land, and air quality in Durham Region.

Short-term Actions

- **5A1:** Explore options to optimize the Oshawa WMF (e.g., traffic, new indoor/outdoor facility)
- **5A2:** Develop actions to improve the diversion services at WMFs (e.g., fertilizer reuse, bulky plastics recycling, separation of renovation/construction materials)

Mid to Long-term Actions

- **5A3:** Explore options to optimize Brock and Scugog WMFs
- **5A4:** Evaluate business case to develop a new facility or smaller drop-off depots with consideration to under-serviced areas

Target 5B: Increase accessibility of waste management programs and services.

Measurement: Changes to operating hours and physical accessibility of WMFs

Short-term Actions

- **5B1:** Investigate extending hours of operation (i.e. open later in the evening, different/more days, seasonal hours) to make access to the WMFs more convenient for users, especially those who work more traditional hours (e.g. 9-5).
- **5B2:** Assess accessibility of WMFs (e.g. signage, access to containers, stairs, ramps etc.) to ensure they are physically accessible

Mid-term Actions

- **5B3:** Explore options for waste collection with accessibility considerations

Target 5C: Explore options to reduce environmental impacts of closed landfills and potential for future community use.

Measurement: Annual progress towards implementing alternative landfill cover systems at closed landfills and conversion for community use

Short-term Actions

- **5C1:** Maintain current landfill monitoring and perpetual care program while evaluating additional options to minimize landfill GHG generation and other environmental impacts.
- **5C2:** Evaluate outcome of pilot project at Oshawa Landfill for an alternative landfill biocover system

Mid to Long-term Actions

- **5C3:** Based on outcomes of Oshawa Landfill pilot project, evaluate potential to implement biocover at other Region-owned closed landfills
- **5C4:** Explore options to install solar covers at closed landfills
- **5C5:** Evaluate potential to rehabilitate closed landfills for community use

11 Measuring Performance

The Region, along with many other municipalities, has typically reported an annual diversion rate as a performance measure. As with other municipalities, the Region has seen its diversion rate stall, despite programs to reduce and divert waste due to factors outside its control such as climate events, consumer behaviour and changes to packaging.

Waste generation (the total amount of waste created) or garbage disposal (the waste that is disposed at DYEC or landfill) rates can more accurately capture the effect of reduction and reuse activities which divert materials from being managed by the Region's programs. These measurements are less impacted by changes outside the Region's control compared to diversion rates. Diversion rates can still be used, for historical perspective, but do not really measure progress towards meeting goals. It should be noted that it is unclear how the new Blue Box EPR program will impact diversion rates and it is not known how comparable diversion rates will be from 2024 onwards. It is also unclear whether the Region will still be reporting waste generation and diversion data on an annual basis to RPRA.

The Region will track performance on a number of measures on a regular basis through the monitoring of waste managed (i.e. tonnes of garbage and Green Bin organics). With the information available through tonnages collected, the Region can calculate a waste generation rate and a waste disposal rate.

Due to the uncertainty regarding how data will be collected and managed as part of EPR, and whether data will be available to the Region, it is recommended that the waste generation rate only include garbage, Green Bin organics, Leaf and Yard Waste, reuse programs and credits for composting and grasscycling. Using 2018 tonnage as the baseline year, the following rates were calculated, which will be used for monitoring progress:

- 2019 waste generation rate: 278 kilograms per capita
- 2019 garbage disposal rate: 173 kilograms per capita.

For some measurements, such as the quantities of food waste, textiles, durable goods, single-use plastics etc. found in the garbage, the Region will need to conduct periodic waste audits. Waste audits of garbage and Green Bins, along with observations of curbside setouts as necessary, will provide more detailed information about how residents are managing their materials, including reductions in divertible materials, or the presence of materials that can be diverted. These will be done at regular intervals, prior to any major change to a program (such as a relaunch of the Green Bin program) and then

at regular intervals following a program change to monitor progress. Generation rates should include those materials that the Region can influence, such as garbage and Green Bin organics. Materials such as Blue Box recyclables will be outside the Region’s control with the transition to EPR and it is unknown if the Region will have access to the data collected by RPRA to include in the generation rate. Similarly, generation of materials such as Leaf and Yard Waste are outside the control of the Region or residents and depend more on climatic conditions than consumer behaviour.

Table 13 summarizes the measurements that will be used to measure progress on meeting the Waste Plan targets.

Table 13: Targets and Measurements

Target	Measurement
Target 1A: Increase public engagement on the 5Rs through partnerships, increased accessibility, and different media	Year over year increase (from 2018 or action start date) measured through indicators such as # of classrooms using Region content, # myDurham311 contacts, # of Waste app subscribers, # of visits to webpages, # of views, number of languages materials are available in etc.
Target 2A: Support residents in making behavioural changes to reduce food waste	Reduce quantities of food waste by XX% as a per cent of all waste streams (from 2018 levels)
Target 2B: Support residents in making behavioural changes to reduce the amount of waste generated	Reduce quantities of materials generated such as durable goods, textiles and single-use plastics by XX% as a percent of all waste streams (from 2018 levels)
Target 3A: Increase diversion of organics from disposal	Increase organics diversion by XX% by 2026 (from 2018 levels)
Target 3B: Revise Waste Management By-law 46-2011 to reflect changes to Regional collection and processing programs and services	Revise By-law by 2026
Target 3C: Develop a transition plan that supports EPR programs	Successful transition to EPR in 2024

Target	Measurement
<p>Target 3D: Advocate for the expansion of existing EPR programs and for additional EPR programs to manage more materials</p>	<p>Number of advocacy efforts (e.g. letters, conversations, participation in related webinars/feedback sessions) towards new or expanded EPR programs for materials such as mattresses, carpets, furniture, appliances, textiles, hard plastics, fertilizers, appliances, etc.</p>
<p>Target 4A: Develop initiatives to offset or reduce GHG emissions from solid waste that contribute to Corporate GHG emissions</p>	<p>Annual actions to implement initiatives to reduce GHG emissions to contribute to the Corporate GHG emissions reduction target of 40 per cent below 2019 levels by 2030 (and 100 per cent below 2019 levels by 2045)</p>
<p>Target 5A: Optimize the operation and utilization of Waste Management Facilities (WMFs)</p>	<p>Annual actions to optimize operations at WMFs</p>
<p>Target 5B: Increase accessibility of waste management programs and services</p>	<p>Changes to operating hours and physical accessibility of WMFs</p>
<p>Target 5C: Explore options to reduce environmental impacts of closed landfills and potential for future community use</p>	<p>Annual progress towards implementing alternative landfill cover systems at closed landfills and conversion for community use</p>



12 Consultation

Two phases of consultation were undertaken during the development of the Waste Plan. The first phase of consultation, undertaken in 2020, was designed to solicit input on current and future challenges for waste management services, and feedback on the proposed Guiding Principles, Vision and Objectives. In 2021, consultation was undertaken to solicit feedback on the draft Waste Plan. Due to the COVID-19 pandemic, all consultation was virtual.

12.1 Phase 1 Consultation

Consultation was undertaken in 2020 to gain an understanding of the current and future challenges facing the Region and the LAMs regarding waste management and to provide input on the proposed guiding principles, vision and objectives. Themes heard included:

- Increasing diversion, particularly at Multi-residential buildings
- Improving communication and education
- More outreach
- Revisit set-out limits or consider alternate funding models (e.g. pay as you throw) to increase diversion
- Work with producers to implement EPR programs.

Feedback from advisory committees was also solicited on current/future challenges and the proposed guiding principles, vision and objectives. Topics discussed included:

- More promotion to increase participation
- Organics management (from collection to digestion)
- Materials in the recycling stream
- Encouraging manufacturers to use less packaging
- Making more information available on the Region's website about the LTWMP
- Recommendations for public outreach regarding the LTWMP

As a result of these discussions, the Region's website was updated to include more information about the LTWMP and its development. Additional outreach with the public was also undertaken, as described below.

In summer 2020, a virtual open house was made available on the Region's website with a survey for residents to provide input on the proposed guiding principles, vision and waste plan objectives. Feedback was also solicited on barriers to waste reduction and using the Region's programs and services, options to increase recycling and diversion, and how residents regularly receive information about the Region's waste programs and services. Regional residents had a lot to say, with over 2,000 surveys completed.

Highlights of the responses included:

- Over 70% supported the guiding principles and provided no additional comments
- 94% supported the proposed Vision
- Over 89% supported the proposed objectives
- Increase promotion and education to encourage participation
- Maximize reduction, reuse and diversion
- Introduce new or enhanced policies and by-laws
- Increase diversion in Multi-residential buildings
- Encourage research and development of new technologies and best practices.

As a result of the feedback received, the following changes were made:

- A new Guiding Principle was added to incorporate the concepts of rethinking, reducing and reusing as these were themes that residents felt strongly about.
- The Vision was reworded to include the concept of waste reduction and to make the process more collaborative – everyone working towards a common goal.
- A new Objective was added to reflect priorities of waste reduction and reuse, and also to engage residents in behaviour change.
- One of the Objectives was reworded for clarity as there appeared to be some confusion about the intention of the Objective.

The guiding principles, vision and objectives were approved by Council in 2021 and formed the basis for the development of the LTWMP.

The following table presents the consultation activities held in 2020.

Table 14: Summary of 2020 Consultation Activities

	Phase 1 Consultation
Regional Staff Workshop	April 16, 2020
Local Area Municipalities Workshop	May 28, 2020
Regional Advisory Committee Meetings	
Durham Agriculture (DAAC)	June 9, 2020
Durham Environmental (DEAC)	June 18, 2020
Durham Region Roundtable on Climate Change (DRRCC)	June 19, 2020
Energy from Waste - Waste Management Advisory Committee (EFW-WMAC) – two meetings	July 15, 2020 November 18, 2020
Public Events	
Virtual open house and online survey	August 19 to October 30, 2020
Virtual town hall	November 8, 2020

12.2 Phase 2 Consultation

Phase 2 consultation commenced in Spring 2021 to solicit input on the draft Waste Plan and 5-Year Action Plan. The Region published a short survey on its website in April 2021 to get feedback on how residents manage materials currently, and how they might use waste reduction programs/services, and what future programs/services they would be interested in.

The Region consulted with Regional and Local Area Municipal staff, as well as with the Regional Advisory Committees in May/June 2021 on the draft Targets and Actions.

The following table presents the consultation activities held in 2021.

Table 15: Summary of 2021 Consultation Activities

	Phase 2 Consultation
Regional Staff/Local Area Municipalities Workshop	May 19, 2021
Regional Advisory Committee Meetings	
Energy from Waste - Management Advisory Committee (EFW-WMAC)	May 25, 2021
Durham Agriculture (DAAC)	June 8, 2021
Durham Environmental (DEAC)	June 17, 2021

	Phase 2 Consultation
Durham Region Roundtable Waste on Climate Change (DRRCC)	June 18, 2021
Energy from Waste - Management Advisory Committee (EFW-WMAC)	May 25, 2021
Public Events	
Online Survey	April 2021
Virtual open house and online survey	September 21 – October 25, 2021
Virtual town hall	October 19, 2021

13 Conclusion

Durham Region is poised to implement a number of innovative strategies that will contribute to reducing and diverting waste and reducing GHG emissions. These strategies will be enhanced by the collective efforts of Durham Region residents in making changes to how they think about and manage waste. The next five years will see significant changes to how waste is managed in the Region, which will contribute to the collective goals of a circular economy and recognizing waste as a resource. With the next update of the Waste Plan, targets and actions will be reviewed and reset as necessary, to enable the Region to continue to be a leader in municipal waste management.